Document 00010 **(REVISED 11/19/21)**

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NOTE: Capitalized Specification Sections are included in https://edocs.publicworks.houstontx.gov/engineering-and-construction/specifications.html ; and are incorporated in Project Manuals by reference as if copied verbatim. Documents listed "for filing" are to be provided by Bidder and are not included in this Project Manual unless indicated for example only. The Document numbers and titles hold places for actual documents to be submitted by Contractor during Bid, post-bid, or construction phase of the Project. Specification Sections marked with an asterisk (*) are amended by a supplemental specification, printed on blue paper and placed in front of the Specification it amends. Documents in the 200, 300 and 400 series of Division 00, except for Document 00410B – Bid Form, Part B, are not part of the Contract.

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No. **Document Title**

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No. **Document Title**

SPECIFICATIONS

Doc.
No. **Document Title**

END OF DOCUMENT

HOU-TERMINAL - SECURITY EXIT LANE

SECURE EXIT LANE BREACH CONTROL

WILLIAM P. HOBBY AIRPORT

7800 AIRPORT BLVD.

HOUSTON, TX 77061

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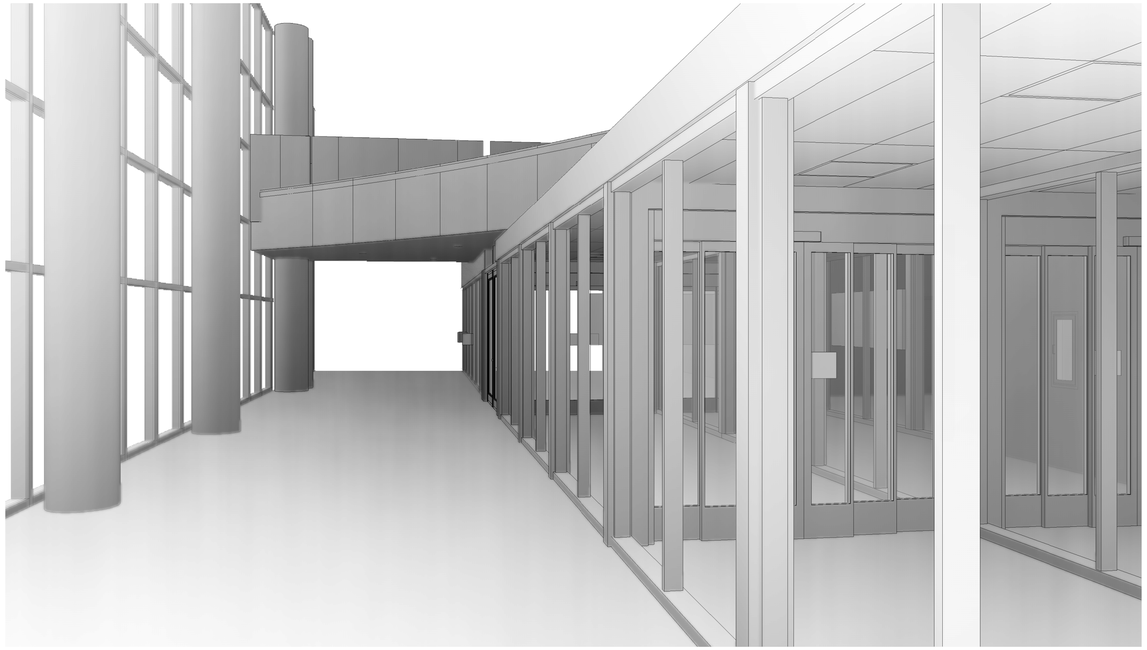

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PROJECT No. 1004345

11-19-21

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DEPARTMENT OF AVIATION
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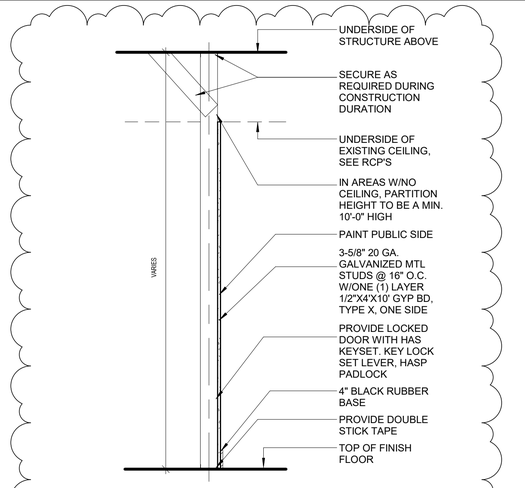
HAS TIP 21-157 - IAH

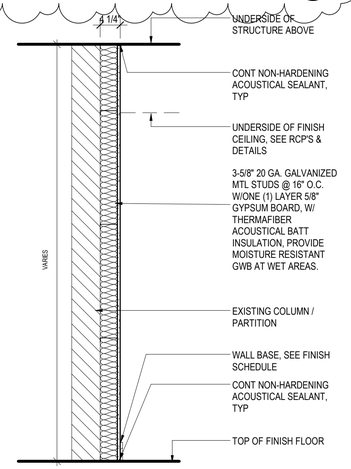
PROJECT NUMBER
1004345

SHEET TITLE
COVER SHEET / SHEET INDEX

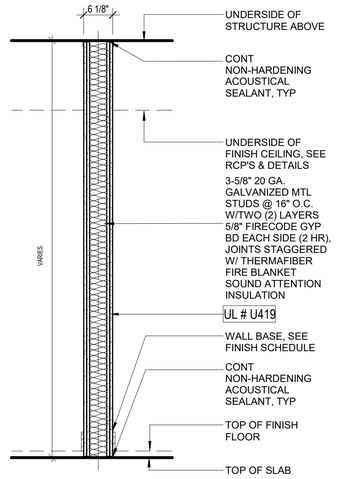
SHEET NUMBER
G000



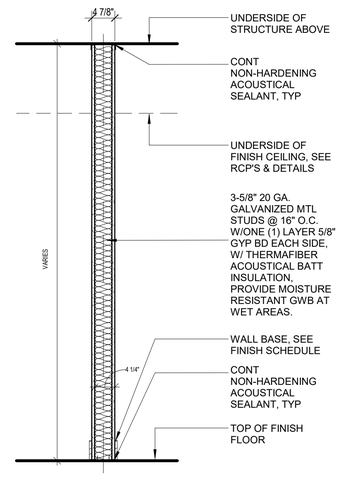
F9 NON-RATED DUST WALL PARTITION 3/4" = 1'-0" (5)



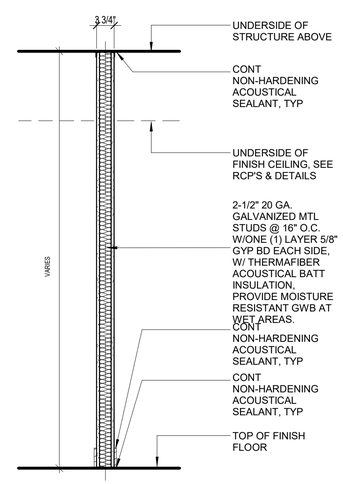
B7.1 FURRING WALL PARTITION 3-5/8" STUD 3/4" = 1'-0" (4)



B2.1 RATED PARTITION1 3/4" = 1'-0" (2)



B1.3 NON-RATED PARTITION 3-5/8" STUD1 3/4" = 1'-0" (3)

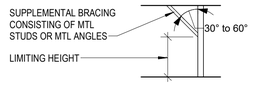


B1.1 NON-RATED PARTITION 2-1/2" STUD1 3/4" = 1'-0" (1)

COLD FORMED FRAMING NOTES

ALL METAL STUDS TO BE 20 ga. AND PLACED AT 16 INCHES O.C. UNLESS NOTED OTHERWISE OR WHERE THE LIMITING HEIGHT REQUIRES 16ga AT 16" O.C.

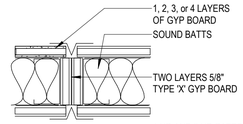
1. ALL FURRING CHANNELS TO BE 25 ga. AND PLACED AT 16 INCHES O.C. UNLESS NOTED OTHERWISE.
2. PARTITIONS SUPPORTING WALL HUNG PLUMBING FIXTURES SHALL BE 16 ga. AND PLACED 16 INCHES O.C.
3. REFER TO STRUCTURAL DRAWINGS FOR STUD ga. SIZE AND SPACING FOR ALL STRUCTURALLY DESIGNED PARTITIONS.
4. REFER TO ASTM C754 FOR LIMITING HEIGHTS CRITERIA. LIMITING HEIGHTS ARE TO BE DETERMINED BY DEFLECTION CRITERIA RATIO OF L/240, AND LATERAL PRESSURE OF 5 PSF UNLESS NOTED OTHERWISE OR DICTATED OTHERWISE BY PRESIDING BUILDING CODE. WHERE FLOOR TO STRUCTURE HEIGHT OF PARTITION EXCEEDS THE INDICATED LIMITING HEIGHT, PROVIDE SUPPLEMENTAL BRACING TO THE STRUCTURE OVERHEAD AS REQUIRED TO MAINTAIN REQUIRED DEFLECTION RATIO.
5. FOR PARTITIONS WITH "BRITTLE" FINISHES SUCH AS PLASTER AND CERAMIC TILE, DESIGN PARTITION SYSTEM TO MAINTAIN DEFLECTION RATIO WITHIN L/360. SUSPENDED CEILINGS SHALL NOT BE CONSIDERED AS BRACING.



ACOUSTICAL NOTES

1. ALL ACOUSTICALLY CLASSED PARTITIONS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE TO THE REFERENCED TEST.
2. STAGGER AND SEAL ALL JOINTS ON MULTIPLE GYPSUM BOARD LAYER PARTITIONS.
3. SEAL ALL PERIMETER GAPS, AIR TIGHT, AT THE FLOORS, HEAD, ADJACENT CONSTRUCTION AND AROUND ANY PENETRATING ELEMENTS WITH INTERIOR GRADE ACOUSTICAL SEALANT.
4. ALL BATTS AND BLANKETS IN RATED WALLS MUST BEAR THE REQUIRED U.L. CLASSIFICATION MARKING AS TO FIRE-RESISTANCE. ALSO REFER TO CODE COMPLIANCE DETAILS IN G010 SERIES.
5. AT ACOUSTICALLY RATED PARTITIONS, DO NOT FILL THE STUD CAVITY (DEPTH) FULLY WITH SOUND BATTS. THE WIDTH OF THE SOUND BATTS SHOULD BE SLIGHTLY SMALLER THAN CAVITY TO AVOID BATTS COMPRESSION. HOWEVER, THE ENTIRE LENGTH AND HEIGHT OF THE WALL SHOULD HAVE CONTINUOUS AND UNINTERRUPTED SOUND ATTENUATION BATTS.
6. SEAL ALL WALL INTERSECTIONS AND CONTROL JOINTS AT ACOUSTICALLY CLASSED PARTITIONS
7. SEAL ALL CONDUIT, STRUCTURAL, DUCT AND LARGE PIPE PENETRATIONS UNLESS THE PARTITION IS ALSO FIRE RATED WHERE THE CODE COMPLIANCE DETAILS
8. OUTLETS ON OPPOSITE SIDES OF ACOUSTICALLY CLASSED PARTITIONS .

FIREWALL CONTROL JOINTS



FIRE RATING NOTES

1. UNDERWRITERS LABORATORY AND OTHER TESTING AGENCY DESIGNATIONS INDICATED FOR FIRE RESISTIVE CONSTRUCTION ARE GIVEN FOR PURPOSES OF DESCRIBING CONSTRUCTION REQUIREMENTS ONLY AND ARE NOT INTENDED TO LIMIT MANUFACTURERS OF MATERIALS. COMPLY WITH THE CONSTRUCTION REQUIREMENTS OF THE INDICATED DESIGN.
2. ALL PARTITION TYPES SHOWN HERE ARE DRAWN AS "NON FIRE-RATED". WHERE FIRE RESISTIVE WALL CONSTRUCTION IS INDICATED, ON THE FLOOR PLANS, PROVIDE "TYPE X" GYPSUM WALLBOARD, AND FIRE RATED SEALANT AT PERIMETER JOINTS AND ALL PENETRATIONS, TYPICAL BOTH SIDES OF PARTITION AS INDICATED ON THE U.L. DETAILS AND ASSEMBLIES.
3. REFER TO SHEET G010 FOR U.L. LISTED ASSEMBLIES.

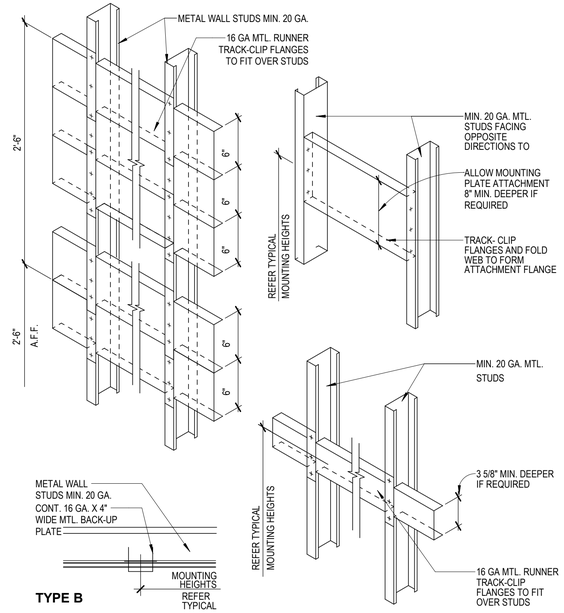
GYPSUM BOARD PARTITION PRIORITY LEGEND

PARTITION	DOOR RATING	PRIORITY
FOUR HOUR FIRE PARTITION	3 HOUR - A LABEL	PRIORITY 1 - HIGHEST
TWO HOUR FIRE/SMOKE PARTITION	1 1/2 HOUR - B LABEL	PRIORITY 2
TWO HOUR FIRE PARTITION	1 1/2 HOUR - B LABEL	PRIORITY 3
ONE HOUR FIRE/SMOKE PARTITION	3/4 HOUR - C LABEL	PRIORITY 4
ONE HOUR FIRE PARTITION	3/4 HOUR - C LABEL	PRIORITY 5
ONE HOUR FIRE PARTITION	20 MIN RATING	PRIORITY 6
NON-RATED PARTITION	NONE	PRIORITY 7 - LOWEST

GENERAL NOTES

1. ALL POSSIBLE VARIATIONS OF PARTITIONS TYPES AND U.L. FIRE RATINGS ARE NOT NECESSARILY UTILIZED IN THIS PROJECT AND ARE SHOWN FOR REFERENCE ONLY UNLESS RATED PARTITIONS ARE INDICATED ON THE FLOOR PLANS. WHERE U.L. RATED PARTITIONS ARE INDICATED, REFER TO FLOOR PLANS AND PROVIDE FIRE SEALANT AT THOSE LOCATIONS AS REQUIRED.
2. WHERE FULL HEIGHT PARTITIONS ARE PERPENDICULAR TO SPAN OF STRUCTURAL JOISTS OR GIRDERS, THE PARTITION SHALL EXTEND TO THE UNDERSIDE OF STRUCTURE AND FOLLOW THE LINE OF STRUCTURE.
3. PROVIDE CEMENTITIOUS BACKER BOARD ON ALL WALLS TO RECEIVE CERAMIC TILE FINISH. PROVIDE WATER RESISTANT GYPSUM PANELS ON CEILINGS IN ROOMS THAT INCLUDE SHOWERS. FRAMING NOT TO EXCEED SPACING RECOMMENDED BY MANUFACTURER.
4. PROVIDE ONE LAYER OF 5/8" MOISTURE RESISTANT GYPSUM BOARD AT WALLS BEHIND SINKS AND LAVATORIES WITHOUT TILE. MOISTURE RESISTANT GYPSUM BOARD SHALL BE INSTALLED WITHIN 2' OF ALL URINALS AND WATER CLOSETS, TO A HEIGHT OF 4' AFF.
5. WHERE FIRE RESISTIVE CONSTRUCTION IS INDICATED, PROVIDE TYPE X-W/R BOARD. IN CONDITIONS WHERE NOTE 3 AND 4 APPLY, INSTALL 1 LAYER OF APPLICABLE MOISTURE RESISTANT BOARD OR CEMENTITIOUS BACKER BOARD OVER THE TYPE X- W/R BOARD. INSTALL PER MANUFACTURER LIMITATIONS.
6. STC RATINGS SHOWN FOR SOUND WALLS ARE BASED ON LABORATORY TESTED ASSEMBLIES AND DO NOT NECESSARILY INDICATE THE ACTUAL STC RATING OF THE COMPLETED WORK. PROVIDE MTL. DECK FILLERS WHERE FULL HEIGHT PARTITIONS ARE PERPENDICULAR TO SPAN OF DECK. DECK FILLERS ARE TO BE COMPATIBLE WITH ALL FIRE RATED ASSEMBLIES AND ARE TO BE APPROVED BY ALL GOVERNING AGENCIES.
7. PROVIDE FIRE TREATED WOOD BLOCKING, SHEET METAL OR STEEL BACKING IN PARTITIONS TO SUPPORT WALL MOUNTED ITEMS AND EQUIPMENT, ETC.
8. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

PARTITION DETAILS



TYPE B

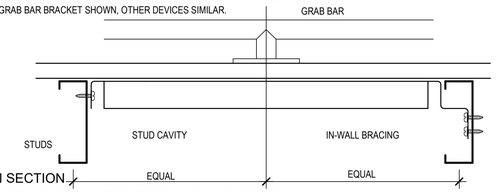
MOUNTING SUPPORT DETAILS

SCALE: NONE

PROVIDE IN-WALL BRACING IN ALL PARTITIONS OR EXTERIOR WALLS WHERE GRAB BARS, HANDRAILS, SHOWER SEATS OR OTHER EQUIPMENT ANCHORS TO METAL STUD WALLS AND IN OTHER LOCATIONS AS NOTED ON THE DRAWINGS.

CENTER STUDS ABOUT THE LOCATION OF THE DEVICE ANCHOR POINT.

GRAB BAR BRACKET SHOWN, OTHER DEVICES SIMILAR.

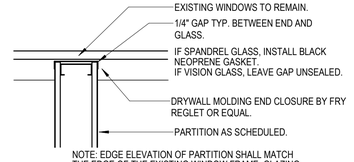


PLAN SECTION

IN-WALL BRACING SHALL BE NO LESS THAN A 6" x 1 1/4" x 14 GUAGE CHANNEL, STEEL Fy = 50ksi, AND SHALL SUPPORT A 250 POUND GRAVITY LOAD CONCENTRATED AT ANY POINT ON THE DEVICE BEING ANCHORED.

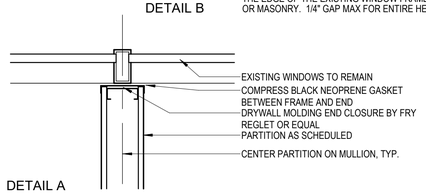
16 GA.x4" WIDE MTL BACKUP PLATE MAY BE USED

IN-WALL BRACING



NOTE: EDGE ELEVATION OF PARTITION SHALL MATCH THE EDGE OF THE EXISTING WINDOW FRAME, GLAZING, OR MASONRY. 1/4" GAP MAX FOR ENTIRE HEIGHT.

DETAIL B



DETAIL A

PARTITION AT MULLION DETAILS

SCALE: NONE

CLIENT

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KENNEDY BLVD.
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REGISTRATION

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DRAWING HISTORY

№	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

PARTITION TYPES

SHEET NUMBER

A011

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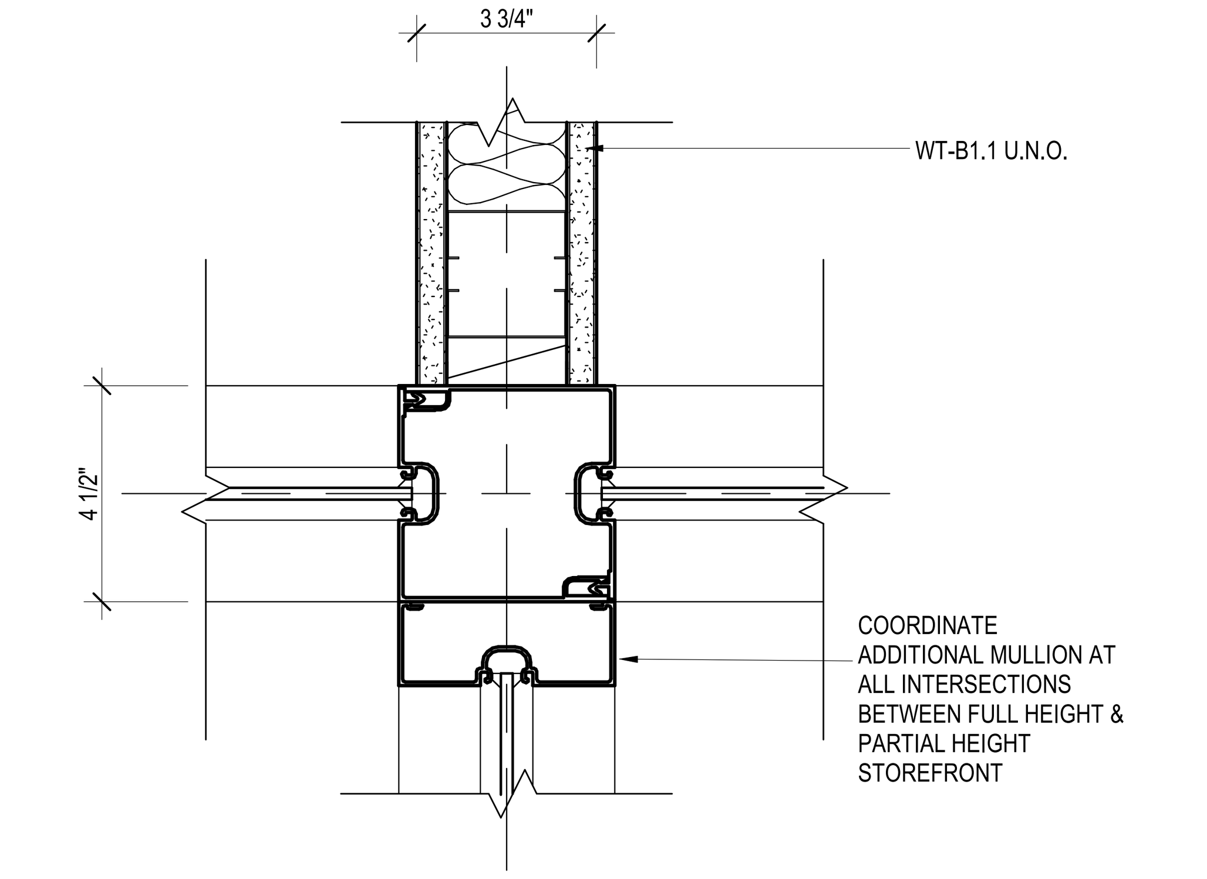
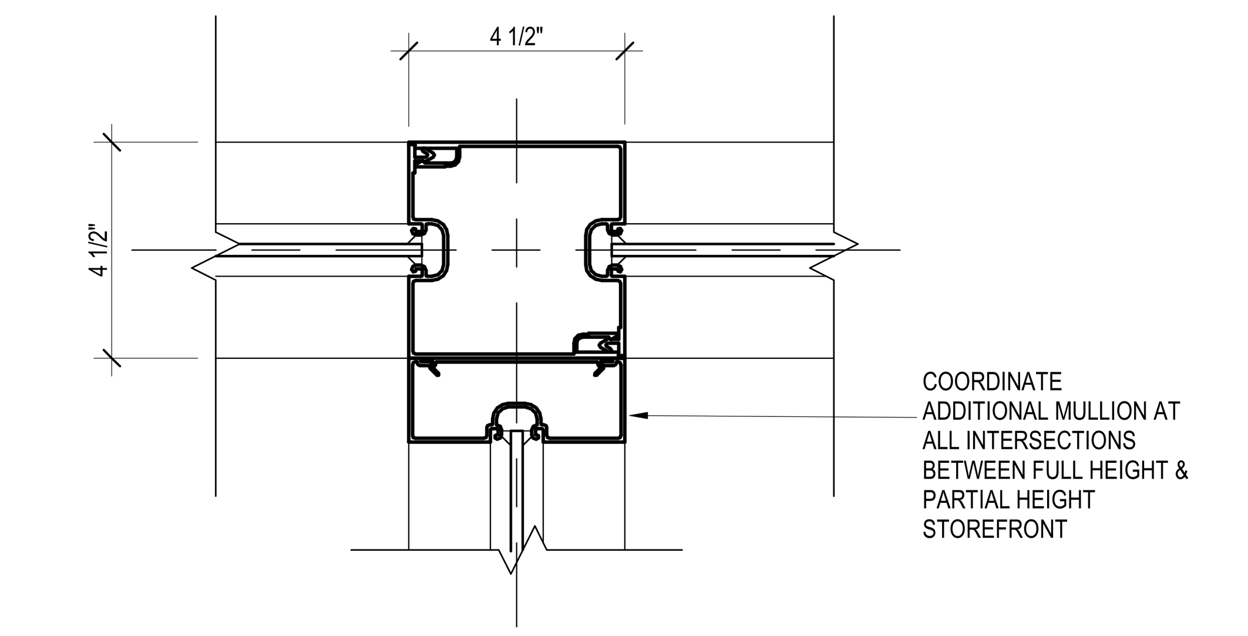
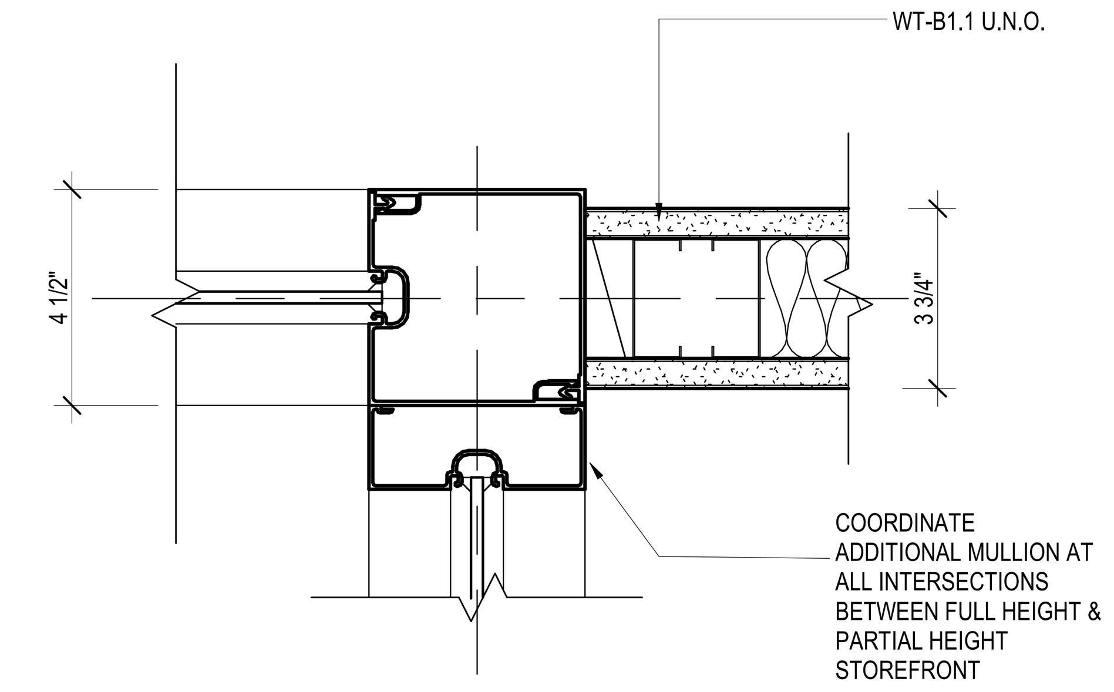


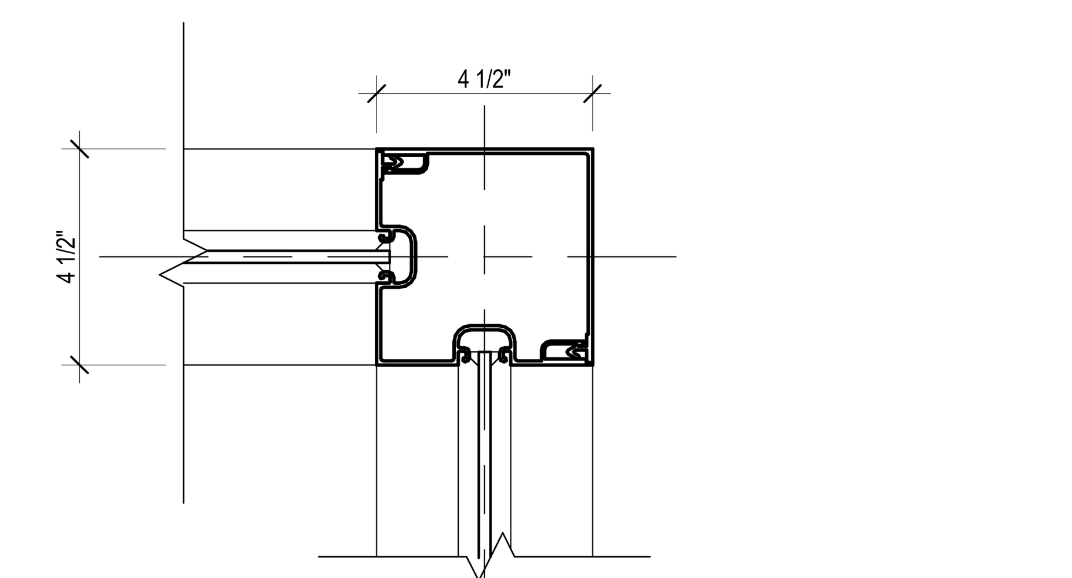
MULLION AT INTERSECTION 3" = 1'-0" (12)



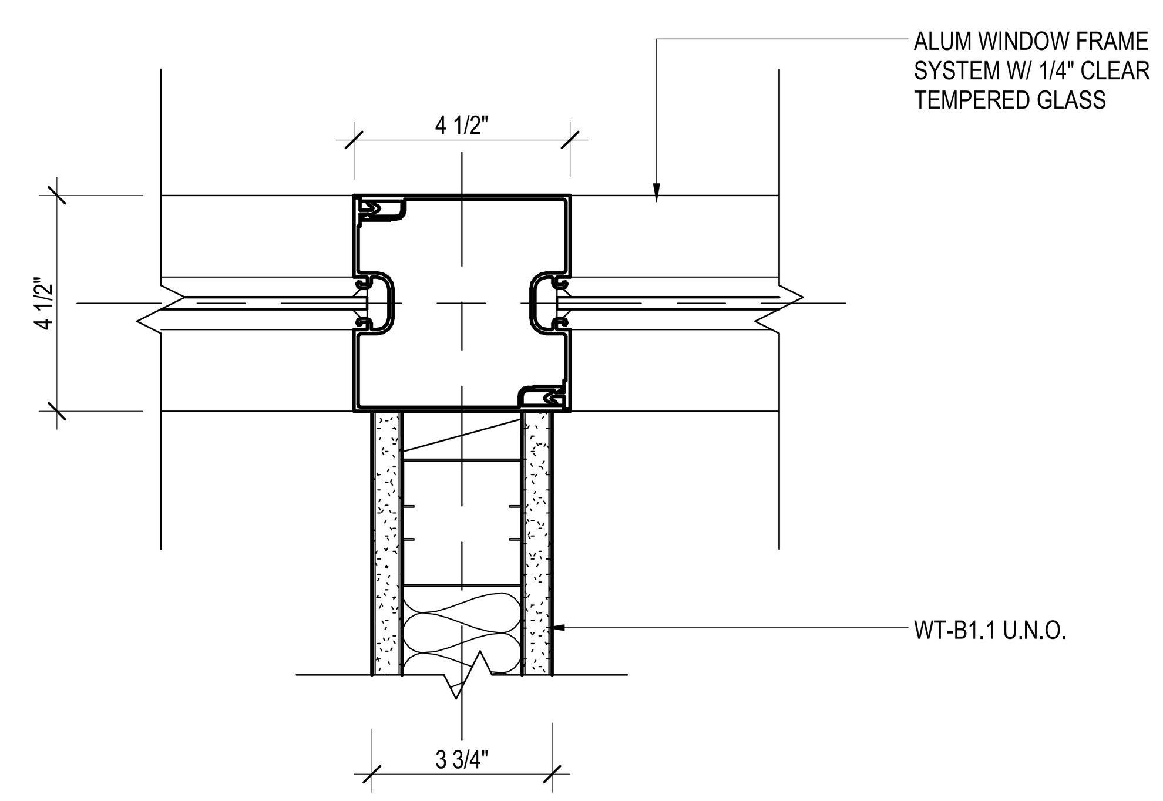
MULLION AT INTERSECTION 3" = 1'-0" (9)



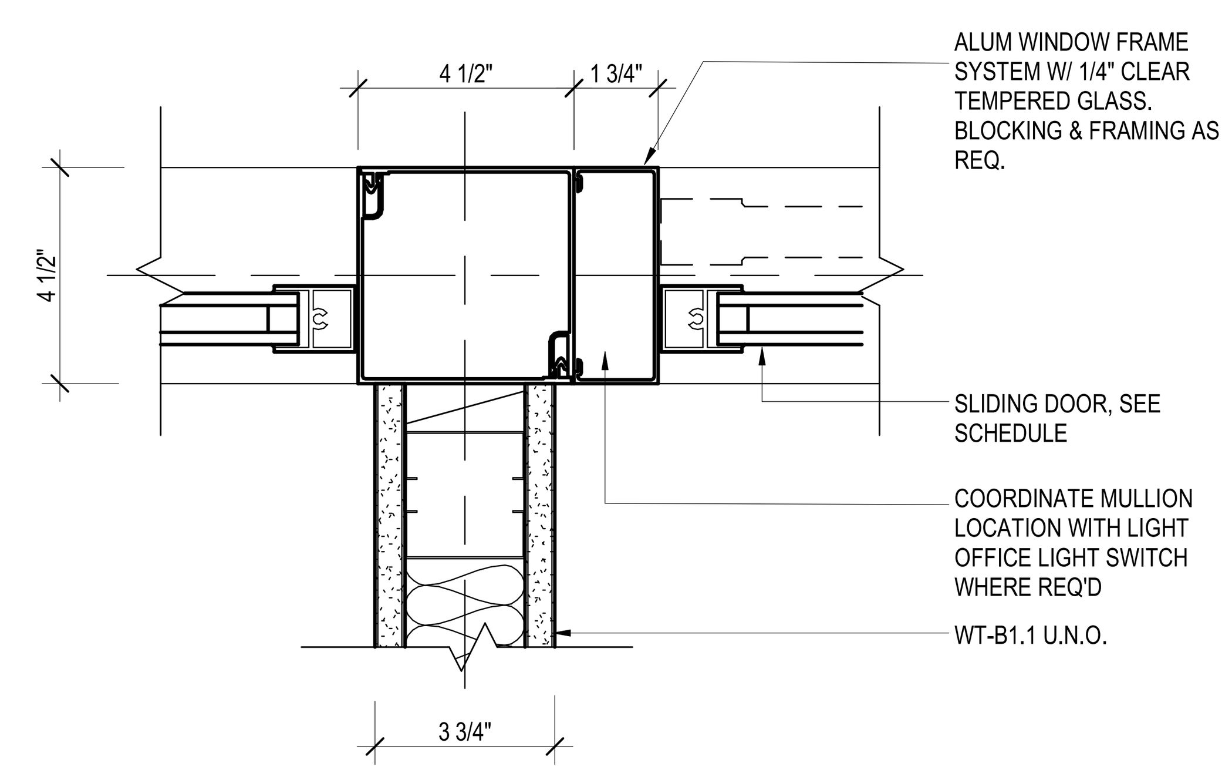
MULLION AT INTERSECTION 3" = 1'-0" (6)



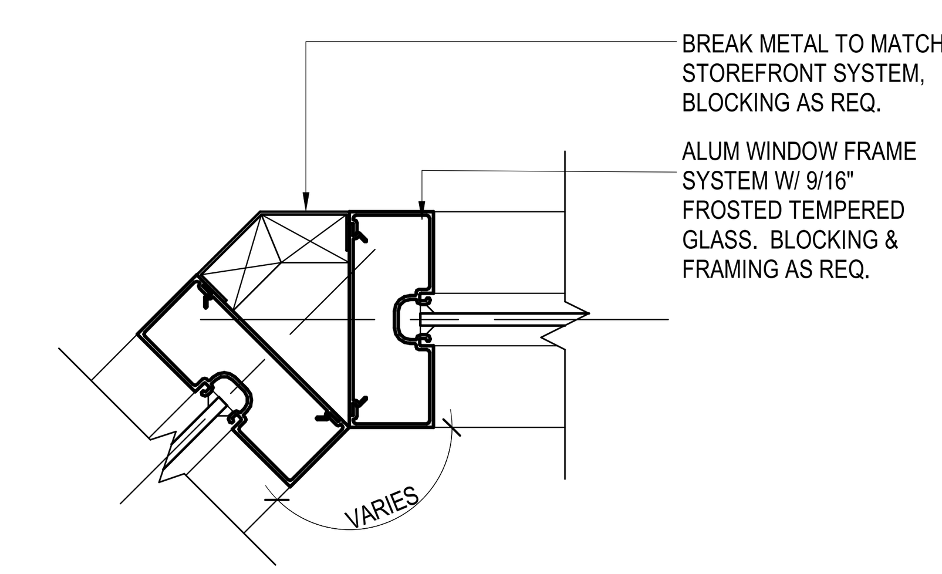
MULLION AT CORNER 3" = 1'-0" (3)



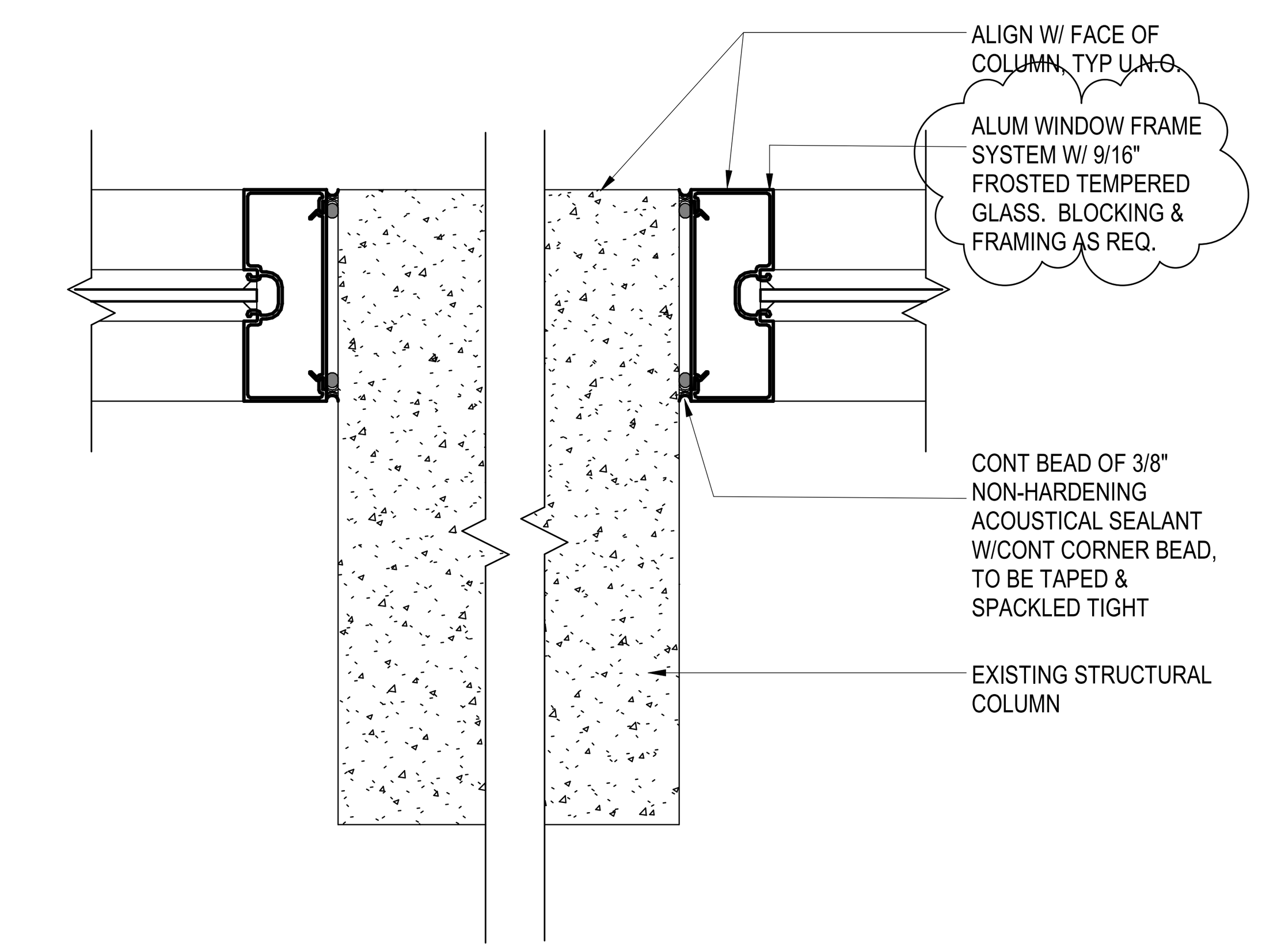
MULLION AT DIVIDING WALL 3" = 1'-0" (11)



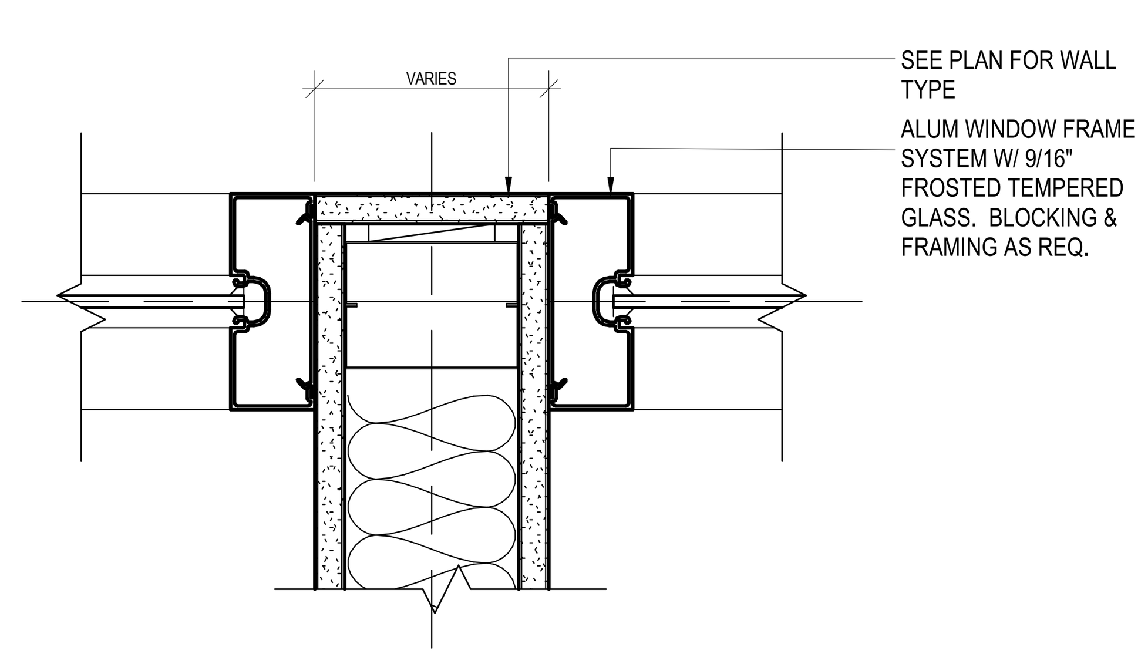
MULLION AT SLIDING DOORS & DIVIDING WALL 3" = 1'-0" (8)



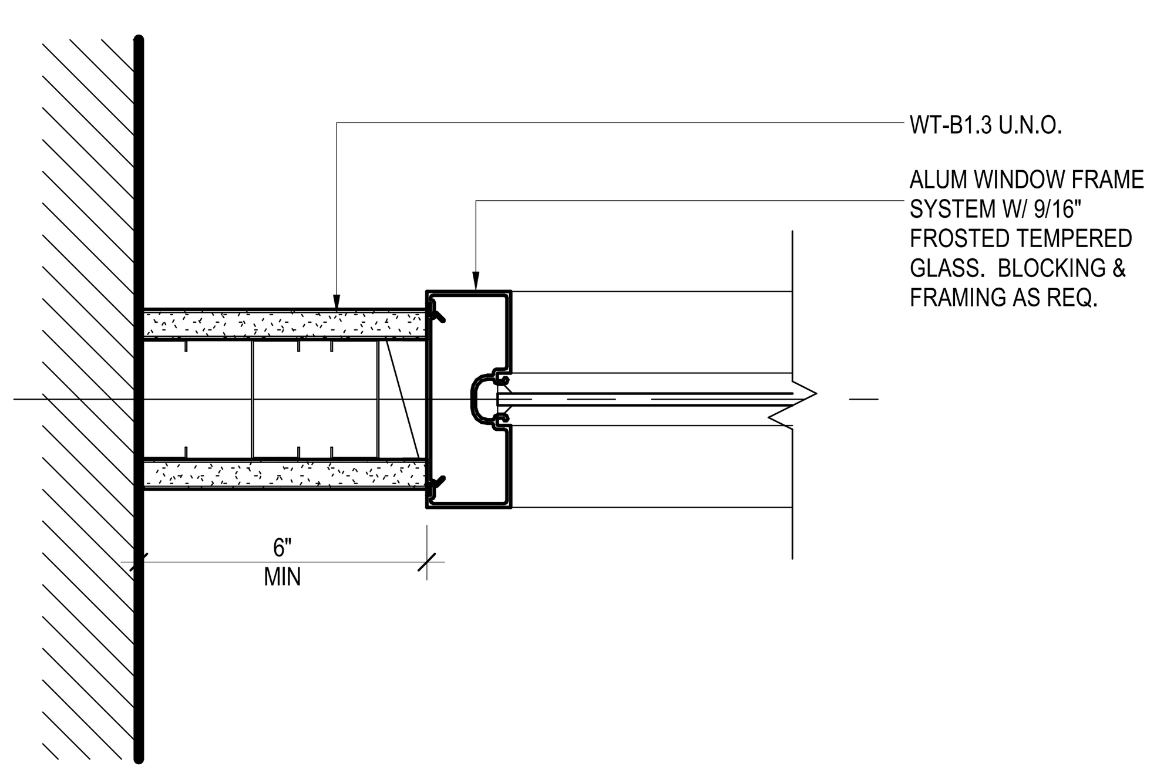
CUSTOM BREAK METAL DETAIL 3" = 1'-0" (5)



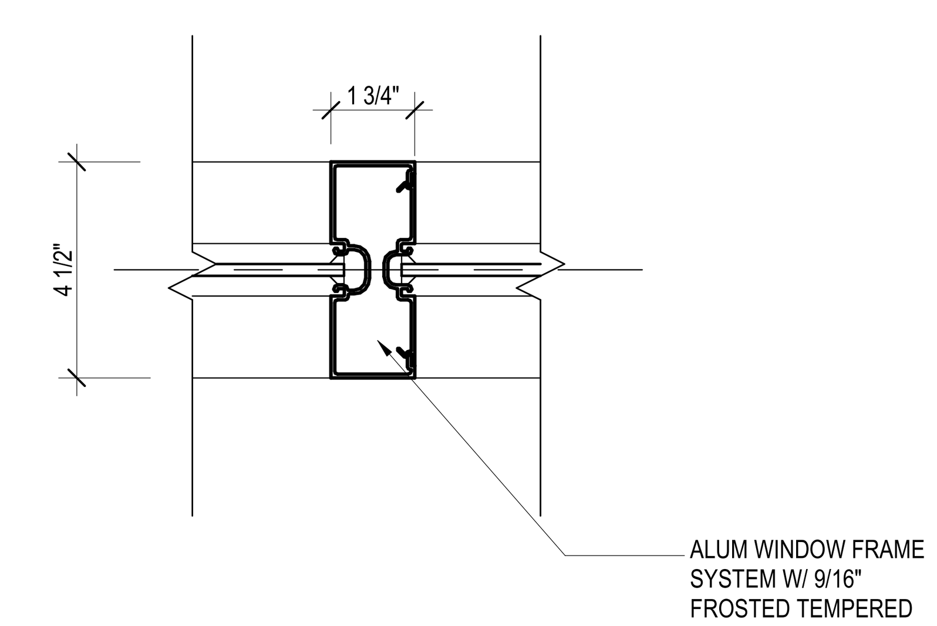
MULLION AT COLUMN 3" = 1'-0" (2)



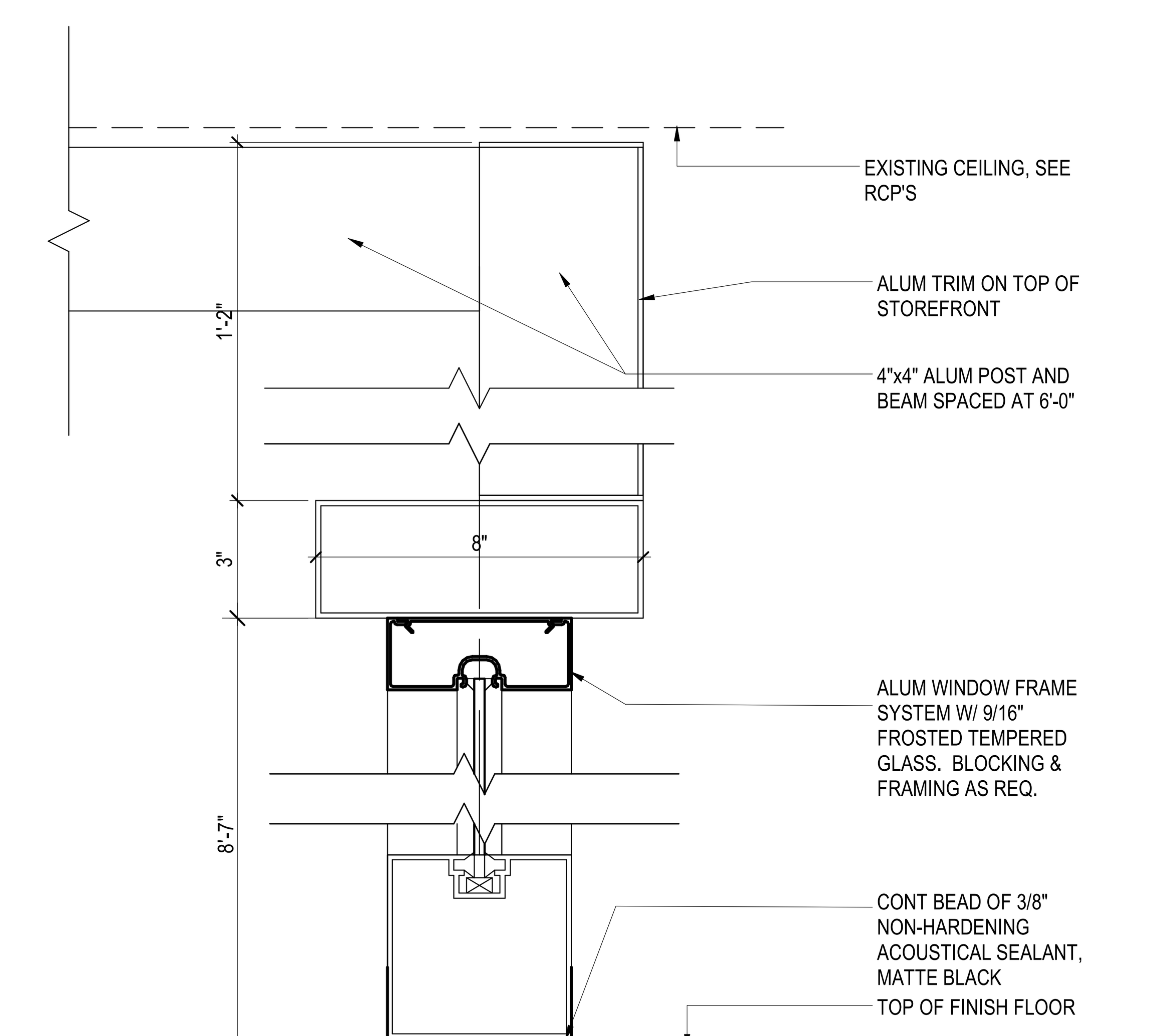
MULLION AT DIVIDING WALL 3" = 1'-0" (10)



MULLION AT PERIMETER WALL 3" = 1'-0" (7)



TYPICAL MULLION DETAIL 3" = 1'-0" (4)



FULL HEIGHT STOREFRONT SYSTEM 3" = 1'-0" (1)

3

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7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

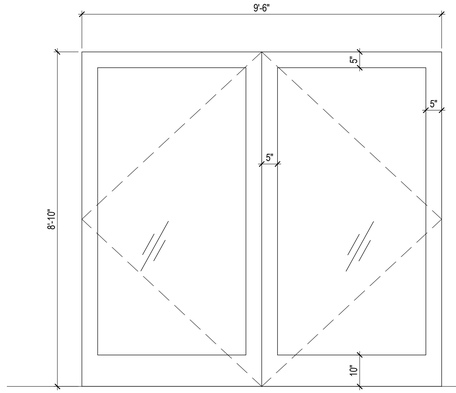
SHEET TITLE
STOREFRONT DETAILS

SHEET NUMBER
A013

DOOR SCHEDULE

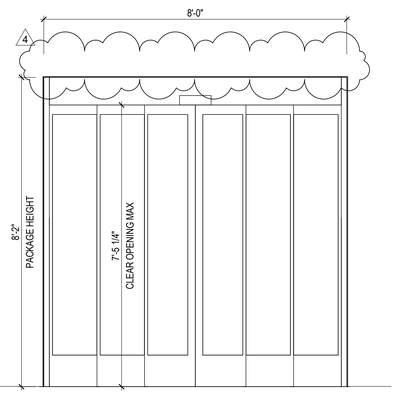
Mark	Panel Size Width	Height	THK	Matl	Panel	Finish	Frame Matl	Type	Finish	Details on A0.35 UNO Jamb	Head	Sill	General Fire Rating	HDWR	Remarks
										4					
101	9'-6"	8'-10"	--	GL	DS	GL1	AL	002	PT1	2/A035	2/A035	2/A035		1 / 1A	
102	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
103	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
104	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
105	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
106	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
107	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	

3



GL-DS

STORE FRONT-DOUBLE SWING - FULL STYLE ENTRY DOORS



GL-MS

STORE FRONT-MULTIPLE SLIDING - FULL STYLE ENTRY DOORS

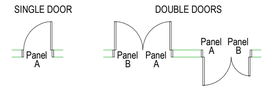
DOOR PANEL TYPES 1/2" = 1'-0" 4

3

GENERAL NOTES

A. PROVIDE UNDERCUT AS REQUIRED FOR THRESHOLD MECHANICAL REQUIREMENTS.
B. PROVIDE TEMPERED GLASS WHERE REQUIRED BY CODE.
C. PROVIDE SILICONE SEALANT OVER BACKER ROD AT ALL EXTERIOR FRAMES.
D. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
E. ALL HOLLOW METAL FRAMES TO BE WELDED FRAMES.
F. SEE SHEETS A0.020 FOR FINISHES AND MATERIAL LEGENDS.
G. USE GRAY GASKETS AT ALL GLASS DOORS UNLESS NOTED OTHERWISE.
H. ALL ALUMINUM DOOR FRAMES TO BE CLEAR ANODIZED AS SPECIFIED U.N.O.
I. ALL EXIT HARDWARE TO BE TIED TO FIRE ALARM SYSTEM

DOOR PANEL LEGEND



PANEL "A" WILL ALWAYS BE FROM LEFT HINGE SWINGING OUTWARD.

FRAME MATERIALS

AL - Aluminum

HM - Hollow Metal

WD - Wood

FRAME CONFIGURATION

Transom:
0 - No Transom
1 - Transom

Sidelite:
0 - No Sidelite
1 - 1 Sidelite
2 - 2 Sidelites, 1 each side or both

Frame Config:
1 - 2" Jamb/Head Wraps Wall
2 - 2" Jamb/Head, Mfr Standard
3 - 2" Jamb, 4" Head, Masonry
4 - ---
5 - Transom & Sidelites Both Sides
6 - Sidelite On Either Side
S - Sliding Door Frame

Frame Legend: X ###

- Frame Configuration
- Side Lite
- Transom
- Material

DOOR PANEL MATERIALS

AL - Aluminum

WD - Wood

GL - Glass

PL - Plastic Laminate

DOOR PANEL TYPES

F - Flush Panel, Single
DF - Flush Panel, Double
SS - Storefront Panel, Single
DS - Storefront Panel, Double
MS - Storefront Panel, Multiple (More than 2)

Door Panel Legend: XX - XX

- Panel Type
- Panel Material

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DEPARTMENT OF AVIATION
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HOUSTON AIRPORT SYSTEM
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HAS TIP 21-157 - IAH

REGISTRATION

REGISTERED ARCHITECT STATE OF TEXAS
11-19-2021

DRAWING HISTORY

Nr.	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

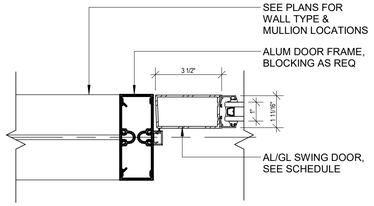
SHEET TITLE

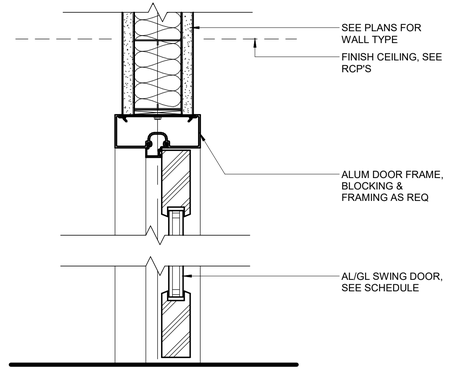
DOOR SCHEDULE

SHEET NUMBER

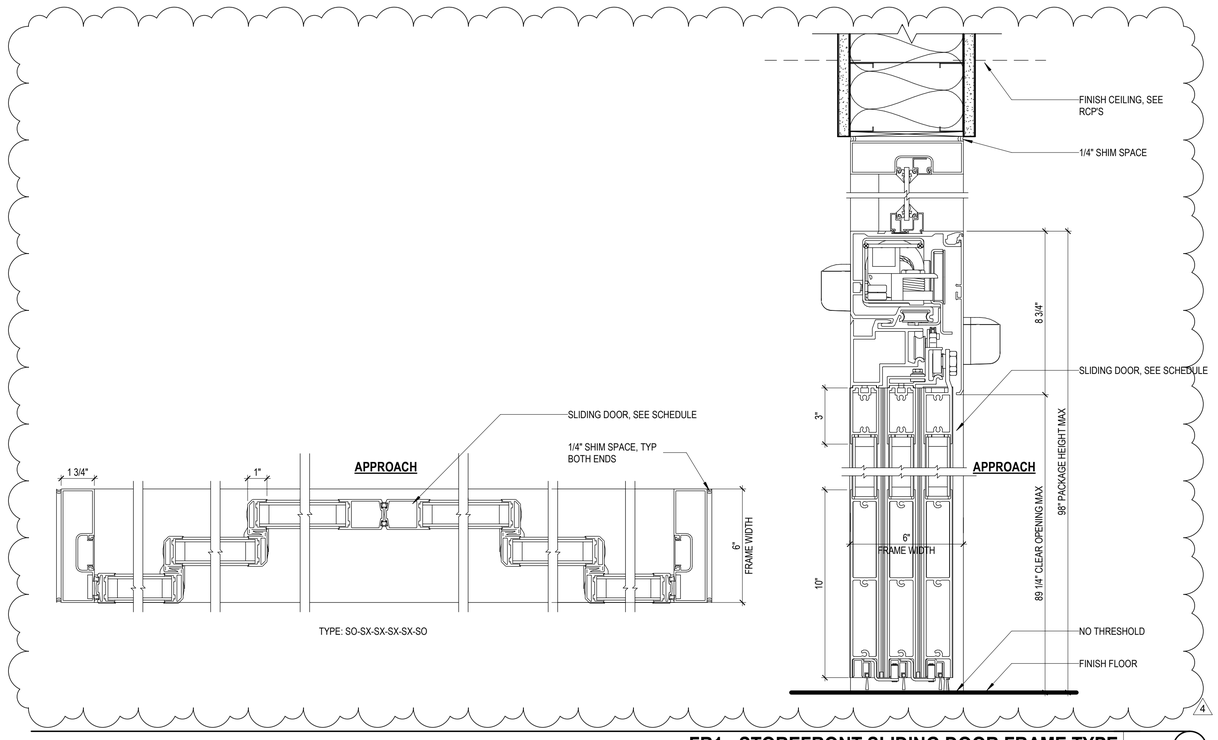
A030

FILE NAME: C:\@RevitLocals\HOU-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
DATESTAMP: 11/16/2021 9:10:21 AM





FR2 - STOREFRONT SWING DOOR FRAME TYPE 3" = 1'-0" (2)



FR1 - STOREFRONT SLIDING DOOR FRAME TYPE 3" = 1'-0" (1)

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REGISTRATION

REGISTERED ARCHITECT STATE OF TEXAS 11-19-2021

DRAWING HISTORY

Nr.	DATE	DESCRIPTION
1	08-06-21	100% CD
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3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

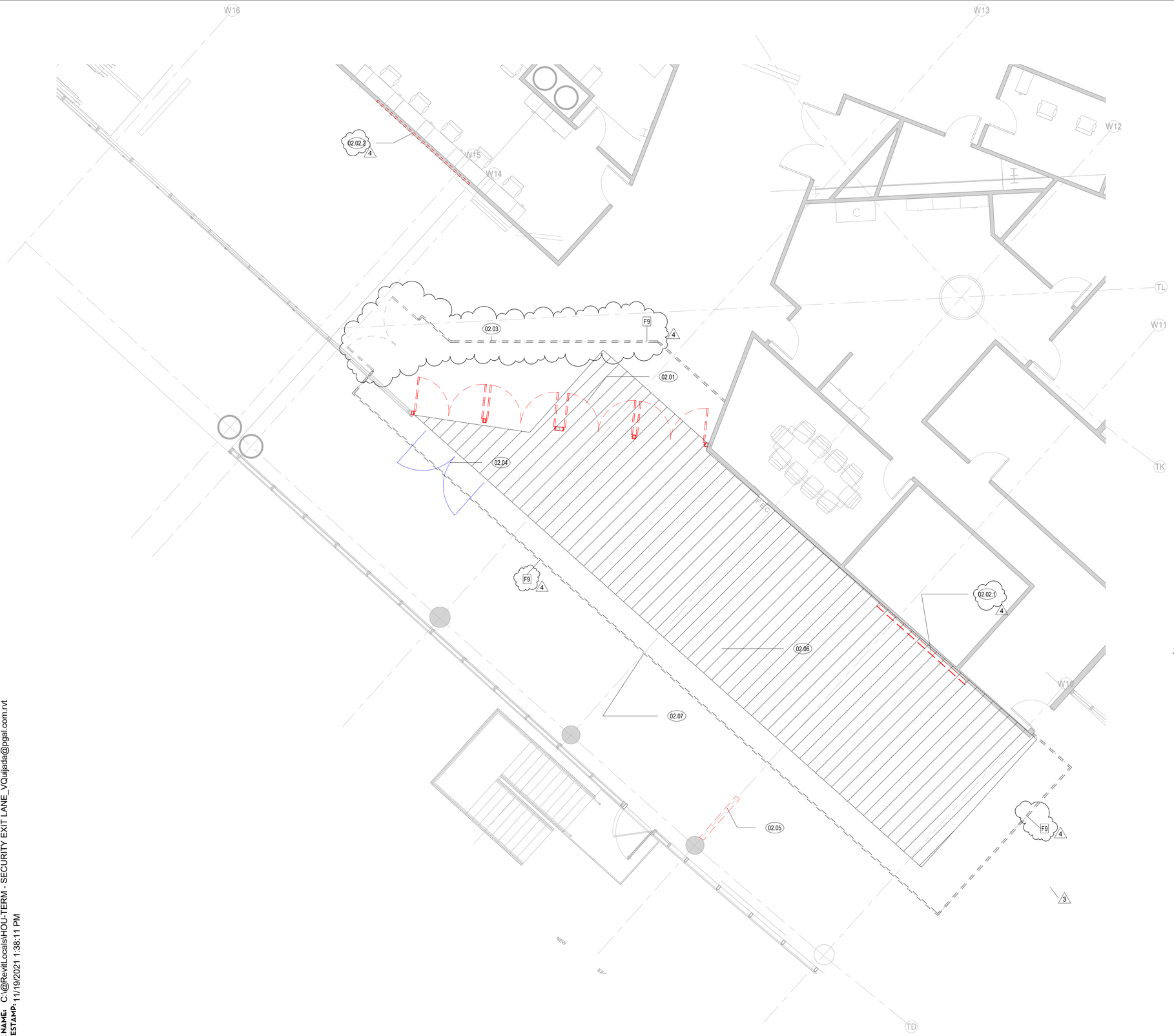
1004345

SHEET TITLE

DOOR DETAILS

SHEET NUMBER

A035



GENERAL NOTES - DEMO

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INACCURACY OR CONFLICTING INFORMATION BEFORE EXECUTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. ARCHITECTURAL LIGHTING ARE FOR LOCATE AND TYPE REFERENCE ONLY, REFER TO ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS AND SPECIFICATIONS.
9. USE UNISTRUT BELOW MECHANICAL DUCT OR STRUCTURAL BEAMS TO ACCOMMODATE LIGHT FIXTURES AS NEEDED.
10. PATCH AND REPAIR EXISTING EXPOSED CEILINGS AS NEEDED.

LEGEND - PHASING PLAN

- EXISTING TO REMAIN
- NEW PARTITIONS
- # KEYED NOTE
- NOT INCLUDED IN SCOPE OF WORK
- EXISTING WALL TO BE DEMOLISHED
- EXISTING DOOR TO BE DEMOLISHED
- EXISTTING QUEING STATION TO BE DEMOLISHED
- TEMPORARY DUST WALLS
- EXISTING DOOR TO REMAIN
- SCOPE OF NEW WORK

PHASING PLAN KEYNOTES

02.01	PHASE ONE: DEMO EXISTING DOORS AND ASSOCIATED WALL AS NOTED. REPAIR ANY DAMAGE TO SURFACE AND PREPARE SURFACE FOR MATCHING FINISH.
02.02.1	PHASE ONE: EXISTING VIDEO WALL TO BE REMOVED AND RELOCATED BY OTHERS. INSTALL RELOCATED WALL PANELS. (BY OWNER / JC DECAUX. NOT IN SCOPE, COORDINATE AS NEEDED)
02.02.2	PHASE ONE: RELOCATE WALL PANELS. RELOCATED VIDEO WALL TO BE INSTALLED BY OTHERS. (BY OWNER / JC DECAUX. NOT IN SCOPE, COORDINATE AS NEEDED)
02.03	PHASE TWO: INSTALL NEW DUST WALL. REFER TO PARTITION TYPE F9, PAINTED WHITE TO PUBLIC SIDE. WALLS TO BE LOCKABLE.
02.04	PHASE THREE: BYPASS DOORS
02.05	PHASE THREE: RELOCATE EXISTING SIGN
02.06	PHASE FOUR: INSTALL NEW WORK PER SCOPE – TEST & CLOSEOUT.
02.07	PHASE FIVE: REMOVE DUSTWALLS.

LEVEL 02 - TICKETING - PHASING PLAN - OVERALL 3/16" = 1'-0" (1)

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4	11-19-21	ADDENDUM #3

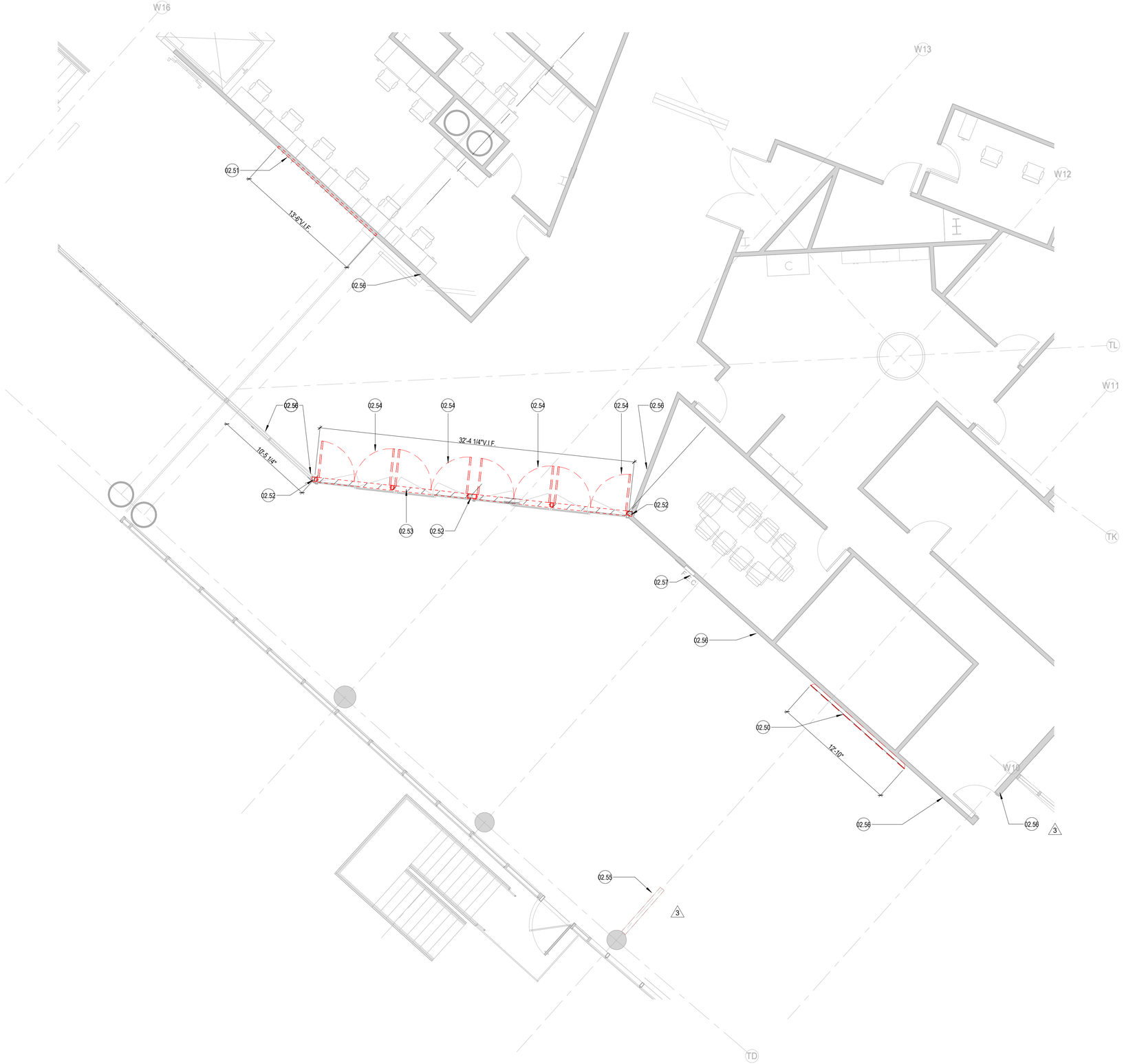
PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
ENLARGED FLOOR PLAN - TERMINAL - PHASING PLAN

SHEET NUMBER
AP200



LEVEL 02 - TICKETING - DEMO PLAN

3/16" = 1'-0" (1)

GENERAL NOTES - DEMO

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INCACURACY OR CONFLICTING INFORMATION BEFORE EXECURTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. ARCHITECTURAL LIGHTING ARE FOR LOCATE AND TYPE REFERENCE ONLY, REFER TO ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS AND SPECIFICATIONS.
9. USE UNISTRUT BELOW MECHANICAL DUCT OR STRUCTURAL BEAMS TO ACCOMMODATE LIGHT FIXTURES AS NEEDED.
10. PATCH AND REPAIR EXISTING EXPOSED CEILINGS AS NEEDED.

LEGEND - DEMO

- EXISTING WALL TO BE DEMOLISHED
- EXISTING DOOR TO BE DEMOLISHED
- EXISTING WALL TO REMAIN
- EXISTING DOOR TO REMAIN
- QUEUING STANCHION
- KEYED NOTE

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.50	EXISTING VIDEO WALL TO BE REMOVED, RELOCATED AND RE-INSTALLED BY OTHERS AT LOCATION OF RELOCATED WALL PANELS. (BY OWNER / JC DECAUX. NOT IN SCOPE, COORDINATE AS NEEDED) (4)
02.51	EXISTING WALL PANEL AND WALL BASE TO BE REMOVED, RELOCATED AND RE-INSTALLED AT LOCATION OF VIDEO WALL. (BY OWNER / JC DECAUX. NOT IN SCOPE, COORDINATE AS NEEDED) (4)
02.52	EXISTING STRUCTURAL STEEL COLUMNS TO REMAIN, V.I.F.
02.53	EXISTING GYPSUM WALL AND STUD PARTITION TO BE REMOVED UP TO APPROXIMATELY 10'-1 1/2", V.I.F. REMOVAL TO INCLUDE BUT NOT LIMITED TO ALL WALL GYP, BASE, MOLDING, EQUIPMENT, MILLWORK, WIRING, ETC. EQUIPMENT TO BE SALVAGED TO HAS/TSA. BRING ALL WIRING BACK TO NEAREST SOURCE PANEL. CAREFULLY CUT WALLS IN AREAS WHERE PORTION OF EXISTING IS TO REMAIN. PATCH AND PREP ADJACENT FLOOR/WALLS TO RECEIVE NEW FINISHES, TYP. PROVIDE ADDITIONAL CFMF AND STEEL TO SUPPORT EXISTING WALL TO REMAIN. (3)
02.54	EXISTING DOORS TO BE REMOVED IN THEIR ENTIRETY AND SALVAGE TO OWNER. REMOVAL TO INCLUDE HARDWARE, FRAME, ETC.
02.55	EXISTING SIGN TO BE RELOCATED, RE: SIGNAGE DRAWINGS
02.56	EXISTING TO REMAIN, PROTECT EXISTING FINISHES AND STOREFRONT AS NEEDED
02.57	EXISTING FIRE EXTINGUISHER TO REMAIN

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1	08-06-21	100% CD
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3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

DEMOLITION FLOOR PLAN -TERMINAL

SHEET NUMBER

AD200

FILE NAME: C:\@Revit\Locals\HOU-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
DATESTAMP: 11/19/2021 1:37:07 PM

LEVEL 02 - TICKETING REFLECTED CEILING PLAN - TERMINAL - ENLARGED 1/4" = 1'-0" (1)

GENERAL NOTES

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INCACURACY OR CONFLICTING INFORMATION BEFORE EXECURTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. ARCHITECTURAL LIGHTING ARE FOR LOCATE AND TYPE REFERENCE ONLY, REFER TO ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS AND SPECIFICATIONS.
9. PATCH AND REPAIR EXISTING EXPOSED CEILINGS AS NEEDED.

LEGEND - DEMO RCP

- EXISTING WALL TO BE DEMOLISHED
- EXISTING DOOR TO BE DEMOLISHED
- EXISTING LIGHT FIXTURE TO DEMOLISHED
- EXISTING LIGHT FIXTURE TO REMAIN
- EXISTING WALL TO REMAIN
- EXISTING DOOR TO REMAIN
- KEYED NOTE
- NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.52	EXISTING STRUCTURAL STEEL COLUMNS TO REMAIN, V.I.F.
02.58	EXISTING CEILING TO REMAIN, ANY DAMAGED TILE/GYP DURING WORK TO BE REPLACED
02.59	EXISTING DOWNLIGHTS INSTALLED OVER PROPOSED AREA OF EXIT LANE TO BE REMOVED, V.I.F. RE: ELECTRICAL
02.60	EXISTING DOWNLIGHTS TO REMAIN
02.61	EXISTING BULKHEAD TO REMAIN
02.62	EXISTING WALL MOUNTED FIXTURES TO BE REMOVED
02.63	EXISTING AIR DEVICES TO REMAIN

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HAS TIP 21-157 - IAH

REGISTRATION

REGISTERED ARCHITECT
STATE OF TEXAS
11-19-2021

DRAWING HISTORY

№	DATE	DESCRIPTION
3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

DEMOLITION REFLECTED CEILING PLAN - TERMINAL

SHEET NUMBER

3 AD300

FILE NAME: C:\@Revit\Locals\HOU-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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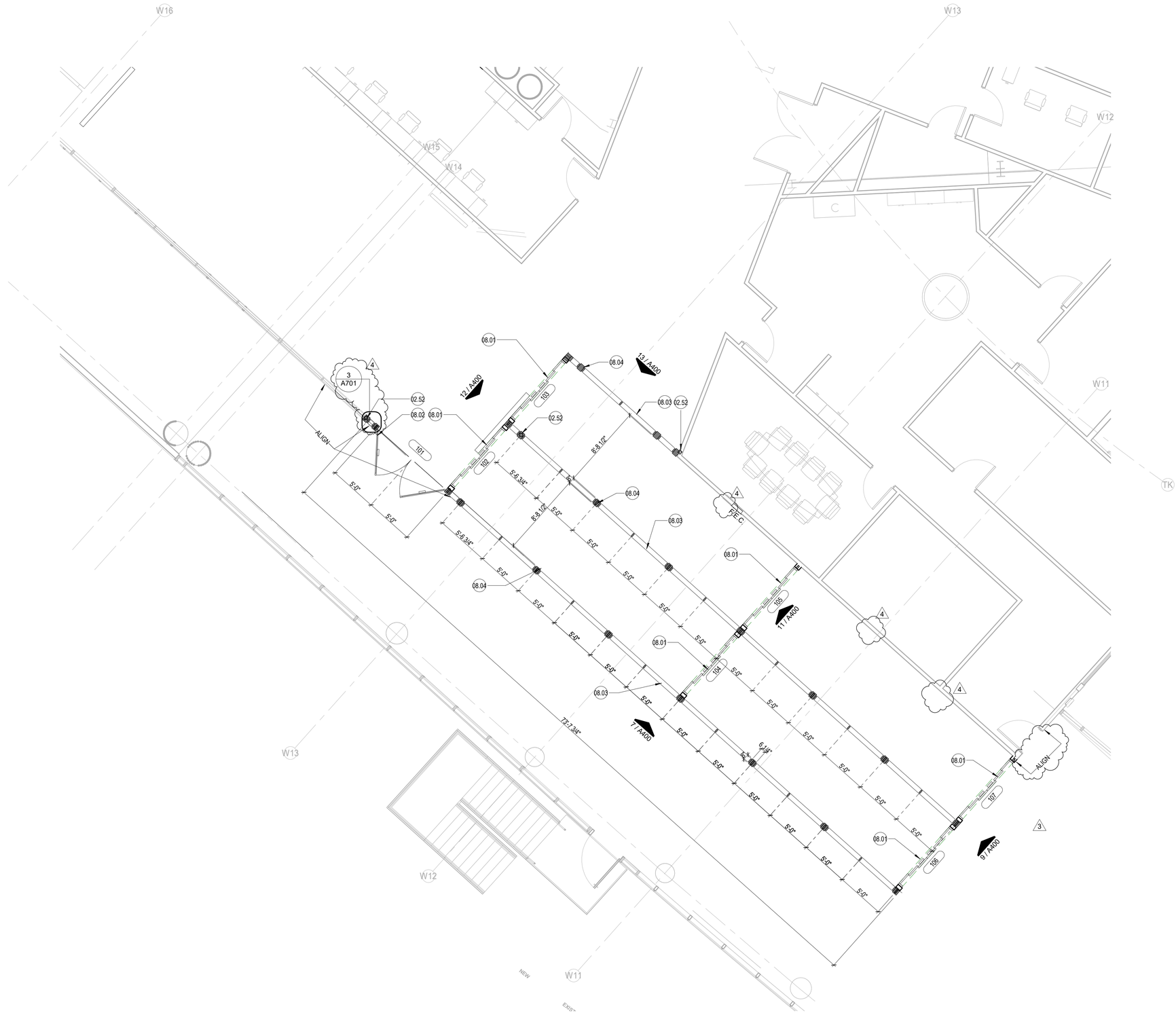

LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL - ENLARGED 3/16" = 1'-0" (1)

GENERAL NOTES - PLAN

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INCACURACY OR CONFLICTING INFORMATION BEFORE EXECURTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. CONTRACTOR SHALL FIELD COORDINATED LOCATION, SIZE AND TYPE OF BLOCKING FOR INSTALLATION OF SIGNAGE, MILLWORK, ETC. ALL CONCEALED WOOD SHALL BE FIRE RETARDANT TREATED (FRT).

GENERAL NOTES

1. FIELD COOORDINATE CONDUIT ROUTING
2. EXPOSED CODUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES
3. LABEL SECURITY CONDUITS. REFER TO NOTES ON SHEET G002.
4. ALL SECURITY SYSTEM EQUIPMENT FURNISHINGS, CONDUIT, CABLING AND OTHER RELATED MATERIALS AND INTERFACES SHALL BE INSTALLED IN ACCORDANCE WITH PROJECT CONTRUCTION DOCUMENTS AND SCHEDULES.
5. CONTRACTOR SHALL FURNISH AND INSTALL ALL CABLING AND CONDUIT FROM SECURTIY DEVICE LOCATIONS TO DESIGNTATED NODES/ROOMS. CABLING SHALL BE OF APPROPRIATE TYPE AND GAUGE AS REQUIRED BY THE MANUFACTURER, FOR PROPER SYTEM OPERATION. CONTRACTOR SHALL ENSURE CABLES TO EACH DEVICE PROVIDE SUFFICIENT VOLTAGE, OR SIGNAL STRENGTH TO OPERATE WITHIN MANUFACTURERS SPECIFIED LIMITS.
6. CONTRACTOR SHALL COORDINATE EXACT DEVICE MOUNTING LOCATIONS WITH OWNERS DESIGNATED REPRESENTATIVE AND OTHER TRADES PRIOOR TO INSTALLATION OF DEVICES AND RELATED INFRASTRUCTURE.
7. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH OWNERS DESIGNATED REPRESENTATVIE FINAL FIELD OF VIEW OF SECURITY CAMERAS.
8. ALL SECURITY CAMERAS SHALL BE PROVIDED WITH APPROPRIATE HOUSING AND MOUNTS IN IDENTIFIED LOCATIONS.
9. CONTRACTOR SHALL PATCH AND REPAIR ANY SURFACE AFFECTED FROM INSTALLLATION IN THE COURSE OF THE SCOPE OF WORK TO ORIGINAL OR MATCHING CONDITIONS.
10. EXISTING SECURTIY INFRASTRUCTRE AND COMPONENTS EFFECTED BY CONSTRUCTION SHALL BE REROUTED AND/OR DECOMMISIONED.

LEGEND

- EXISTING TO REMAIN
- NEW PARTITIONS
- NEW DOOR
- NEW SLIDING DOOR
- 1271.2 — SCHEDULED DOOR. REFER TO SHEET A0.30
- A0.0 — SCHEDULED PARTITION REFER TO SHEETS A0.11
- PTXX — MATERIAL TAG
- NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.52	EXISTING STRUCTURAL STEEL COLUMNS TO REMAIN, V.I.F.
08.01	MULTI PANEL EXIT DOORS
08.02	VEHICULAR BYPASS DOORS
08.03	9/16" LAMINATED FROSTED GLASS WITH INTERNAL PVB FILM
08.04	ALUMINUM STOREFRONT MULLION SYSTEM

3

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REGISTRATION

11-19-2021

DRAWING HISTORY

Nr.	DATE	DESCRIPTION
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PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

ENLARGED FLOOR PLAN - TERMINAL

SHEET NUMBER

A200

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GENERAL NOTES

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5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. ARCHITECTURAL LIGHTING ARE FOR LOCATE AND TYPE REFERENCE ONLY, REFER TO ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS AND SPECIFICATIONS.
9. USE UNISTRUT BELOW MECHANICAL DUCT OR STRUCTURAL BEAMS TO ACCOMMODATE LIGHT FIXTURES AS NEEDED.
10. PATCH AND REPAIR EXISTING EXPOSED CEILINGS AS NEEDED.

GENERAL NOTES - RCP

1. FIELD COOORDINATE CONDUIT ROUTING
2. EXPOSED CODUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES
3. LABEL SECUREITY CONDUITS PER HAS STANDARDS
4. ALL SECURITY SYSTEM EQUIPMENT FURNISHINGS, CONDUIT, CABLING AND OTHER RELATED MATERIALS AND INTERFACES SHALL BE INSTALLED IN ACCORDANCE WITH PROJECT CONTRUCTION DOCUMENTS AND SCHEDULES.
5. CONTRACTOR SHALL FURNISH AND INSTALL ALL CABLING AND CONDUIT FROM SECURITY DEVICE LOCATIONS TO DESIGNTATED NODES/ROOMS. CABLING SHALL BE OF APPROPRIATE TYPE AND GAUGE AS REQUIRED BY THE MANUFACTURER, FOR PROPER SYTEM OPERATION. CONTRACTOR SHALL ENSURE CABLES TO EACH DEVICE PROVIDE SUFFICIENT VOLTAGE, OR SIGNAL STRENGTH TO OPERATE WITHIN MANUFACTURERS SPECIFIED LIMITS.
6. CONTRACTOR SHALL COORDINATE EXACT DEVICE MOUNTING LOCATIONS WITH OWNERS DESIGNATED REPRESENTATIVE AND OTHER TRADES PRIOOR TO INSTALLATION OF DEVICES AND RELATED INFRASTRUCTURE.
7. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH OWNERS DESIGNATED REPRESENTATVIE FINAL FIELD OF VIEW OF SECURITY CAMERAS.
8. ALL SECURITY CAMERAS SHALL BE PROVIDED WITH APPROPRIATE HOUSING AND MOUNTS IN IDENTIFIED LOCATIONS.
9. CONTRACTOR SHALL PATCH AND REPAIR ANY SURFACE AFFECTED FROM INSTALLLATION IN THE COURSE OF THE SCOPE OF WORK TO ORIGINAL OR MATCHING CONDITIONS.
10. EXISTING SECURTIY INFRASTRUCTRE AND COMPONENTS EFFECTED BY CONSTRUCTION SHALL BE REROUTED AND/OR DECOMMISIONED.

LEGEND

- EXISTING TO REMAIN
- LED 2X2 FLAT PANEL TROFFER, RE: ELECTICAL
- EXISTING DOOR TO REMAIN
- EXISTING WALL TO REMAIN
- 3 — 2'X6' PERFORATED METAL CEILING
- # — KEYED NOTE

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.58	EXISTING CEILING TO REMAIN, ANY DAMAGED TILE/GYP DURING WORK TO BE REPLACED
02.60	EXISTING DOWNLIGHTS TO REMAIN
02.61	EXISTING BULKHEAD TO REMAIN
09.01	NEW LIGHT FIXTURE, RE: ELECTRICAL
09.02	NEW PERFORATED METAL CEILING PANEL, MCP-1
09.03	4"X4" POST AND BEAM ALUMINUM FRAME SYSTEM ABOVE CEILING
09.04	CONTINUOUS ALUMINUM TRIM FINISH AT WALL PERIMETER
09.05	PERIMETER OF EXISTING CEILING ABOVE
09.07	PENETRATE EXISTING WALL PANEL ABOVE SCHEDULED NEW CEILING TO PROVIDE ALUMINUM TUBE ACCESS TO STUD WALL. PATCH / REPAIR AS NECESSARY

INTERIOR CEILING FINISH

MCP-1 METAL CEILING PANEL

MANUFACTURER:	USG
TYPE:	2'X6' CELEBRATION METAL PANELS
COLOR:	PERFORATED ALUMINUM SILVER SATING PATTERN A116 (17% OPEN AREA)
SUSPENSION SYSTEM:	CELEBRATION TORSION SPRING CEILING SYSTEM
REMARKS:	USG COMPASSO STANDARD TRIM / F-MOLD TO BE USED AS PERIMETER TRIM AS CONDITION PERMITS

LEVEL 02 - TICKETING-DEPARTURES - ENLARGED RCP 3/16" = 1'-0" (1)

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HOUSTON AIRPORT SYSTEM
DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP 21-157 - IAH

REGISTRATION

REGISTERED ARCHITECT STATE OF TEXAS 11-19-2021

DRAWING HISTORY

№	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

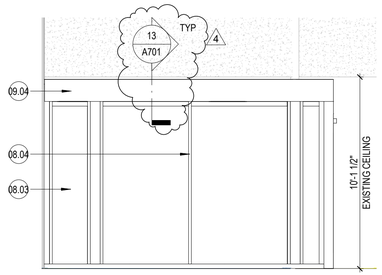
1004345

SHEET TITLE

ENLARGED REFLECTED CEILING PLAN

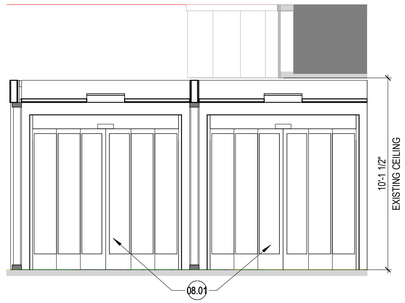
SHEET NUMBER

A300

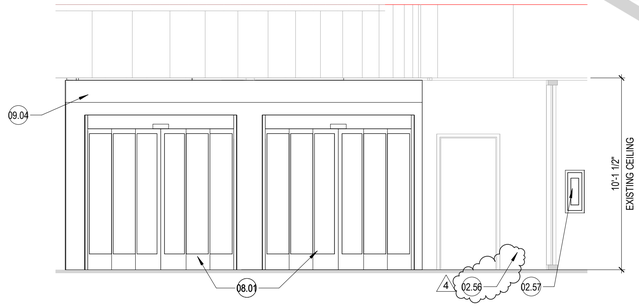


INTERIOR ELEVATION 05 1/4" = 1'-0" 13

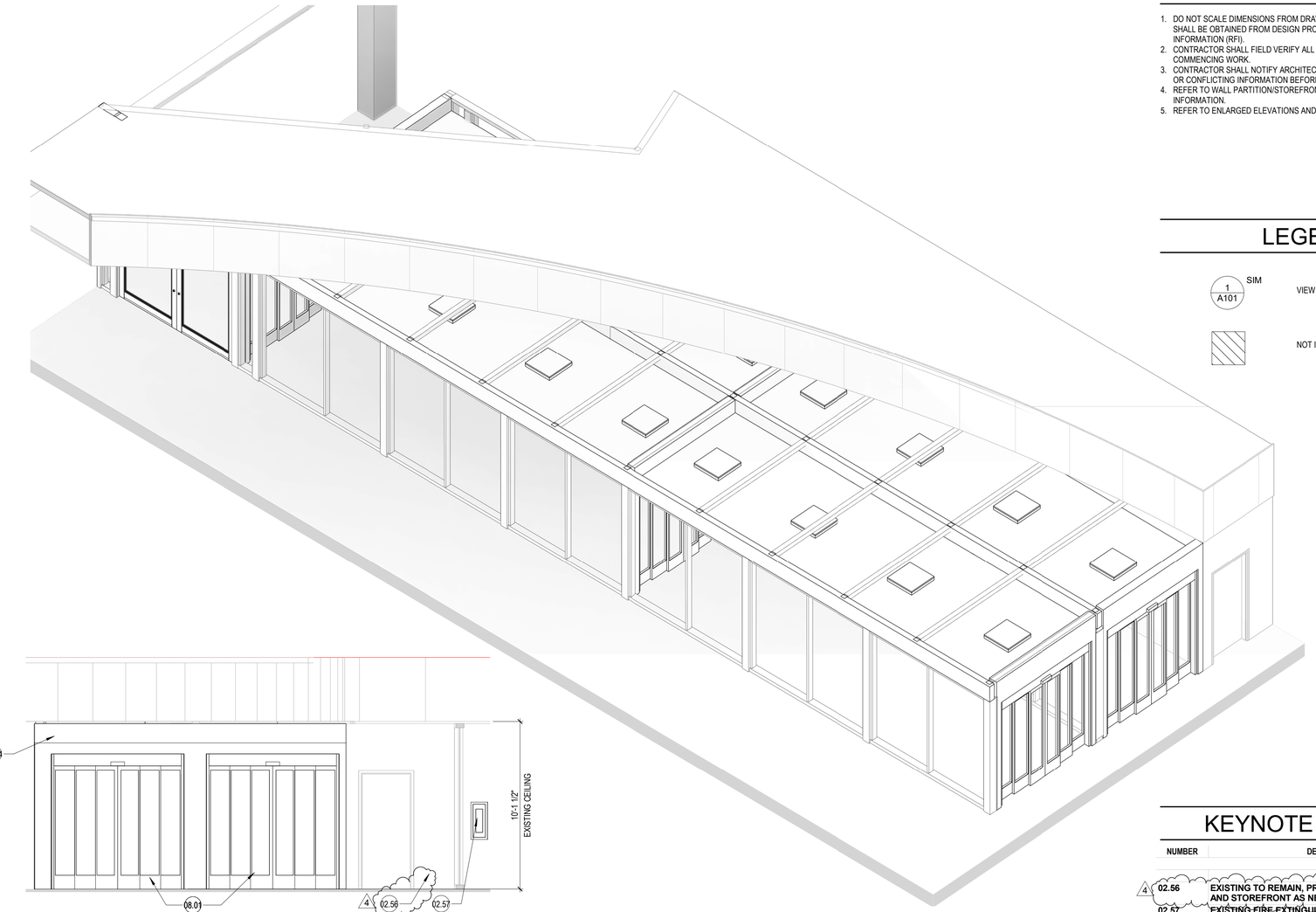
INTERIOR ELEVATION 04 1/4" = 1'-0" 12



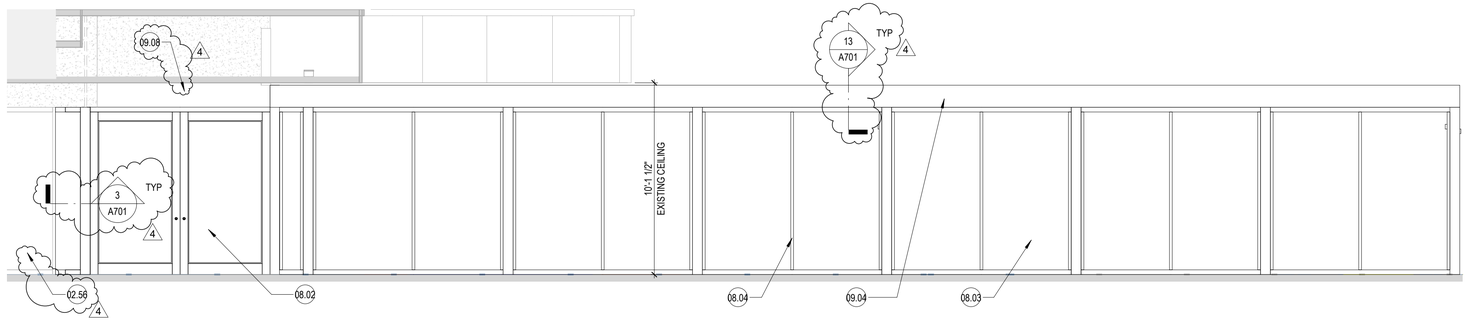
INTERIOR ELEVATION 03 1/4" = 1'-0" 11



INTERIOR ELEVATION 02 1/4" = 1'-0" 9



INTERIOR AXO 1



INTERIOR ELEVATION 01 1/4" = 1'-0" 7

GENERAL NOTES

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INCACURACY OR CONFLICTING INFORMATION BEFORE EXECURTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.

LEGEND

1 / A101 SIM — VIEW REFERENCE CALLOUT

NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.56	EXISTING TO REMAIN, PROTECT EXISTING FINISHES AND STOREFRONT AS NEEDED
02.57	EXISTING FIRE EXTINGUISHER TO REMAIN
08.01	MULTI PANEL EXIT DOORS
08.02	VEHICULAR BYPASS DOORS
08.03	9/16" LAMINATED FROSTED GLASS WITH INTERNAL PVB FILM
08.04	ALUMINUM STOREFRONT MULLION SYSTEM
09.04	CONTINUOUS ALUMINUM TRIM FINISH AT WALL PERIMETER
09.08	PROVIDE PAINTED GYP BD BOTH SIDES, MATCH EXISTING

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DRAWING HISTORY

No.	DATE	DESCRIPTION
1	08-06-21	100% CD
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4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

ENLARGED ELEVATIONS & AXO - TERMINAL

SHEET NUMBER

A400

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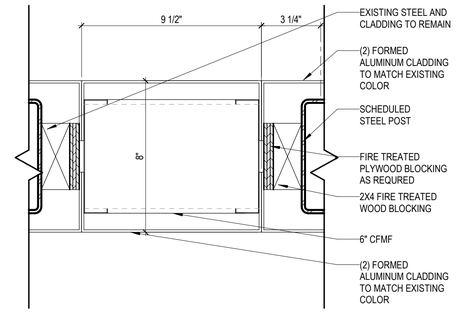
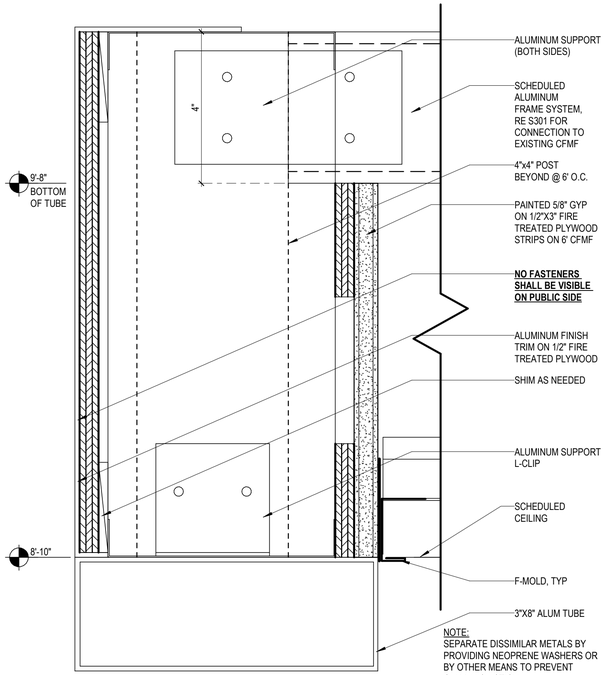
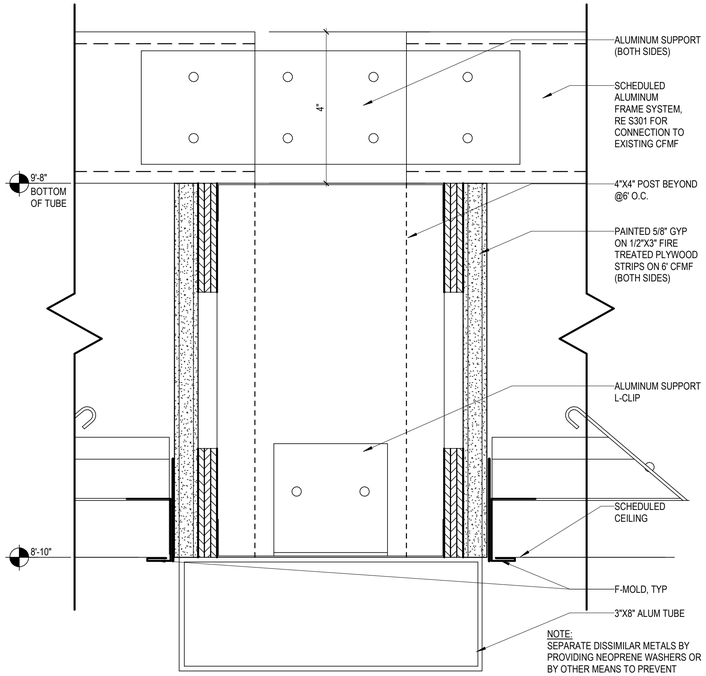


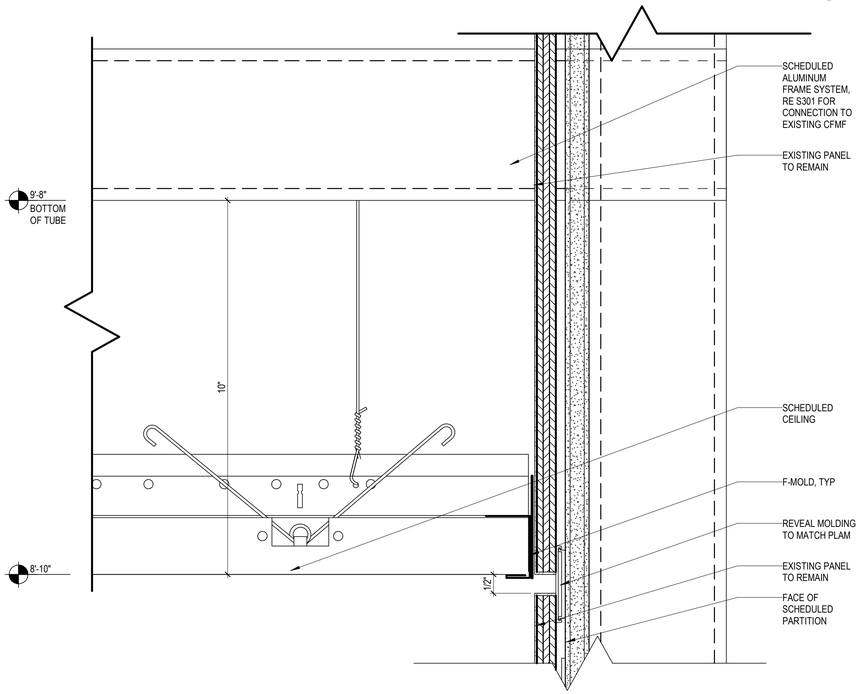
ALUMINUM CLADDING DETAIL 3" = 1'-0" (3)



END DETAIL 6" = 1'-0" (13)



INTERMEDIATE DETAIL 6" = 1'-0" (9)



TOP PANEL / CEILING DETAIL 6" = 1'-0" (1)

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REGISTRATION

DRAWING HISTORY

No.	DATE	DESCRIPTION
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

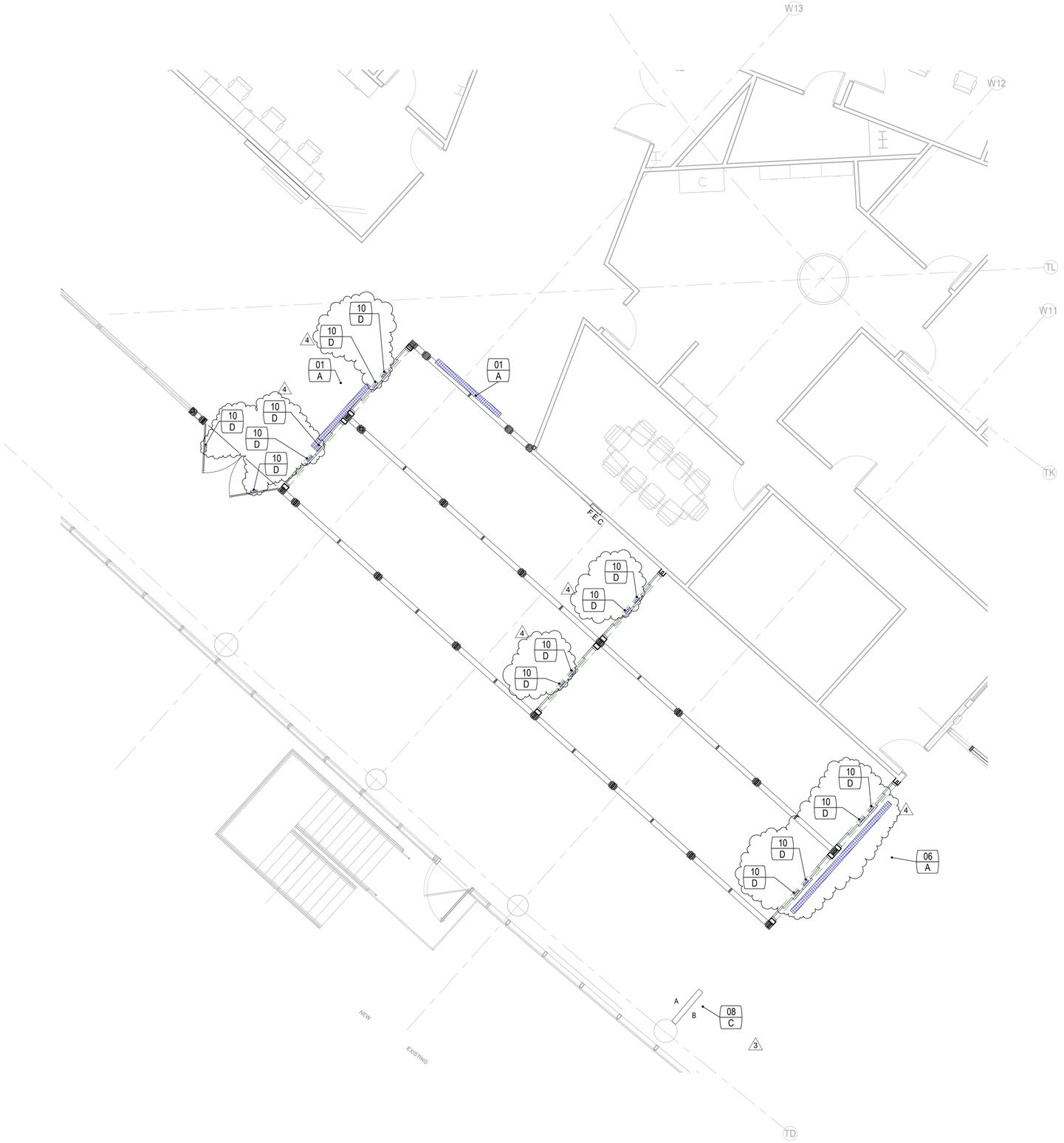
1004345

SHEET TITLE

DETAILS

SHEET NUMBER

A701
4



KEYNOTES

A NEW SIGNAGE
C RELOCATED SIGNAGE
D PROVIDE DECAL FROM DOOR MANUFACTURER ON THE NON-APPROACH SIDE

3 NOTE: NEW SIGNS TO MATCH HOBBY WAYFINDING STANDARDS WHICH CONSISTS SIGNS BEING OF FABRICATED PAN-FORMED ALUMINUM SIGNS WITH HOLLOW BACKS

GENERAL NOTES

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INCACURACY OR CONFLICTING INFORMATION BEFORE EXECURTION OF WORK.
4. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
5. CONTRACTOR SHALL FIELD COORDINATED LOCATION, SIZE AND TYPE OF BLOCKING FOR INSTALLATION OF SIGNAGE, MILLWORK, ETC. ALL CONCEALED WOOD SHALL BE FIRE RETARDANT TREATED (FRT).

LEGEND

NEW SIGNAGE

MARK 01 / A KEYNOTE — SIGNAGE TAG

IMAGE	MARK	NOTES
4 	01	A
	06	A
Side A  Side B 	07	A
Side A  Side B 	08	C
3 4 	10	D

LEVEL 02 - TICKETING -SIGNAGE PLAN

3/16" = 1'-0" (1)

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3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
HOU TERMINAL SIGNAGE PLAN

SHEET NUMBER
AG200

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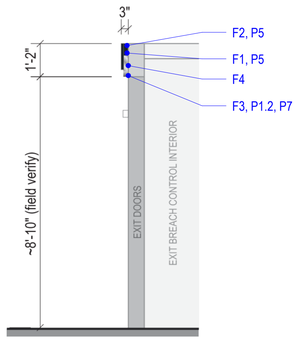
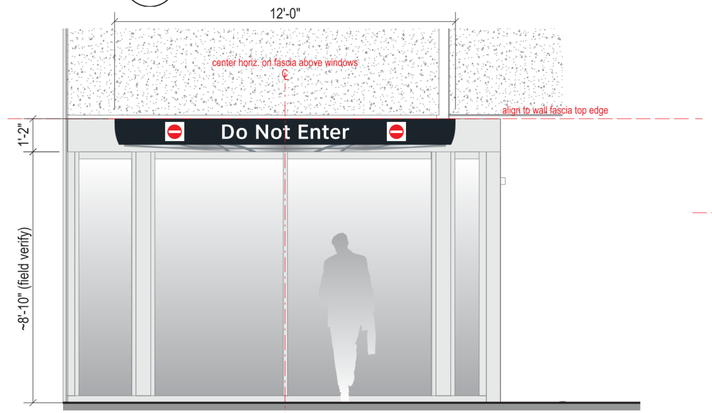
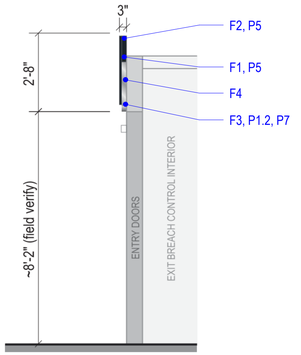


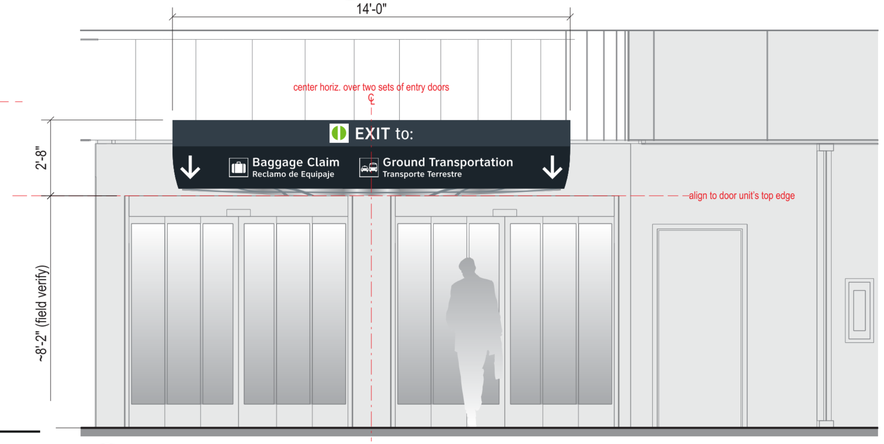
8 END VIEW



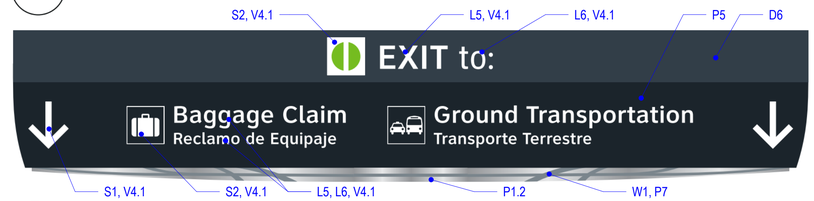
7 ELEVATION



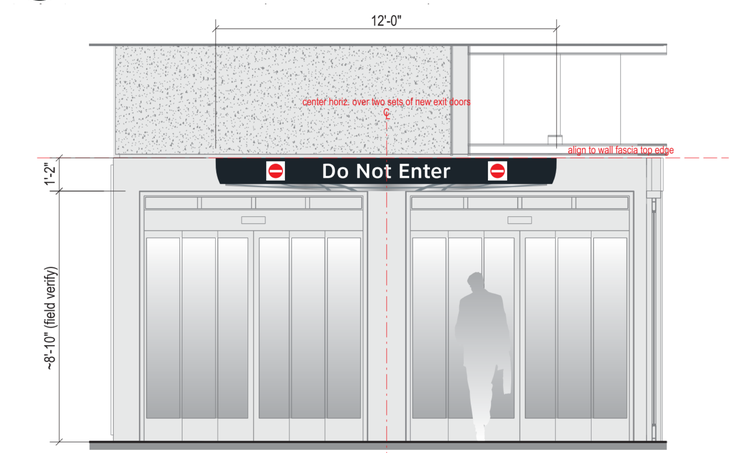
3 END VIEW



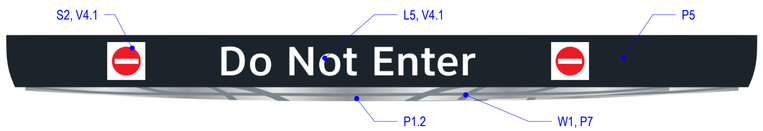
2 ELEVATION



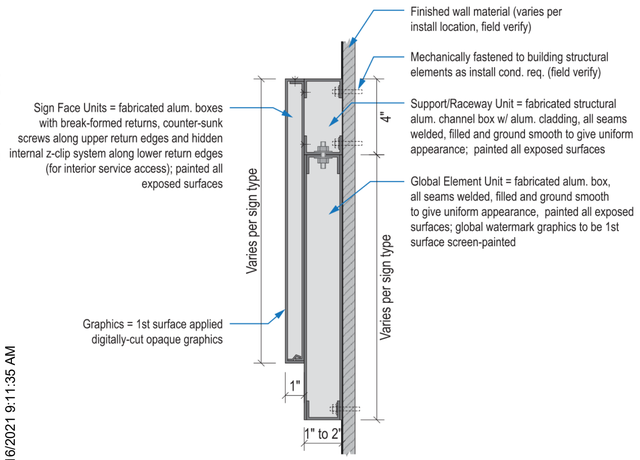
1 FACE ELEVATION



6 ELEVATION



5 FACE ELEVATION



9 TYP. SOFFIT WALL SIGN MOUNT DETAIL

KEYNOTES

F1 SIGN FACE UNIT : FABRICATED PAN-FORMED ALUM SIGN FACE (HOLOW BACKS), ALL SEAMS WELDED, FILLED & GROUND SMOOTH TO GIVE UNIFORM APPEARANCE; PANS SLIDE OVER FABRICATED REAR ALUM. PANEL UNIT & MECH. FASTENED THRU UPPER RETURN EDGE WITH COUNTER-SUNK SCREWS (PAINT HEADS TO MATCH) & INTERNAL Z-CLIP RETAINER SYSTEM AT BOTTOM/ENDS FOR SERVICE REMOVAL; SIGN FACE UNITS MECH. FASTENED INTERNALLY TO SUPPORT/RACEWAY UNIT WITH HIDDEN FASTENERS; PAINT ALL EXPOSED SURFACES WITH MAP PAINT TO MATCH P5, SATIN FINISH; DIGITAL CUT OPAQUE FILM GRAPHICS APPLIED TO 1ST SURFACE OF SIGN FACE

F2 SUPPORT: FABRICATED STRUCTURAL ALUM. CHANNEL BOX, ALL SEAMS WELDED, FILLED AND GROUND SMOOTH TO GIVE UNIFORM APPEARANCE; NOTE: USE ADDITIONAL INTERNAL SUPPORT AS REQ. WHEN FABRICATING WIDER SIGN TYPE CONFIGURATIONS; PAINT ALL EXPOSED SURFACES WITH MAP PAINT TO MATCH P5, SATIN FIN.

F3 GLOBAL ELEMENT UNIT: FABRICATED ALUM. BOX, ALL SEAMS WELDED, FILLED AND GROUND SMOOTH TO GIVE UNIFORM APPEARANCE; MECH FASTENED INTERNALLY TO SUPPORT/RACEWAY UNIT; NOTE: USE ADDITIONAL INTERNAL SUPPORT AS REQ. AT FLAT VERT. EDGE CONNECTIONS FOR SEAMING TOGETHER WIDER SIGN TYPE CONFIGURATIONS; PAINT ALL EXPOSED SURFACES WITH MAP PAINT TO MATCH P1.2 SATIN FINISH; WATERMARK GRAPHIC SCREEN PAINTED WITH MAP PAINT TO MATCH P7, SATIN FIN.

F4 MOUNTING: REFER TO ELEVATIONS ON THIS SHEET FOR LOCATION. MOUNT PLUMB & LEVEL WITH HIDDEN STRUCTURAL LOCKING /FABRICATED UNISTRUT & THREADED ROD/MECH FASTENER SYSTEM TO BUILDING'S STRUCTURAL ELEMENTS AS INSTALL LOC. CONDITIONS REQ. (FIELD VERIFY); ALL MECH. MOUNTING CONNECTIONS HIDDEN INSIDE SUPPORT/RACEWAY UNIT & ABOVE CEILING LINE

LETTERING (TYPEFACES) / SYMBOLS / ARROWS:

L5 PEDESTRIAN WAYFINDING TYPEFACE: CLEARVIEW TEXT MEDIUM
L6 SUPPLEMENTAL TYPEFACE: CLEARVIEW ONE BOOK CONDENSED
S1 ARROW(S): USE ONLY OFFICIAL HAS WAYFINDING ARROWS
S2 UNIVERSAL SYMBOLS: USE ONLY OFFICIAL HAS WAYFINDING SYMBOLS
W1 WATERMARK GRAPHIC: USE ONLY OFFICIAL HAS "GLOBE" VECTOR ART

COLORS:

D6 MED. DARK GRAY: MATCH PMS 432C
P1.2 SILVER: MAP PAINT MP33172 SILVER SURFER METALLIC
P5 DARK GRAY: MAP PAINT MATCHED TO PMS 433C
P7 NEUTRAL WATERMARK: MAP PAINT MATCHED TO PMS 430C
V4.1 WHITE: 3M 7725-20 WHITE OPAQUE

NOTES:

"D" = DIGITALLY PRINTED COLORS ON 3M 7725-20 WHITE UNLESS OTHERWISE NOTED
"P" = MATTHEWS ACRYLIC POLYURETHANE (MAP) PAINT (OR EQUAL), SATIN FINISH
"V" = 3M VINYL FILMS (OR EQUAL)

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11-19-2021

DRAWING HISTORY

No.	DATE	DESCRIPTION
4	11-19-21	ADDENDUM #3

PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
WAYFINDING ELEVATIONS / DETAILS

SHEET NUMBER
4 AG700

FILE NAME: C:\@Revit\Locals\HOU-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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GENERAL STRUCTURAL NOTES

PART I - DESIGN CRITERIA

A. GENERAL BUILDING CODE

1. THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2012 WITH HOUSTON AMENDMENTS TO THE 2012 INTERNATIONAL BUILDING CODE.

B. DEAD LOADS

1. GLASS WALL : 15 PSF

C. OTHER LOADS

1. LATERAL LOAD ON GLASS WALL: 5 PSF OR
   200 LBS AT 42" ABOVE FINISH FLOOR OR
   50 PLF AT 42" ABOVE FINISH FLOOR

PART II - STRUCTURAL STEEL

A. MATERIAL

1. HOT ROLLED STRUCTURAL MEMBERS: ALL HOT ROLLED STEEL PLATES, SHAPES, SHEET PILING, AND BARS SHALL BE NEW STEEL CONFORMING TO ASTM SPECIFICATION A 6.

2. ASTM SPECIFICATION AND GRADE: CLEARLY MARK THE GRADE OF STEEL ON EACH PIECE, WITH A DISTINGUISHING MARK VISIBLE FROM FLOOR SURFACES, FOR THE PURPOSE OF FIELD INSPECTION OF PROPER GRADE OF STEEL. UNLESS NOTED OTHERWISE ON THE DRAWINGS, STRUCTURAL STEEL SHALL BE AS FOLLOWS:
   a. W- AND WT-SHAPES: ASTM A 992
   b. C-SHAPES: ASTM A 36
   c. L-SHAPES: ASTM A 36
   d. RECTANGULAR HSS: ASTM A 500, GRADE B (FY=46 KSI)
   e. STEEL PIPES: ASTM A 53 (TYPES E OR S), GRADE B.
   f. BASE PLATES: ALL BASE PLATES SHALL CONFORM TO ASTM A 36 UNLESS NOTED OTHERWISE ON THE DRAWINGS.
   g. EDGE ANGLES, BENT PLATES, ANGLE HANGERS, AND ANGLE KICKERS: ASTM A 36
   h. CONNECTION MATERIAL:
      1) ALL CONNECTION MATERIAL, EXCEPT AS NOTED OTHERWISE HEREIN OR ON THE DRAWINGS, INCLUDING BEARING PLATES, GUSSET PLATES, STIFFENER PLATES, FILLER PLATES, ANGLES, ETC. SHALL CONFORM TO ASTM A 36 UNLESS A HIGHER GRADE OF STEEL IS REQUIRED BY STRENGTH AND PROVIDED THE RESULTING SIZES ARE COMPATIBLE WITH THE CONNECTED MEMBERS.
   i. OTHER STEEL: ANY OTHER STEEL NOT INDICATED OTHERWISE SHALL CONFORM TO ASTM A 992 OR ASTM A 572, GRADE 50, EXCEPT PLATES AND ANGLES THAT SHALL BE ASTM A 36.

B. STRUCTURAL BOLTS AND THREADED FASTENERS

1. A 325 BOLTS: ALL BOLTS IN STRUCTURAL CONNECTIONS SHALL CONFORM TO ASTM A 325 TYPE 1, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

2. THREADED ROUND STOCK: THREADED RODS SHALL CONFORM TO:
   a. ASTM A 36.

C. WELDING

1. UNLESS NOTED OTHERWISE, ELECTRODES FOR WELDING SHALL CONFORM TO E70XX (SMAW), F7XX-EXXX (SAW), ER70S-X (GMAW), OR E7XT-X (FCAW).

2. ELECTRODES FOR GRADE 60 OR GRADE 65 MATERIAL SHALL CONFORM TO E80XX (SMAW), F8XX-EXX-XX (SAW), ER80S-X (GMAW), OR E8XT-X (FCAW).

PART III - ALUMINUM

1. REFER TO ARCHITECTURAL DRAWINGS FOR ALUMINUM MEMBER SIZES AND LOCATION.

2. ALL ALUMINUM HSS MEMBERS AND CONNECTION TO BE 6061-T6 EXTRUSIONS ALUMINUM WITH YIELD STRENGTH OF 35 KSI AND ULTIMATE STRENGTH OF 38 KSI

PART IV - MISCELLANEOUS

A. CONTRACT DOCUMENTS

1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS, AND ERECTION IN THE FIELD.

2. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE.

B. DRAWING CONFLICTS

1. THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCY BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.

C. CONFLICTS IN STRUCTURAL REQUIREMENTS

1. WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN.

D. EXISTING CONDITIONS

1. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING AT THE JOB SITE AND REPORT ANY DISCREPANCIES FROM ASSUMED CONDITIONS SHOWN ON THE DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND ERECTION OF ANY MEMBERS.

2. WORK SHOWN ON THE DRAWINGS IS NEW, UNLESS NOTED AS EXISTING.

3. EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS WAS OBTAINED FROM EXISTING CONSTRUCTION DOCUMENTS AND LIMITED SITE OBSERVATION. THESE DRAWINGS OF EXISTING CONSTRUCTION ARE AVAILABLE FOR CONTRACTOR USE. HOWEVER, THE AVAILABLE DRAWINGS OF EXISTING CONSTRUCTION ARE NOT NECESSARILY COMPLETE. THE CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT INFORMATION.

4. DEMOLITION, CUTTING, DRILLING, ETC. OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE SO AS NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING. IF ANY ARCHITECTURAL, STRUCTURAL, OR MEP MEMBERS NOT DESIGNATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY AND APPROVAL OBTAINED PRIOR TO REMOVAL OF THOSE MEMBERS.

PART IV - MISCELLANEOUS CONTINUED

5. THE CONTRACTOR SHALL SAFELY SHORE EXISTING CONSTRUCTION WHEREVER EXISTING SUPPORTS ARE REMOVED TO ALLOW THE INSTALLATION OF NEW WORK. ALL SHORING METHODS AND SEQUENCING OF DEMOLITION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HIS ENGINEER.

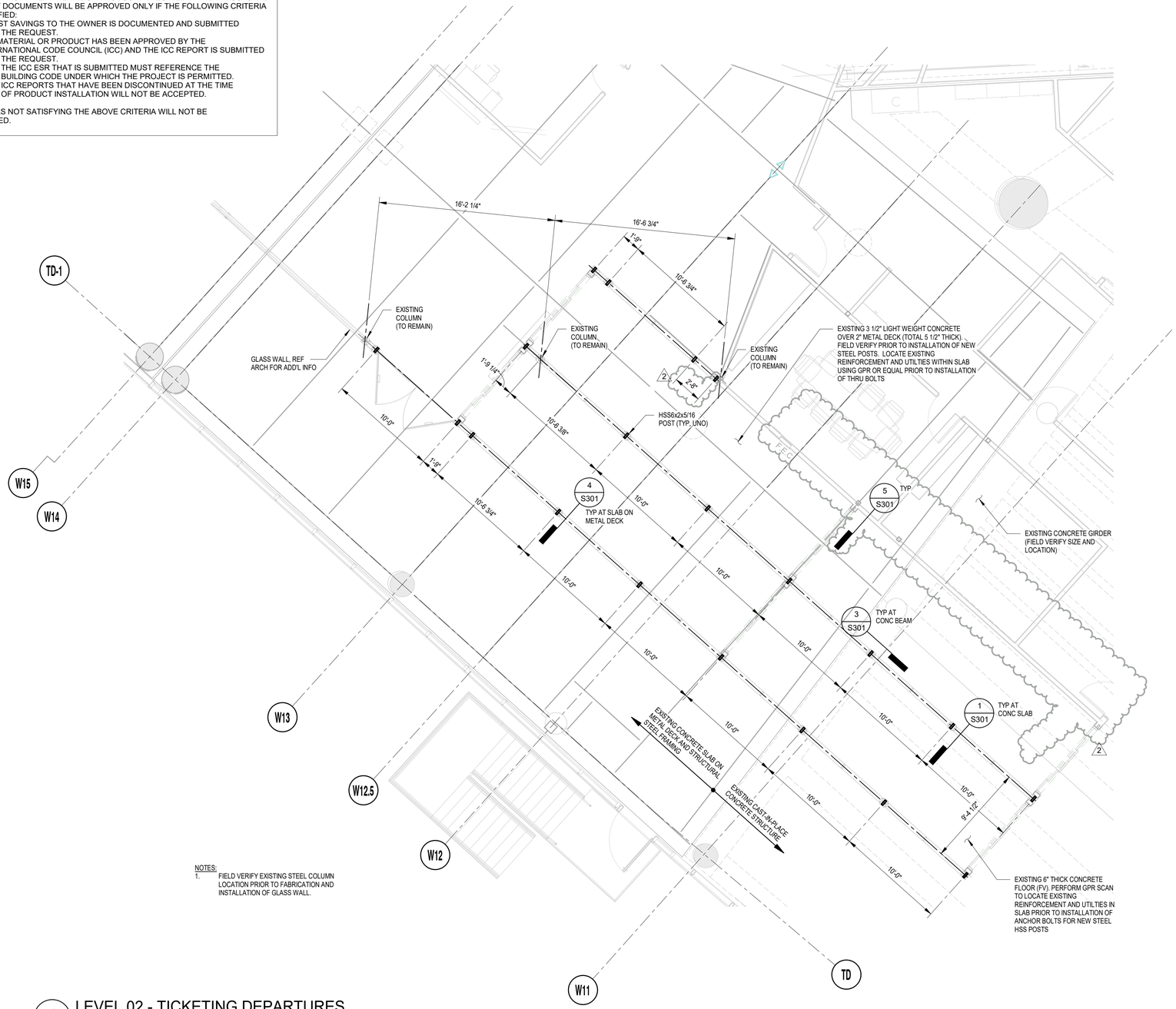
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES AND DUCT WORK PRIOR TO THE START OF CONSTRUCTION AND TAKE CARE TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN IN SERVICE.

7. THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED DURING CONSTRUCTION WITH SIMILAR MATERIALS AND WORKMANSHIP TO RESTORE CONDITIONS TO LEVELS ACCEPTABLE TO THE ARCHITECT.

E. CONTRACTOR SUBSTITUTIONS

1. ANY MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL THAT ARE DIFFERENT FROM THE MATERIAL OR PRODUCTS SPECIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS WILL BE APPROVED ONLY IF THE FOLLOWING CRITERIA ARE SATISFIED:
   a. A COST SAVINGS TO THE OWNER IS DOCUMENTED AND SUBMITTED WITH THE REQUEST.
   b. THE MATERIAL OR PRODUCT HAS BEEN APPROVED BY THE INTERNATIONAL CODE COUNCIL (ICC) AND THE ICC REPORT IS SUBMITTED WITH THE REQUEST.
      1) THE ICC ESR THAT IS SUBMITTED MUST REFERENCE THE BUILDING CODE UNDER WHICH THE PROJECT IS PERMITTED.
      2) ICC REPORTS THAT HAVE BEEN DISCONTINUED AT THE TIME OF PRODUCT INSTALLATION WILL NOT BE ACCEPTED.

2. SUBMITTALS NOT SATISFYING THE ABOVE CRITERIA WILL NOT BE CONSIDERED.



NOTES:
1. FIELD VERIFY EXISTING STEEL COLUMN LOCATION PRIOR TO FABRICATION AND INSTALLATION OF GLASS WALL.

1 LEVEL 02 - TICKETING DEPARTURES
SCALE: 3/16" = 1'-0"

FILE NAME: G:\Users\Ricardo.Rodriguez\Desktop\0211079_HOU-TERM - SECURITY EXIT LANE_R21.rvt
DATESTAMP 11/18/2021 8:58:23 AM

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DEPARTMENT OF AVIATION
RECOMMENDED:
HOUSTON AIRPORT SYSTEM
DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP 21-157 - IAH

REGISTRATION

TBPE Firm Registration No. 2194
STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED ARCHITECT
11/19/2021

DRAWING HISTORY

№	DATE	DESCRIPTION
1	10-20-21	ISSUE FOR BID/100%CD
2	11-19-21	ADDENDUM #3

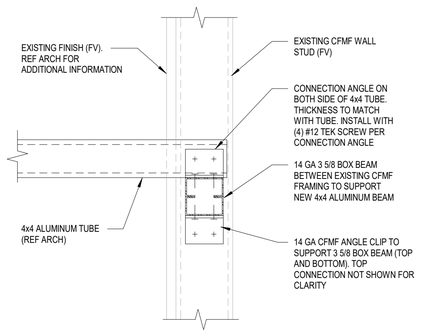
PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

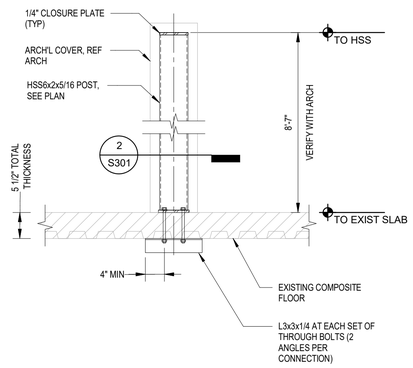
SHEET TITLE
ENLARGED FLOOR PLAN - TERMINAL

SHEET NUMBER
S200



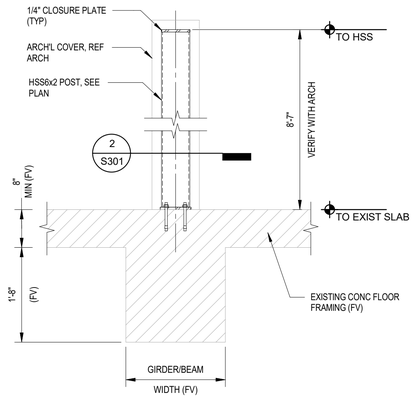
2/5 TYPICAL DETAIL - ALUMINUM TUBE CONNECTION TO EXISTING CFMF WALL

SCALE: 1 1/2" = 1'-0"



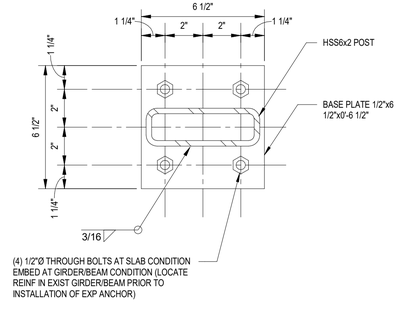
4 SECTION - AT COMPOSITE FLOOR

SCALE: 3/4" = 1'-0"



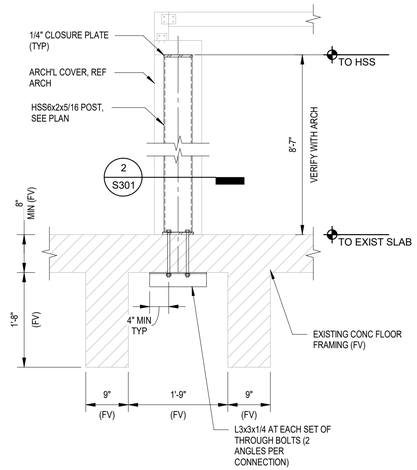
3 SECTION
AT GIRDER / BEAM CONDITION

3/4" = 1'-0"



2 SECTION

3" = 1'-0"



1 SECTION - AT SLAB CONDITION

3/4" = 1'-0"

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DATESTAMP 11/17/2021 2:44:00 PM

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DEPARTMENT OF AVIATION
RECOMMENDED.

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DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP 21-157 - IAH

REGISTRATION

TBPE Firm Registration No. 2194

STATE OF TEXAS
K. ELAINE ROGERS
65566
REGISTERED LICENSED ARCHITECT
11/19/2021

DRAWING HISTORY

Nr.	DATE	DESCRIPTION
1	10-20-21	ISSUE FOR BID/100%CD
2	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM P. HOBBY AIRPORT
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

DETAILS

SHEET NUMBER

S301

MISCELLANEOUS

SYMBOL	DESCRIPTION
3P/60A NF 3R	DISCONNECT SWITCH, NON-FUSIBLE 3 POLE, 60 AMP, NF: NON-FUSED, 3R: NEMA 3R ENCLOSURE
3P/60A F:50A 3R	DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, FUSED AT 50 AMPS, 3R: NEMA 3R ENCLOSURE
3P/60A Nx 3R	COMBINATION STARTER / DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, NEMA x SIZE, 3R: NEMA 3R ENCLOSURE
	MAGNETIC MOTOR STARTER
	ENCLOSED CIRCUIT BREAKER, AS INDICATED
VFD	VFD-RATED, REMOTE DISCONNECT SWITCH WITH EARLY-BREAK, AUXILIARY CONTACTS FOR VFD DECELERATE-TO-STOP SIGNAL. CONNECT CONTROL WIRING TO ASSOCIATED VFD (AS REQUIRED).
	PANELBOARD, 480 / 277V
	PANELBOARD, 208 /120V
SPD	SURGE PROTECTION DEVICE
	ELECTRICAL METER
TX	TRANSFORMER
	GROUND BUS BAR
	3/4" PLYWOOD TELEPHONE BACKBOARD
	CONCRETE ENCASED DUCTBANK
	HOMERUN TO PANEL INDICATED NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS
	WIRE IN CONDUIT CONCEALED, #12 AWG SIZE WIRE IN 1/2" CONDUIT MINIMUM UNLESS OTHERWISE NOTED
	CONDUIT EXPOSED
	CONDUIT CONCEALED BELOW SLAB OR GRADE
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	CONDUIT STUB

LOW VOLTAGE (RACEWAY ONLY)

SYMBOL	DESCRIPTION
X,N	INFORMATION OUTLET
	INFORMATION OUTLET, FLOOR MOUNTED
TV	CATV OUTLET

ELECTRICAL ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	IMC	INTERMEDIATE METAL CONDUIT
AC	ALTERNATING CURRENT	KCMIL	THOUSAND CIRCULAR MILS
A/C	AIR CONDITIONING	KVA	KILOVOLT - AMPERES
AFCI	ARC FAULT CIRCUIT INTERRUPTER	LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
AHU	AIR HANDLING UNIT	LTG	LIGHTING
AIC	AMPERE INTERRUPTING CAPACITY	LRA	LOCK ROTOR AMPS
AL	ALUMINUM	MC	METAL CLAD CABLE
ATS	AUTOMATIC TRANSFER SWITCH	MCB	MAIN CIRCUIT BREAKER
AWG	AMERICAN WIRE GAUGE	MCC	MOTOR CONTROL CENTER
C	CONDUIT	MCP	MOTOR CIRCUIT PROTECTION
CATV	CABLE TELEVISION	MLO	MAIN LUGS ONLY
CB	CRITICAL BRANCH	MS	MOTOR RATED SWITCH
C/B	CIRCUIT BREAKER	MTD	MOUNTED
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSED
CIR	CIRCUIT	NEC	NATIONAL ELECTRICAL CODE
CKT	CIRCUIT	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CU	COPPER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
DC	DIRECT CURRENT	NL	NIGHT LIGHT
DIA	DIAMETER	NO	NORMALLY OPEN OR NUMBER
EB	EQUIPMENT BRANCH	P	POLE
EC	ELECTRICAL CONTRACTOR	PB	PUSH BUTTON, PANIC BUTTON OR PULLBOX
ECB	ENCLOSED CIRCUIT BREAKER	PNL	PANEL
EF	EXHAUST FAN	PWR	POWER
ELEV	ELEVATOR	QTY	QUANTITY
EM	EMERGENCY	REQ	REQUIRED
EMT	ELECTRICAL METALLIC TUBING	RMC	RIGID METAL CONDUIT
EP	EMERGENCY POWER	RNC	RIGID NON-METALLIC CONDUIT
EPO	EMERGENCY POWER OFF (BUTTON OR SWITCH)	RTS	REMOTE TEST STATION
ER	EXISTING TO BE REMOVED	RTU	ROOF TOP UNIT
ETR	EXISTING TO BE RELOCATED	SP	SPARE
EWC	ELECTRIC WATER COOLER	ST	SHUNT-TRIP
EX	EXISTING TO REMAIN	SW	SWITCH
F	FUSE	SYM	SYMMETRICAL
FA	FIRE ALARM	TEL	TELEPHONE
FAA	FIRE ALARM ANNUNCIATOR PANEL	TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
FLA	FULL LOAD AMPERES	TMCB	THERMAL MAGNETIC CIRCUIT BREAKER
FMC	FLEXIBLE METAL CONDUIT	TYP	TYPICAL
G, GND	GROUND	UG	UNDERGROUND
GFCI, GFI	GROUND FAULT CIRCUIT INTERRUPTER	UL	UNDERWRITERS LABORATORY
GND	GROUND	V	VOLT
GRC	GALVANIZED RIGID METAL CONDUIT	VA	VOLT - AMPERE
HOA	HAND-OFF-AUTOMATIC SWITCH	W	WATT OR WIRE
HVAC	HEATING, VENTILATION, AIR CONDITIONING	WH	WATER HEATER
HZ	HERTZ	WP	WEATHERPROOF
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS	XFMR	TRANSFORMER
IG	ISOLATED GROUND		

RECEPTACLE(S)

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N.
	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE
	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. AUTOMATIC SWITCHED RECEPTACLE
	QUADRUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. HALF-AUTOMATIC SWITCHED RECEPTACLE
	QUADRAPLEX RECEPTACLE, 20 AMP, 120V U.O.N.
	QUADRAPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE
	SINGLE RECEPTACLE, 20 AMP, 120V U.O.N.
	GFI - TYPE DUPLEX RECEPTACLE (WP: DENOTES WEATHERPROOF COVER)
	GFI - TYPE DOUBLE DUPLEX RECEPTACLE
	GFI - DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS OTHERWISE NOTED
	GFI - DOUBLE DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS OTHERWISE NOTED
	SPECIAL PURPOSE RECEPTACLE (NEMA RATING AS INDICATED)
	DUPLEX RECEPTACLE - HALF SWITCHED
	DUPLEX RECEPTACLE - CEILING MOUNTED
IG	DUPLEX RECEPTACLE WITH ISOLATED GROUND
	DUPLEX RECEPTACLE - FLOOR MOUNTED
J	JUNCTION BOX - CEILING MOUNTED
J	JUNCTION BOX - WALL MOUNTED
J	JUNCTION BOX - FLOOR / GROUND MOUNTED

FIELD VERIFY ALL LOCATION

1. DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.
2. THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.
3. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COST FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

LIGHTING

SYMBOL	DESCRIPTION
	CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED NORMAL POWER
	CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED EMERGENCY POWER
	CEILING MOUNTED 1'x4' LUMINAIRE RECESSED OR SURFACE MOUNTED - NORMAL POWER
	CEILING MOUNTED 1'x4' LUMINAIRE RECESSED OR SURFACE MOUNTED - EMERGENCY POWER
	CEILING MOUNTED 1'x4' LUMINAIRE PENDANT MOUNTED - NORMAL POWER
	CEILING MOUNTED 1'x4' LUMINAIRE PENDANT MOUNTED - EMERGENCY POWER
	STRIP LUMINAIRE - NORMAL POWER
	STRIP LUMINAIRE - EMERGENCY POWER
	DOWNLIGHT LUMINAIRE - NORMAL POWER
	DOWNLIGHT LUMINAIRE - EMERGENCY POWER
	WALL MOUNTED LUMINAIRE - NORMAL POWER
	WALL MOUNTED LUMINAIRE - EMERGENCY POWER
	EMERGENCY BATTERY LIGHT UNIT
	EXIT LIGHT - SINGLE FACE WITH DIRECTIONAL ARROW
	EXIT LIGHT - DOUBLE FACE
	EXIT LIGHT - WALL MOUNTED

FIRE ALARM

SYMBOL	DESCRIPTION
R	FIRE ALARM RELAY
P	FIRE ALARM MANUAL PULL STATION
	FIRE ALARM STROBE ONLY DEVICE MINIMUM 75cd RATING
	FIRE ALARM HORN / STROBE ONLY DEVICE MINIMUM 75cd RATING
	FIRE ALARM SPEAKER / STROBE ONLY DEVICE MINIMUM 75cd RATING
	FIRE ALARM SPEAKER DEVICE
	FIRE ALARM HORN DEVICE MINIMUM 75cd RATING
	FIRE ALARM STROBE ONLY DEVICE MINIMUM 75cd RATING - CEILING MOUNTED
	FIRE ALARM HORN / LED STROBE ONLY DEVICE MINIMUM 75cd RATING - CEILING MOUNTED
	FIRE ALARM SPEAKER / STROBE ONLY DEVICE MINIMUM 75cd RATING - CEILING MOUNTED
	FIRE ALARM SPEAKER DEVICE - CEILING MOUNTED
	FIRE ALARM HORN DEVICE MINIMUM 75cd RATING - CEILING MOUNTED

SWITCHES

SYMBOL	DESCRIPTION
$	SINGLE POWER TOGGLE SWITCH (LETTER DENOTES FIXTURE CONTROLLED)
$3	THREE-WAY TOGGLE SWITCH
$4	FOUR-WAY TOGGLE SWITCH
$M	MOTOR SWITCH
$F	FAN SWITCH
$D	DIMMER SWITCH, COMPATIBLE WITH 0-10V DIMMING.
$T	TIMER SWITCH (60 MINUTES)
$LV	LOW VOLTAGE SWITCH
$K	KEY SWITCH
$WP	SWITCH - WEATHERPROOF
$OS	WALL SWITCH OCCUPANCY SENSOR
$DOS	DIMMER OCCUPANCY SENSOR SWITCH
OS	OCCUPANCY SENSOR - CEILING MOUNTED
OS	OCCUPANCY SENSOR - WALL MOUNTED
PC	PHOTOCELL

GENERAL NOTES

1. THE ELECTRICAL CONTRACT DOCUMENTS ARE SCHEMATIC IN NATURE AND INDICATE THE GENERAL CONFIGURATION OF SYSTEMS AND WORK. EXAMINE ARCHITECTURAL, INTERIOR DESIGN, CIVIL, LANDSCAPE, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, TECHNOLOGY, AND FOOD SERVICE DRAWINGS AND SPECIFICATIONS FOR LOCATIONS AND REQUIREMENTS OF DEVICES, EQUIPMENT, LUMINARIES, AND SYSTEMS. CONTENT INDICATED ON THE SPECIFICATIONS BUT NOT THE DRAWINGS, OR CONTENT INDICATED ON THE DRAWINGS BUT NOT THE SPECIFICATIONS, SHALL BE INTERPRETED AS BEING PRESENT ON BOTH.
2. PROVIDE ALL DEVICES, EQUIPMENT, ACCESSORIES, MATERIALS, AND LABOR REQUIRED FOR A COMPLETE, FUNCTIONAL, AND CODE-COMPLIANT ELECTRICAL SYSTEM. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CODES AND STANDARDS INDICATED ON THIS SHEET.
3. ALL DEVICES, EQUIPMENT, ACCESSORIES, AND MATERIALS SHALL BE NEW, AND, WHERE APPLICABLE, SHALL BE LISTED BY U.L. OR ANOTHER APPROVED ELECTRICAL TESTING AGENCY.
4. COORDINATE LOCATIONS AND REQUIREMENTS OF EQUIPMENT REQUIRING ELECTRICAL SERVICE (I.E. PRINTERS, APPLIANCES, MOTORIZED PROJECTION SCREENS, MOTORIZED SHADES, ELEVATORS, TOOLS, ETC.) WITH APPROVED SHOP DRAWINGS, SPECIFICATION SHEETS, MANUFACTURER'S INSTALLATION LITERATURE, AND EQUIPMENT NAMEPLATE DATA, PRIOR TO ROUGH-IN AND INSTALLATION. PROVIDE ELECTRICAL CONNECTIONS (AS REQUIRED).
5. BID SHALL INCLUDE COSTS ASSOCIATED WITH BACKFILLING, CORE DRILLING, DIRECTIONAL BORING, EXCAVATING, AND REPAIRING OF SURFACES.
6. PAY ALL FEES, TAXES, AND OTHER COSTS ASSOCIATED WITH THE WORK ENCOMPASSED BY THE ELECTRICAL CONTRACT DOCUMENTS. PROVIDE ALL REQUIRED NOTICES AND OBTAIN ALL REQUIRED PERMITS.
7. PROVIDE COOPERATION WITH OTHER TRADES AND PROVIDE ANY INFORMATION REQUIRED TO FACILITATE THE COMPLETION OF THEIR WORK. COORDINATE DEVICE AND EQUIPMENT LOCATIONS AND MOUNTING HEIGHTS WITH OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION. COORDINATE CONDUIT ROUTING WITH OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
8. AN ALLOWANCE OF $12,000 SHALL BE ADDED FOR ANY MISCELLANEOUS MODIFICATIONS THAT WILL BE REQUIRED IN THE FIELD BEYOND BASE BID SCOPE. ALLOWANCE SHALL BE INCLUDED IN BID WITH NO EXCEPTIONS.
9. PROVIDE TEMPORARY ELECTRICAL SERVICE(S) FOR USE BY OTHER TRADES DURING PROJECT CONSTRUCTION. UPON COMPLETION OF THE PROJECT, THE TEMPORARY ELECTRICAL SERVICE(S) SHALL BE REMOVED.
10. WITHIN THIRTY (30) DAYS OF SYSTEM ACCEPTANCE, PROVIDE RECORD DRAWINGS TO THE OWNER. DRAWINGS SHALL BE COMPRISED OF SINGLE-LINE DIAGRAMS AND FLOOR PLANS INDICATING THE LOCATIONS AND AREAS SERVED FOR ALL DISTRIBUTION.
11. WITHIN THIRTY (30) DAYS OF SYSTEM ACCEPTANCE, PROVIDE AN OPERATING MANUAL AND MAINTENANCE MANUAL TO THE OWNER. THE MANUALS SHALL INCLUDE THE FOLLOWING INFORMATION: SUBMITTAL DATA WITH EQUIPMENT RATINGS AND SELECTED OPTIONS, OPERATION AND MAINTENANCE MANUALS FOR EQUIPMENT REQUIRING MAINTENANCE, NAMES AND ADDRESSES OF A MINIMUM OF ONE (1) QUALIFIED SERVICE AGENCY.
12. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WALL-MOUNTED ELECTRICAL DEVICES AND EQUIPMENT WITH THE ARCHITECTURAL DRAWINGS, GENERAL CONTRACTOR, CASEWORK/MILLWORK, AND OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
13. EQUIPMENT LOCATIONS SHALL SATISFY THE WORKING CLEARANCE REQUIREMENTS AND DEDICATED SPACE REQUIREMENTS OF NEC ARTICLE 110. PROVIDE SHOP DRAWINGS, DEMONSTRATING COMPLIANCE AND INTER-DISCIPLINARY COORDINATION, FOR ENGINEERING REVIEW.
14. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS, SECTIONS, AND ELEVATIONS FOR LOCATIONS AND/OR MOUNTING HEIGHTS OF LUMINARIES LOCATED AT CEILINGS AND/OR WALLS. VERIFY THAT CEILING-MOUNTED LUMINARIES ARE SUITABLE FOR THE FINISHED CEILING SYSTEM INDICATED AND PROVIDE ACCORDINGLY. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF WALL-MOUNTED LUMINARIES WITH CASEWORK, FURNITURE, AND ARCHITECTURAL ELEMENTS. WHERE ARCHITECTURAL REFLECTED CEILING PLANS INDICATE FIRE-RATED CEILING SYSTEMS, PROVIDE UL-LISTED LUMINAIRE ENCLOSURES (AS REQUIRED).
15. TYPE BX(AC) OR MC CABLE IS PROHIBITED FOR USE ON THIS PROJECT. FLEX CONDUIT IS ONLY ALLOW IN 3' MAXIMUM LENGTH FROM JUNCTION BOX TO LIGHT FIXURES. ALL CONDUIT SHALL BE A MINIMUM 3/4".
16. CONTRACTOR SHALL CONDUCT AN X-RAY OF THE EXISTING SLAB AND SUBMIT READINGS/RESULTS TO H.A.S. AND DESIGN TEAM FOR REVIEW AND APPROVAL PRIOR TO ANY ROUGH-INS OR CORINGS THAT ARE TO BE PERFORMED.
17. PROVIDE A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE NEC AND SPECIFICATIONS. BOND SERVICE ENTRANCE ELECTRICAL EQUIPMENT TO BUILDING STEEL, GROUND RODS, METAL WATER MAINS. LIGHTNING PROTECTION SYSTEM GROUNDING ELECTRODES (WHERE PRESENT), AND TELECOMMUNICATIONS SYSTEM GROUNDING ELECTRODES (AS REQUIRED). EQUIPMENT GROUNDING SHALL BE OF THE WIRE TYPE.
18. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. ALL FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE INSTALLED WITHIN CONDUIT, UNLESS OTHERWISE INDICATED. ALL CONDUCTORS SHALL BE COPPER, UNLESS OTHERWISE INDICATED.
19. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH CIRCUIT. MULTI-WIRE BRANCH CIRCUITS SHALL BE PROHIBITED.
20. CONNECTIONS TO TRANSFORMERS AND MECHANICAL EQUIPMENT SHALL BE MADE WITH FMC OR LFMC, UNLESS OTHERWISE INDICATED.
21. WHERE PRACTICABLE, CONDUITS SHALL BE CONCEALED BELOW SLABS, WITHIN WALLS, AND ABOVE FINISHED CEILING SYSTEMS. WHERE CONDUITS ARE EMBEDDED WITHIN CONCRETE SLABS, COORDINATE CONDUIT SIZE LIMITATIONS AND SPACING REQUIREMENTS WITH THE STRUCTURAL DRAWINGS/ENGINEER PRIOR TO INSTALLATION.
22. SEAL ALL CONDUIT PENETRATIONS AT FIRE-RATED PARTITIONS. REFER TO DETAILS FOR FURTHER INFORMATION.
23. COORDINATE ALL CONDUIT PENETRATIONS WITH ARCHITECTURAL DRAWINGS, STRUCTURAL DRAWINGS, FIELD CONDITIONS, AND OTHER TRADES. PROVIDE SEALING FITTINGS TO PROHIBIT CONDENSATION AND/OR THE PASSAGE OF GASES OR VAPORS (AS REQUIRED).
24. INCREASE FEEDER AND BRANCH CIRCUIT CONDUCTOR SIZES AS REQUIRED IN ORDER TO MAINTAIN A MAXIMUM, CUMULATIVE VOLTAGE DROP OF 5% AT THE END LOAD. MAXIMUM VOLTAGE DROP SHALL BE DISTRIBUTED AS FOLLOWS: 3% FOR FEEDERS, 2% FOR BRANCH CIRCUITS. WHERE THE VOLTAGE DROP REQUIREMENTS OF THE LOCAL ENERGY CODE ARE MORE STRINGENT, THE REQUIREMENTS OF THE LOCAL ENERGY CODE SHALL TAKE PRECEDENCE WHERE PHASE AND NEUTRAL CONDUCTOR SIZES ARE INCREASED FOR VOLTAGE DROP. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE INCREASED PROPORTIONATELY.
25. PROVIDE ALL REQUIRED DISCONNECT SWITCHES, STARTERS, AND COMBINATION STARTER/DISCONNECT SWITCHES. MAKE CONNECTIONS TO ALL ELECTRICALLY-DRIVEN DEVICES AND EQUIPMENT PROVIDED BY THE MECHANICAL, PLUMBING, AND FIRE PROTECTION CONTRACTORS. EXAMINE EQUIPMENT NAMEPLATE RATINGS PRIOR TO ROUGH-IN AND INSTALLATION. PROVIDE OVERCURRENT PROTECTION IN ACCORDANCE WITH EQUIPMENT NAMEPLATE RATINGS. PROVIDE ALL POWER SUPPLIES, CONTROL TRANSFORMERS, RELAYS, AND OTHER ACCESSORIES REQUIRED TO FACILITATE THE PROPER OPERATION OF MECHANICAL EQUIPMENT AS DESCRIBED WITHIN THE MECHANICAL ENGINEER'S SEQUENCE OF OPERATIONS.
26. ALL INTERIOR ELECTRICAL EQUIPMENT SHALL BE OF NEMA 1 CONSTRUCTION, UNLESS OTHERWISE INDICATED. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE OF NEMA 4X CONSTRUCTION, UNLESS OTHERWISE INDICATED. EQUIPMENT RATINGS SHALL CORRESPOND TO THEIR INSTALLED ENVIRONMENTS.
27. ALL NEW AND/OR EXISTING PANELBOARDS AND SWITCHBOARDS WITHIN THE SCOPE OF THIS PROJECT SHALL BE PROVIDED WITH NEW, TYPEWRITTEN DIRECTORIES. CIRCUIT DESCRIPTIONS SHALL CONTAIN ROOM NAMES AND ROOM NUMBERS BASED UPON INSTALLED ROOM SIGNAGE.
28. PROVIDE PHENOLIC, ENGRAVED IDENTIFICATION PLACARDS AT ALL SWITCHBOARDS, SWITCHGEAR, PANELBOARDS, TRANSFORMERS, DISCONNECT SWITCHES, ENCLOSED CIRCUIT BREAKERS, CABINETS, AND AUTOMATIC TRANSFER SWITCHES. REFER TO DETAILS FOR FURTHER INFORMATION.
29. PROVIDE PHENOLIC, ENGRAVED IDENTIFICATION PLACARDS AT EACH CIRCUIT BREAKER WITHIN A DISTRIBUTION PANEL, SWITCHBOARD, OR SWITCHGEAR.
30. PROVIDE TYPEWRITTEN OR ENGRAVED PANEL AND CIRCUIT IDENTIFICATION AT DEVICE COVER PLATES. WALL PLATES SHALL BE STAINLESS STEEL.
31. PROVIDE HANDWRITTEN PANEL AND CIRCUIT IDENTIFICATION ON THE EXTERIORS OF ALL JUNCTION BOXES, PULL BOXES, AND WIREWAYS.
32. CURRENT DRAWINGS ARE BASED ON SPECIFICATIONS AND REQUIREMENTS FROM A SINGLE MANUFACTURER DOCUMENTS (ISSUED IN MAY 2019). IF ANY OTHER MANUFACTURER IS AWARDED THE PROJECT, THE SELECTED MANUFACTURER SHALL BE PROVIDE UPDATED SYSTEM REQUIREMENTS. THE ENGINEER RESERVES THE RIGHT TO REVIEW ANY REVISE SPECIFICATIONS AND ELECTRICAL REQUIREMENTS PRIOR TO COMMENCEMENT OF WORK TO ENSURE THE PROVISIONS NOTED ON THE DOCUMENTS ARE CORRECT PER THE SELECTED SYSTEM.

CODES AND STANDARDS

NFPA 70	NATIONAL ELECTRICAL CODE (2020)
NFPA 72	NATIONAL FIRE ALARM CODE (2013)
NFPA 75	STANDARD FOR THE PROTECTION OF ELECTRONIC COMPUTER / DATA PROCESSING EQUIPMENT (2013)
NFPA 90A	STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS (2015)
NFPA 90B	STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS (2015)
NFPA 92	RECOMMENDED PRACTICE FOR SMOKE CONTROL SYSTEMS (2012)
NFPA 101	LIFE SAFETY CODE (2015)
NFPA 110	STANDARD FOR EMERGENCY AND STAND-BY POWER SYSTEMS (2015)
NFPA 780	STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS (2014)
2017 EDT.	INTERNATIONAL BUILDING CODE (6th EDITION)
2015 (IECC)	INTERNATIONAL ENERGY CONSERVATION CODE
	LOCAL JURISDICTION CODES AND / OR OWNER DESIGN GUIDELINES

COMMISSIONING

1. PRIOR TO FINAL INSPECTION, THE CONTRACTOR SHALL SUBMIT EVIDENCE TO THE REGISTERED DESIGN PROFESSIONAL (ELECTRICAL ENGINEER-OF-RECORD) OR REGISTERED DESIGN PROFESSIONAL'S REPRESENTATIVE THAT THE LIGHTING SYSTEMS HAVE BEEN TESTED TO ENSURE THAT THEY ARE SATISFY THE INTENT OF THESE CONTRACT DOCUMENTS AND THE MANUFACTURERS' WRITTEN INSTRUCTIONS.

SHEET INDEX

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DEPARTMENT OF AVIATION
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DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP # 21-157 - IAH

DRAWING HISTORY

No.	DATE	DESCRIPTION
4	08-06-21	100% CD
5	09-09-21	FOR INFORMATION AND REFERENCE ONLY
6	10-20-21	ISSUE FOR BID/100% CD
7	11-19-21	ADDENDUM #3

PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
ELECTRICAL LEGEND

SHEET NUMBER
E000

KEYNOTES (7)

NUMBER	NOTES
1	PROVIDE AND INSTALL NEW RACK MOUNTED UPS. INSTALL L5-30R FOR UPS POWER CONNECTION. EXTEND CIRCUIT PANEL AS NOTED. UPS SHALL BE EATON 9PX3000RT-L LITHIUM-ION RACKMOUNT OR APPROVED EQUIVALENT.
2	UTILIZE EXISTING PANEL WITH EXISTING SPARE BREAKERS FOR THE NEW CIRCUIT SHOW FOR THE SECURITY CABINET AND EXIT LANE ENCLOSURE. ROUTE CONDUIT AND CONDUCTORS TO PROPOSED LOADS ON GROUND AND SECOND LEVEL. UPDATE PANEL SCHEDULE AND LABEL CONDUITS ACCORDING TO SPECIFICATIONS.

POWER NOTES

A. COORDINATE WITH ARCHITECTURAL ELEVATIONS AND TELECOMM DRAWINGS PRIOR TO ROUGH-IN OF ANY OUTLET DEVICES.

B. PROVIDE ADHESIVE LABELS FOR ALL RECEPTACLE OUTLETS SHOWN ON PLANS.

C. REFER TO TELECOMM (T-SERIES) DRAWINGS FOR EXACT LOCATIONS OF ALL BACKBONE/COMMUNICATION CONDUITS AND GROUNDBARS.

D. COORDINATE EXACT RECEPTACLE TYPE WITH OWNER PRIOR TO COMMENCEMENT OF WORK. BASIS OF DESIGN REFLECTS THE PROVISION OF L5-30R DUPLEX RECEPTACLES.

E. PROVIDE JUNCTION BOX AND OR HOUSINGS FOR ALL SURFACE MOUNTED RECEPTACLES.

F. ALL WALL PENETRATIONS SHALL BE SEALED WITH UL LISTED FIRE RATED CAULKING MATERIAL.

G. ANY FIRE ALARM DEVICES SHOWN ON ELECTRICAL DRAWINGS ARE SHOWN FOR BIDDING PURPOSES ONLY AND NOT FOR CONSTRUCTION OR INSTALLATION. THE FIRE ALARM CONTRACTOR SHALL MODIFY THE FIRE ALARM SYSTEM TO PROVIDE FULL COVERAGE OF THE PROJECT AREA IN ACCORDANCE WITH NFPA-72 AND ALL CITY, STATE, NATIONAL CODES AND STANDARDS, AND THE AUTHORITY HAVING LOCAL JURISDICTION. THE FIRE ALARM CONTRACTOR SHALL EXTEND THE EXISTING FIRE ALARM SYSTEM TO THE NEW SPACE. NEW DEVICES SHALL MATCH EXISTING FIRE ALARM SYSTEM DESIGN. TEXAS STATE FIRE MARSHALL FIRE ALARM PLANNING SUPERINTENDENT AND/OR NICET III CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR THE INSTALLATION OF THE FIRE ALARM SYSTEM TO THE AHJ FOR APPROVAL, INSTALLATION AND PROVIDE AN APPROVED COPY TO THE OWNER FOR RECORDS.

H. ALL NOIFICATION DEVICES SHALL BE PROVIDED WITH LED STROBES

I. (*) INDICATES EXISTING DEVICE TO REMAIN.

7

LEVEL 01 - BAGGAGE CLAIM - FLOOR PLAN - TERMINAL - POWER 3/32" = 1'-0" (1)

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HAS TIP # 21-157 - IAH

REGISTRATION

STATE OF TEXAS
JULIUS DARREN DAVIS
102926
LICENSED
PROFESSIONAL ENGINEER
11-16-2021

DRAWING HISTORY

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PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

LEVEL 01 - BAGGAGE CLAIM - FLOOR PLAN - TERMINAL - POWER

SHEET NUMBER

E401

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LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL - POWER

1/4" = 1'-0" (1)

KEYNOTES

NUMBER	NOTES
1	PROVIDE POWER AND DATA FOR TERMINAL LANE WORKSTATION. DEVICES SHALL MOUNTED TO POWER PORTION OF STORE FRONT MULLION. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF WORKSTATION WITH OWNER PRIOR TO COMMENCEMENT OF WORK. PROVIDE AND INSTALL LOW-PROFILE SURFACE MOUNTED RACEWAY WITH DUAL CHANNELS FOR ROUTING OF POWER AND DATA CABLES FROM CEILING ABOVE (HUBBELL HBL2400BDIV OR APPROVED EQUIVALENT). RACEWAY SHALL BE THE SAME FINISH AS THE EXISTING WALL MULLION. FURNISH ALL ATTACHMENTS, BOXES, FITTINGS NEEDED FOR PROPER INSTALLATION ALONG THE EXISTING MULLION.
2	CONNECT ALL NEW FIRE ALARM DEVICES TO NEAREST FIRE ALARM JUNCTION BOX TO ENSURE CONNECTION TO F.A.C.P LOCATED ON THE FIRST LEVEL. NEAR THE SOUTHWEST ADMIN OFFICE.
3	PROVIDE ADDITIONAL JUNCTION BOXES WHERE REQUIRED FOR MOTOR CONNECTIONS. UTILIZE ADDITIONAL SPARE BREAKERS FOR POWER CONNECTIONS. CONTRACTOR SHALL PROVIDE MOTOR RATED TOGGLE SWITCH FOR MEANS OF DISCONNECT WHERE REQUIRED FOR DOOR MOTOR CONNECTION. VERIFY EXACT LOCATION AND REQUIREMENT WITH ELECTRICAL INSPECTOR PRIOR TO COMMENCEMENT OF WORK. PPROVIDE CONDUIT AND FEEDERS ROUTED TO EXISTING PANEL "WT1LA1G".

POWER NOTES

A. COORDINATE WITH ARCHITECTURAL ELEVATIONS AND TELECOMM DRAWINGS PRIOR TO ROUGH-IN OF ANY OUTLET DEVICES.

B. PROVIDE ADHESIVE LABELS FOR ALL RECEPTACLE OUTLETS SHOWN ON PLANS.

C. REFER TO TELECOMM (T-SERIES) DRAWINGS FOR EXACT LOCATIONS OF ALL BACKBONE/COMMUNICATION CONDUITS AND GROUNDBARS.

D. COORDINATE EXACT RECEPTACLE TYPE WITH OWNER PRIOR TO COMMENCEMENT OF WORK. BASIS OF DESIGN REFLECTS THE PROVISION OF L5-30R DUPLEX RECEPTACLES.

E. PROVIDE JUNCTION BOX AND OR HOUSINGS FOR ALL SURFACE MOUNTED RECEPTACLES.

F. ALL WALL PENETRATIONS SHALL BE SEALED WITH UL LISTED FIRE RATED CAULKING MATERIAL.

G. ANY FIRE ALARM DEVICES SHOWN ON ELECTRICAL DRAWINGS ARE SHOWN FOR BIDDING PURPOSES ONLY AND NOT FOR CONSTRUCTION OR INSTALLATION. THE FIRE ALARM CONTRACTOR SHALL MODIFY THE FIRE ALARM SYSTEM TO PROVIDE FULL COVERAGE OF THE PROJECT AREA IN ACCORDANCE WITH NFPA-72 AND ALL CITY, STATE, NATIONAL CODES AND STANDARDS, AND THE AUTHORITY HAVING LOCAL JURISDICTION. THE FIRE ALARM CONTRACTOR SHALL EXTEND THE EXISTING FIRE ALARM SYSTEM TO THE NEW SPACE. NEW DEVICES SHALL MATCH EXISTING FIRE ALARM SYSTEM DESIGN. TEXAS STATE FIRE MARSHALL FIRE ALARM PLANNING SUPERINTENDENT AND/OR NICET III CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR THE INSTALLATION OF THE FIRE ALARM SYSTEM TO THE AHJ FOR APPROVAL, INSTALLATION AND PROVIDE AN APPROVED COPY TO THE OWNER FOR RECORDS.

H. ALL NOIFICATION DEVICES SHALL BE PROVIDED WITH LED STROBES

I. (*) INDICATES EXISTING DEVICE TO REMAIN.

7

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STATE OF TEXAS
JULIUS DARREN DAVIS
102926
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PROFESSIONAL ENGINEER
11-16-2021

DRAWING HISTORY

№.	DATE	DESCRIPTION
4	08-06-21	100% CD
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PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY
HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL - POWER

SHEET NUMBER
E402

Branch Panel: EX. 2HLB

Location:
Supply From:
Mounting: Surface
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating:
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: 100 A

Notes:
ALL WIRE SIZES SHALL BE 12 AWG, UNLESS OTHERWISE NOTED.

Note	Ckt	Circuit Description	Wire Size	Trip (A)	Pole	A		B		C		Pole	Trip (A)	Wire Size	Circuit Description	Ckt	Note
1	1	Ex. Lighting		20	1	680	680					1	20		Ex. Lighting	2	1
1	3	Ex. Lighting		20	1			750	560			1	20		Ex. Lighting	4	1
1	5	Ex. Lighting		20	1					560	890	1	20		Ex. Lighting	6	1
2	7	Lighting		20	1	1280										8	
	9															10	
	11															12	
	13															14	
	15															16	
	17															18	
	19															20	
				Total Load		2606.8 VA		1310 VA		1450 VA							
				Total Amps		9 A		5 A		5 A							
		Legend:															

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	1280 VA	125.00%	1600 VA		
Spare	4120 VA	100.00%	4120 VA	**Total Conn. Load:**	5351 VA
				Total Est. Demand:	5662 VA
				Total Conn.:	6 A
				Total Est. Demand:	7 A

Notes:
1. EXISTING BREAKER TO REMAIN.
2. INTERCEPT EXISTING CIRCUIT TO SERVE NEW LIGHT FIXTURES.

Branch Panel: EX. WT1LA1G

Location:
Supply From:
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phas... 3
Wires: 4

A.I.C. Rating:
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: 100 A

Notes:
ALL WIRE SIZES SHALL BE 12 AWG, UNLESS OTHERWISE NOTED.

Note	Ckt	Circuit Description	Wire Size	Trip (A)	Pole	A		B		C		Pole	Trip (A)	Wire Size	Circuit Description	Ckt	Note
	1	Receptacle (Door Motors)		20	1	900	360					1	20		Receptacle (Surveillience Desk)	2	
	3	Receptacle (Door Motors)		20	1			900	900			1	20		Receptacle (Door Motors)	4	
	5	Spare		20	1					0	0	1	20		Spare	6	
	7	Spare		20	1	0	0					1	20		Spare	8	
	9	Spare		20	1			0	0			1	20		Spare	10	
	11	Spare		20	1					0	0	1	20		Spare	12	
	13	Spare		20	1	0	0					1	20		Spare	14	
	15	Spare		20	1			0	0			1	20		Spare	16	
	17	Spare		20	1					0	0	1	20		Spare	18	
	19	Spare		20	1	0	0					1	20		Spare	20	
	21	Rack Mounted UPS		30	2			1500								22	
	23	--		--	--					1500						24	
	25															26	
	27															28	
	29															30	
	31															32	
	33															34	
	35															36	
	37															38	
	39															40	
	41															42	
				Total Load		1260 VA		3300 VA		1500 VA							
				Total Amps		11 A		28 A		13 A							
		Legend:															

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	3000 VA	100.00%	3000 VA		
Receptacle	3060 VA	100.00%	3060 VA	**Total Conn. Load:**	6060 VA
				Total Est. Demand:	6060 VA
				Total Conn.:	17 A
				Total Est. Demand:	17 A

Notes:
1. REUSED EXISTING BREAKERS TO SERVE NEW PROPOSED EXIT LANE CIRCUITS.
2. UTILIZE EXISTING BREAKERS FOR ADDITIONAL DOOR MOTORS IF MANUFACTURER AMPERAGE EXCEEDS 6 AMPS PER MOTOR.
3. PROVIDE NEW 2P BREAKER WITH THE SAME A.I.C. RATING AS THE EXISTING BREAKERS.

GENERAL NOTES

1. CONTRACTOR IS REQUIRED TO COORDINATE ALL INSTALLATIONS IN EACH SPACE WITH OTHER TRADES. PROVIDE SHOP DRAWINGS AND LAYOUTS FOR EACH ELECTRICAL ROOM WITH PROPOSED CONDUIT ROUTES TO ALLEVIATE POTENTIAL CONFLICTS WITH MECHANICAL, PLUMBING AND TELECOMMUNICATIONS.
2. CONTRACTOR SHALL CONDUCT AMPERAGE READINGS FOR THE EXISTING SWITCHGEAR TO VERIFY AMPERAGES FOR EACH PHASE. READINGS SHALL BE RECORDED AND PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCEMENT OF ANY ELECTRICAL INSTALLATIONS.
3. PROVIDE PROPER LABELING FOR ALL ELECTRICAL DEVICES. REFER TO SPECIFICATIONS AND DETAILS FOR LABEL TYPES AND REQUIREMENTS.
4. CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT AND ACCESSORIES REQUIRED FOR PROPER INSTALLATION OF ALL DEVICES TO BE INSTALLED.
5. CONTRACTOR SHALL PLACE A LAMINATED COPY OF THE LOAD CALCULATIONS ON THE BOTTOM INTERIOR BEZEL IN EACH PANEL. LOAD CALCULATIONS ARE LOCATED ON THE PANELBOARD SHEETS AT THE BOTTOM OF EACH PANEL SCHEDULE.
6. ALL CONDUITS SHALL BE LABELED WITH THE VOLTAGE AND CIRCUITS THAT ARE HOUSED WITHIN. REFER TO SPECIFICATIONS FOR EXACT REQUIREMENTS.

KEYED NOTES (#)

1. PROVIDE NEW 20A/1P BREAKERS IN EXISTING PANEL TO SERVE THE EXIT LANE POWER LOADS. BREAKERS SHALL HAVE THE SAME A.I.C. RATING AS THE EXISTING BREAKERS CURRENTLY INSTALLED.
2. FIELD VERIFY AND COORDINATE EXACT ROUTING OF CONDUIT PRIOR TO COMMENCEMENT OF WORK. CONDUIT SHALL BE LABELED AND MOUNTED PER H.A.S SPECIFICATIONS.
3. CONTRACTOR SHALL UPDATE THE EXISTING PANELBOARD DIRECTORY PRIOR TO THE COMPLETION OF WORK TO INDICATE THE NEW DEVICE LOADS BEING SERVED FROM THE EXISTING PANE.

LEGEND

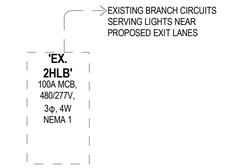
- NEW EQUIPMENT
- EXISTING EQUIPMENT TO REMAIN
- SPD — SURGE PROTECTION DEVICE
- M — ENERGY MONITORING DEVICE, SIEMENS PAC 3200, EMON-DMON OR APPROVED EQUAL

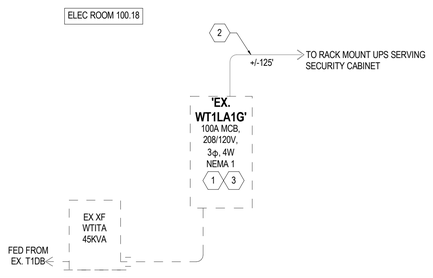
LOAD ANALYSIS

EXISTING MAX DEMAND LOAD = 3.34 KVA
NEW LOAD = 1.980 KVA

TOTAL LOAD ON PANEL = 5.320 KVA (15A)

NEW PROPOSED LOAD DOES NOT EXCEED 100A CAPACITY





ELECTRICAL POWER RISER DIAGRAM

NOT TO SCALE

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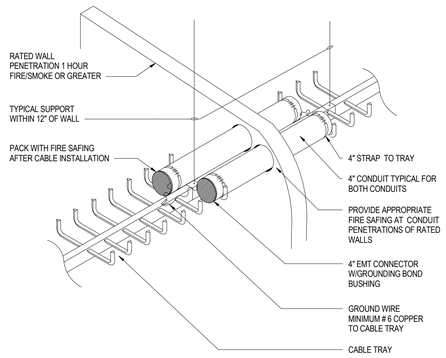
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
RISER DIAGRAMS - ELECTRICAL

SHEET NUMBER
E601



WALL PENETRATION DETAIL | E

EXISTING ELECTRICAL EQUIPMENT | D

DETAIL NOTES:

1. IMAGE INDICATES LOCATION OF EXISTING FIRE ALARM CONTROL PANEL. ALL NEW FIRE ALARM DEVICES ARE TO BE CONNECTED TO THIS CONTROL PANEL. PROVIDE ALL NECESSARY CABLING, CONDUITS, ETC.

EXISTING FIRE ALARM CONTROL PANEL | A

DETAIL NOTES:

1. EXISTING FIXTURES ARE TO BE REMOVED. ALL CONDUCTORS AND CONDUIT ARE TO BE REMOVED BACK TO THE POWER SOURCE.

EXISTING EGRESS LANE | B

DETAIL NOTES:

1. EXISTING DOWNLIGHTS AND LOW-VOLTAGE DEVICES WILL BE RELOCATED PER OWNERS/HAS DISCRETION. COORDINATE WITH HAS PM FOR EXACT LOCATION OF REMOVED DEVICES.
2. REMOVE AND PATCH LOCATION OF EXISTING DOWNLIGHTS.
3. REUSE EXISTING FIRE ALARM STROBES, EXISTING DEVICES ARE TO REMAIN.
4. VIDEO DISPLAY BOARD SHALL BE REMOVED. ENSURE ALL ASSOCIATED CONDUCTORS, WIRING, ETC. ARE REMOVED BACK TO SOURCE. EXISTING CONDUIT SHALL BE REUSED FOR NEW DATA DEVICES.

EXISTING EXIT SOFFIT | C

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Texas Firm: F-14583 ProjectNo.:02.18018

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DEPARTMENT OF AVIATION
RECOMMENDED:
HOUSTON AIRPORT SYSTEM
DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP # 21-157 - IAH

STATE OF TEXAS
JULIUS DARREN DAVIS
102926
LICENSED
PROFESSIONAL ENGINEER
11-16-2021

DRAWING HISTORY

№	DATE	DESCRIPTION
4	08-06-21	100% CD
5	09-09-21	FOR INFORMATION AND REFERENCE ONLY
7	11-19-21	ADDENDUM #3

PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E902

FIRE SPRINKLER LEGEND

SYM	ORF	TEMP	RESPONSE	K-FAC	FINISH	MODEL	REMARKS	PLATE	MFG.	IMAGE	NOTES
◎	1/2"	135 DEG	QUICK	5.5	BRASS	VK462	CONCEALED	WHITE	VIKING		
⊠	1/2"	155 DEG	QUICK	5.62	BRASS	VK300	UPRIGHT	---	VIKING		
◁	3/4"	155 DEG	QUICK	5.5	BRASS	F3QR56	SIDEWALL DRY TYPE	---	RELIABLE		

NOTES:
1. SPRINKLER HEADS SHALL BE ORDINARY TEMPERATURE UNLESS OTHERWISE NOTED.
2. SPRINKLER GUARDS SHALL BE PROVIDED ON ALL SPRINKLER HEADS INSTALLED LOWER THAN 7'-0" ABOVE FINISH FLOOR AND / OR ARE SUBJECT TO DAMAGE.
3. PROVIDE RECESSED, CONCEALED AND SIDEWALL SPRINKLERS WITH ESCUTCHEON IN EXPOSED AREA'S.
4. COORDINATE COLOR SELECTIONS WITH ARCHITECT.

FIRE PROTECTION LEGEND

SYMBOL	DESCRIPTION
	NEW SPRINKLER PIPING - SCHEDULE 40 STEEL
	ELBOW, TURNED DOWN
	ELBOW, TURNED UP
	TEE, TURNED UP
	TEE, TURNED DOWN
	CAP
FC	FLUSHING CONNECTION
	ZONE CONTROL VALVE / FLOW SWITCH / DRAIN RISER
OR	CONTROL VALVE WITH TAMPER SWITCH
	CHECK VALVE
	FLOW SWITCH
	BACKFLOW PREVENTOR WITH TAMPER SWITCHES
FDV	STANDPIPE WITH FIRE DEPARTMENT VALVE
	ROOF MANIFOLD
FDC	FIRE DEPARTMENT CONNECTION
PIV	POST INDICATOR VALVE WITH TAMPER SWITCH
FVC	FIRE VALVE CABINET

RENOVATION LEGEND

SYMBOL	DESCRIPTION
	CONNECT TO EXISTING
	DEMOLISH TO POINT INDICATED
	NEW SPRINKLER PIPING - SCHEDULE 40 STEEL
	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE REMOVED
E	EXISTING RECESSED SPRINKLER TO REMAIN
E	EXISTING UPRIGHT SPRINKLER TO REMAIN
E	NEW SPRINKLER AT NEW LOCATION
	NEW RECESSED SPRINKLER
	NEW UPRIGHT SPRINKLER

CODE COMPLIANCE

1. TO THE BEST OF MY KNOWLEDGE, THESE PLANS AND SPECIFICATIONS ARE COMPLETE AND COMPLY WITH ALL LOCAL AND STATE CODES AND STATUES.

SCOPE OF WORK

1. PROVIDE FIRE PROTECTION TO THE NEW EXIT LANES AREA.

SPRINKLER CALCULATIONS

ESTIMATED NUMBER OF SPRINKLERS IN CURRENT DESIGN: 1586

GENERAL NOTES

1. FIRE PROTECTION SYSTEM TO COMPLY WITH NFPA 13,24, AND ALL STATE AND LOCAL CODES REFERENCED BY THE JURISDICTION.
2. FINAL INSPECTION AN APPROVAL BY LOCAL FIRE MARSHAL AND ARCHITECT/ENGINEER.
3. SPRINKLER SHOP DRAWINGS AND MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AND FIRE MARSHAL AND SHALL BE APPROVED PRIOR ANY INSTALLATION.
4. FIRE ROUTING SHOWN IS SCHEMATIC ONLY. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO PROVIDE ANY ADDITIONAL OFFSETS REQUIRED FOR PROPER INSTALLATION AND COORDINATION WITH OTHER TRADES.
5. PIPING IN AREAS WITH EXPOSED STRUCTURE SHALL BE INSTALLED AS HIGH AS POSSIBLE TO ALLOW THE OWNER MAXIMUM USE OF THE SPACE.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING DESCRIPTIONS AND HEIGHTS.
7. SPRINKLERS ARE TO BE COORDINATED WITH ALL DIFFUSERS, SPEAKERS, LIGHTING FIXTURES, AND CEILING SYSTEMS. SPACING OR SPRINKLERS SHALL BE IN ACCORDANCE WITH NFPA 13 AND THE LISTING OF THE SPRINKLER.
8. SPRINKLER LOCATIONS SHALL BE CENTERED IN THE TILE AS INDICATED ON THE DRAWINGS. PROVIDE ARMOVERS OR SWING JOINTS AS REQUIRED.
9. SPRINKLERS IN AREAS WITH EXPOSED STRUCTURE (OBSTRUCTED CONSTRUCTION) SHALL BE INSTALLED WITH DEFLECTOR 1" BELOW THE BOTTOM OF THE BEAM (MAXIMUM 22" BLOW ROOF DECK.) EXPOSED BAR JOISTS THAT HAVE SPRAY ON FIRE-PROOFING THAT MAKES THE JOIST SOLID SHALL BE TREATED LIKE A BEAM WITH SPRINKLERS 1" BELOW THE BOTTOM OF THE FIRE-PROOFING.
10. SLEEVE AND/OR FIRE STOP ALL PENETRATIONS THROUGH RATED WALLS, CEILINGS, AND FLOORS WITH UL LISTED ASSEMBLIES. FIRE STOP ASSEMBLIES SHALL BE EQUAL OR EXCEED THE RATING OF THE WALL, CEILING, OR FLOOR. SEE ARCHITECTURAL DRAWINGS FOR FINAL FINISHES.
11. PROVIDE ACCESS PANELS TO ALL VALVES ABOVE NON-ACCESSIBLE CEILINGS AND CHASES.
12. PROVIDE A PERMANENTLY ATTACHED NAME TAG ATTACHED TO THE RISER STATING THE REQUIRED DESIGN CRITERIA FOR EACH HYDRAULICALLY DESIGN SYSTEM.
13. PROVIDE SPRINKLERS UNDER ALL EXPOSED DUCTWORK OVER 48" WIDE AND SPACE HEADS AROUND ALL ABSTRUCTIONS IN ACCORDANCE WITH NFPA 13. HEADS UNDER DUCTS ARE NOT INDICATED ON DRAWINGS BUT ARE REQUIRED AND SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13. SPRINKLER LOCATIONS UNDER DUCTWORK AND AROUND OBSTRUCTIONS SHALL BE GOVERNED BY FINAL INSTALLED LOCATIONS. THESE SPRINKLERS ARE NOT INDICATED, BUT ARE REQUIRED.
14. PROVIDE SPRINKLER GUARD ON ALL HEADS IN ELECTRIC ROOM, TELEPHONE ROOMS, ELEVATOR ROOMS, ELEVATOR SHAFTS, MECHANICAL ROOMS, AND ON ANY HEADS LESS THAN 7'-0" ABOVE THE FLOOR.
15. IF SYSTEM PRESSURE EXCEEDS 100 PSI, ALL HANGERS IN END HEADS IN PENDANT POSITION SHALL BE WITHIN 12" OF THE END OF LINE IN ACCORDANCE WITH NFPA 13.
16. COORDINATE PIPING WITH ALL ELECTRICAL EQUIPMENT (PANELS, TRANSFORMERS, ETC.) PRIOR TO ANY INSTALLATION. DO NOT ROUTE ANY PIPING OVER ANY ELECTRICAL PANELS UNDER ANY CIRCUMSTANCES. ANY PIPING RUN OVER ELECTRICAL SHALL BE REROUTED AT NO ADDITIONAL COST.
17. FLEX PIPING TO HEADS IS ALLOWABLE ALONG WITH TRADITIONAL HARD PIPE TO SPRINKLER HEADS.
18. ALL SPRINKLER HEADS IN NON-WHITE CEILINGS SHALL MATCH COLOR OF THE CEILING. COORDINATE COLOR WITH A/E. HEADS SHALL BE FACTORY PAINTED, NOT FIELD PAINTED. ANY FIELD PAINTED HEADS SHALL BE REMOVED AND REPLACED WITH A FACTORY-FINISHED HEAD.

SHEET INDEX

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DEPARTMENT OF AVIATION
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HAS TIP # 21-156 - IAH

REGISTRATION

STATE OF TEXAS
JUAN-JOSE BENITEZ
85646
LICENSED
PROFESSIONAL ENGINEER

DRAWING HISTORY

№	DATE	DESCRIPTION
7	11-19-21	ADDENDUM #3

PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY
HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
FIRE PROTECTION LEGEND

SHEET NUMBER
7
FP000

FILE NAME: C:\Users\jalexander\Documents\02.18018_HAS_Exit_Lanes_LOA_HOU_CENTRAL_R19_jalexander@voltairinc.com.rvt
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KEYNOTES ?

NUMBER	NOTES
1	PROVIDE NEW SPRINKLERS IN THIS AREA. TIE INTO THE EXISTING FIRE PROTECTION BRANCH PIPING IN THIS AREA. EXISTING SPRINKLERS IN THIS AREA TO BE REMOVED AND THE EXISTING PIPING TO BE EXTENDED TO THE NEW SPRINKLERS LOCATIONS.

LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL - FIRE PROTECTION 1/4" = 1'-0" (1)

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No.	DATE	DESCRIPTION
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PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM HOBBY
HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL - FIRE PROTECTION

SHEET NUMBER

FP301

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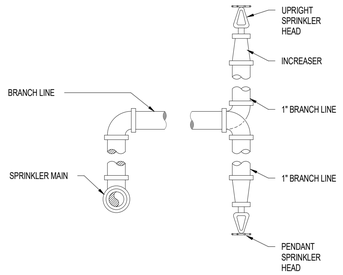
Texas Firm: F-14583 ProjectNo.:02.18027

7



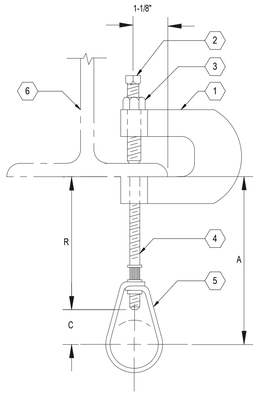
SPRINKLER INSTALLATION DETAIL E

COMPONENTS:

1. C-CLAMP
2. SET SCREW
3. LOCK NUT
4. HANGER ROD
5. ADJUSTABLE HANGER RING
6. STEEL BEAM OR BAR JOIST

DESIGN DATA FOR C-CLAMP HANGER

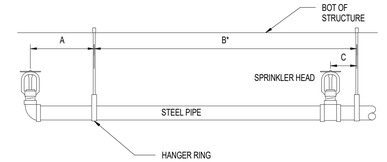
NOMINAL PIPE SIZE	MINIMUM A DIMENSION	HANGER TAKEOUT	ROD DIAMETER
	INCHES	INCHES	INCHES
1/2	3 1/2	-1 1/4	3/8
3/4	3 1/2	-1 1/4	3/8
1	3 1/2	-1 1/4	3/8
1 1/4	3 3/4	-1 1/2	3/8
1 1/2	4	-1 1/2	3/8
2	4 1/4	-1 3/4	3/8
2 1/2	5	-2 1/4	3/8
3	5 1/2	-2 1/2	3/8
4	6	-3	3/8
5	6 3/4	-3 3/4	1/2
6	7 3/4	-4 1/2	1/2
8	9 1/4	-6	1/2



STANDARD C-CLAMP PIPE HANGER C

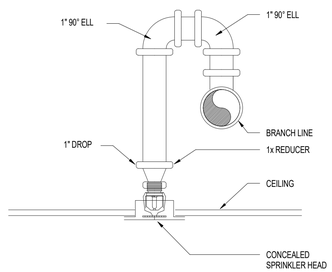
HANGER LOCATION DETAIL

PIPE SIZE	A	B*	C
1"	3'-0" MAX.	12'-0" MAX.	3" MIN.
1-1/2"	4'-0" MAX.	12'-0" MAX.	3" MIN.
2"-8"	5'-0" MAX.	15'-0" MAX.	3" MIN.

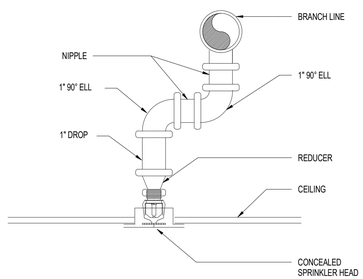


USE 3/8" DIAMETER ROD FOR PIPE DIAMETER SIZE 1" THROUGH 4"
USE 1/2" DIAMETER ROD FOR PIPE DIAMETER SIZE 5" THROUGH 8"

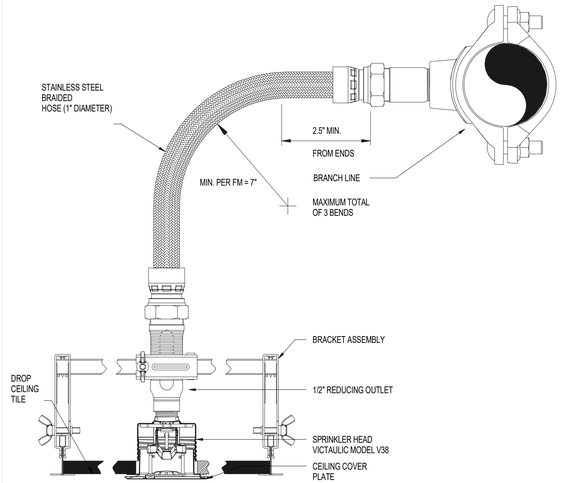
MAX HANGER SPACING FOR STEEL PIPE A



RETURN BEND - CONCEALED HEAD F



SWING JOINT - CONCEALED HEAD D



FLEXIBLE HOSE SPRINKLER ASSEMBLY B

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REGISTRATION

DRAWING HISTORY

№	DATE	DESCRIPTION
7	11-19-21	ADDENDUM #3

PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
FIRE PROTECTION DETAILS

SHEET NUMBER
FP901

VOLTAIR CONSULTING ENGINEERS
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Texas Firm: F-14583 ProjectNo.:02.18027

SECURITY GENERAL NOTES

1. THE FOLLOWING GENERAL NOTES ARE APPLICABLE AS STATED BELOW, EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, ON THE DRAWINGS OR IN THE BID SPECIFICATION.
2. SINGLE LINE DIAGRAMS, SCHEMATICS, DETAILS AND CONDUIT PATHS SHOWN HEREIN ARE CONCEPTUAL AND ILLUSTRATE ONLY THE FUNCTIONAL RELATIONSHIPS BETWEEN COMPONENTS OF THE SYSTEM. ACCORDINGLY, FULL SHOP DRAWING DEVELOPMENT IS REQUIRED TO REALIZE THE SPECIFIED FUNCTIONS.
3. DEVICE LOCATIONS ON PLANS ARE CONCEPTUAL. LOCATE AS SITE CONDITIONS REQUIRE AND AS APPROVED BY THE OWNER.
4. REFER TO THE BID SPECIFICATION FOR ADDITIONAL REQUIREMENTS REGARDING THIS WORK.
5. INSTALL WALL MOUNTED CARD READERS, PUSH BUTTON SWITCHES, KEYPADS, KEY SWITCHES AND OTHER WALL MOUNTED FIELD DEVICES, AT 48 INCHES MAXIMUM ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED. MOUNTING HEIGHT SHALL COMPLY WITH TEXAS ACCESSIBILITY STANDARD (TAS).
6. PROVIDE PAINTING, PATCHING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
7. DOOR DETAILS ILLUSTRATE FUNCTIONAL RELATIONSHIPS. ACTUAL ARCHITECTURAL CONDITIONS (SUCH AS DIRECTION OF SWING AND HAND OF DOOR) MAY VARY.
8. WORK AND MATERIALS TO CONFORM TO THE MOST CURRENT UNIFORM STANDARD SPECIFICATIONS, ASSOCIATED CODES REFERENCED BY THE (AHJ) AUTHORITY HAVING JURISDICTION, AND DETAILS FOR CONSTRUCTION, AS FURNISHED BY THE OWNER. WORK AND MATERIALS, NOT IN CONFORMANCE WITH PROJECT SPECIFICATIONS AND DETAILS, ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
9. FOR INFORMATION REGARDING FIRE RATINGS AND OCCUPANCY SEPARATIONS, REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS.
10. NEW CONDUIT CONNECTIONS TO INCLUDE INTEGRAL PROTECTIVE BUSHINGS OR CHASE NIPPLES.
11. NEW CONDUIT FOR FUTURE USE TO BE FILLED WITH 200 POUND STRENGTH PULL LINE. PROVIDE LABELING ON EACH END OF THE PULL LINE TO INDICATE LOCATION OF OTHER END.
12. NEW CONDUITS SHALL BE CONCEALED WHENEVER POSSIBLE. SURFACE MOUNTED CONDUITS ARE PERMISSIBLE ONLY WHERE APPROVED. USE ONLY CONCEALED CONDUITS WITHIN FINISHED SPACES. THE ABOVE STANDARDS ALSO APPLY TO EXTERIOR SPACES. SEEK APPROVAL FROM THE OWNER FOR EACH AREA WHERE SURFACE CONDUIT IS NECESSARY.
13. JUNCTION BOXES SHALL BE MINIMUM 4 INCH SQUARE DEEP STYLE, SIZED AS REQUIRED TO ACCOMMODATE CONDUITS UNLESS OTHERWISE NOTED. PROVIDE MOUNTING RING AS REQUIRED. PROVIDE A BLANK COVER PLATE FOR JUNCTION BOXES AND PULL BOXES WITH NO DEVICE.
14. EXPOSED BOXES AND PANELS, MOUNTED IN OR ON EXTERIOR WALLS, TO BE NEMA 4.
15. NEW CONDUIT TO BE 3/4 INCH EMT MINIMUM, UNLESS OTHERWISE NOTED. EXTERIOR CONDUIT TO BE RIGID.
16. USE 120VAC CIRCUITS UNLESS OTHERWISE NOTED. VERIFY CURRENT LOAD ON EXISTING CIRCUITS BEFORE CONNECTING NEW LOADS. COORDINATE WITH OWNER IF ADDITIONAL CIRCUITS ARE REQUIRED.
17. CONTRACTOR TO VERIFY CONDUIT AND PLENUM CABLE PATHS INDICATED ON THE DRAWINGS. CONTRACTOR MAY PROPOSE ALTERNATE ROUTING WHERE CONFLICTS ARE FOUND.
18. CONTRACTOR IS RESPONSIBLE FOR CEILING INTEGRITY, THIS INCLUDES ROUTING ABOVE CONCEALED SPLINE INTERLOCKING TILES. 4
19. WHEN APPLICABLE, CONTRACTOR TO OBTAIN RECERTIFICATION FOR FIRE RATED DOOR FRAME AND DOOR MODIFIED BY THIS PROJECT.
20. ACCESS CONTROL LOW VOLTAGE WIRING TO BE PLENUM RATED.
21. DO NOT EXCEED 180° IN AGGREGATE CONDUIT BENDS AND/OR 100' CONDUIT WITHOUT PULLBOX.
22. PROVIDE GROUND BUSHING ON ALL CONDUIT END IN EQUIPMENT ROOM. BOND TO APPROVED BUILDING GROUND.
23. LABEL CONDUIT EVERY 50' WITH DEVICE ID & EQUIPMENT ROOM ID WITH PERMANENT INK CABLE MADE WITH LASER CABLE MAKER. SECURE TO CONDUIT WITH CLEAR TAPE.
24. ALL WALL AND FLOOR PENETRATIONS SHALL BE SEALED WITH APPROVED FIRE STOP.
25. LOCATE DEVICES AS SITE CONDITIONS REQUIRE.
26. FIELD VERIFY ALL DIMENSIONS.
27. REFER TO THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS REGARDING THIS WORK. CONTRACTOR TO PREPARE PROPOSAL FOR EACH DISCIPLINE. PROVIDE COORDINATION BETWEEN DISCIPLINES FOR CONSTRUCTION.
28. NOTIFY DESIGN CONSULTANT AND OWNER WHERE EXISTING CONDITIONS REQUIRE REPAIR PRIOR TO INSTALLATION.
29. COORDINATE ALL WORK WITH GENERAL CONTRACTOR.
30. ALL CABLE PULLS WITHIN EXISTING AND NEW CONDUITS TO BE MADE AT SAME TIME.
31. DEFINITION: BY DIVISION 8 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 8 CONTRACTOR.
32. DEFINITION: BY DIVISION 26 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 26 CONTRACTOR.
33. DEFINITION: BY DIVISION 27 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 27 CONTRACTOR.
34. DEFINITION: BY DIVISION 28 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 28 CONTRACTOR.

4

BREACH CONTROL EXIT LANE NOTES

1. THIS PROJECT SHALL FURNISH AND INSTALL FULLY FUNCTIONAL AND COMMISSIONED BREACH CONTROL EXIT LANE SYSTEM.
2. PROVIDE HARDWARE, SOFTWARE, INSTALLATION, AND PROGRAMMING OF FULLY FUNCTIONAL BREACH CONTROL EXIT LANE SYSTEM.
3. LOCATION OF EXIT LANE(S) IS SHOWN ON FLOOR PLAN.
4. CONTROL SYSTEM FOR EXIT LANE SYSTEM SHALL BE LOCATED IN IDF 100.14.
5. COORDINATE WITH DIV. 8 CONTRACTOR FOR DOOR HARDWARE INTERFACE.
6. COORDINATE WITH DIV. 28 CONTRACTOR FOR INTERFACE WITH HAS SECURITY SYSTEM.
7. COORIDNATE WITH DIV. 26 CONTRACTOR FOR POWER REQUIREMENT.
8. PROVIDE SHOP DRAWING, AND PRODUCT DATA IN COMPLIANCE WITH DIV. 28 SPECIFICATION.
9. PROVIDE RECORD DRAWING, AND O&M IN COMPLIANCE WITH DIV. 28 SPECIFICATION.

EQUIPMENT SYMBOLS LIST

SYMBOL	DESCRIPTION
CR	CARD READER
CB	CALL BOX (VOIP) W/ CAMERA
360	HOUSTON AIRPORT SYSTEM 360 IP CAMERA 4
180 180	HOUSTON AIRPORT SYSTEM DUAL 180 CAMERAS
FIX	HOUSTON AIRPORT SYSTEM FIXED CAMERA
PTZ	HOUSTON AIRPORT SYSTEM PTZ HD IP CAMERA
MD	EXIT LANE MOTION DETECTION CAMERA
W	EXIT LANE WATCHER CAMERA
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
DB	DURESS BUTTON (UNDER DESK/TABLE/COUNTER)
D	DOOR POSITION SWITCH (FLUSH MOUNT)
ML	ELECTROMAGNETIC LOCK
M	REX MOTION SENSOR
RCT	EXIT LANE REMOTE COMMAND TERMINAL 4
CCR	EXIT LANE CENTRAL CONTROL RACK
AO	AUTO DOOR OPERATOR
	PHONE
	DATA
X	CATEGORY 6 DATA OUTLET WHERE X= QUANTITY OF CABLES
AV	EXIT LANE SPEAKER STROBES 4
WS	SECURITY WORK STATION 5

SHEET INDEX

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STATE OF TEXAS
RAINI PAYNE
101220
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PROFESSIONAL ENGINEER

11/19/21

DRAWING HISTORY

Nr.	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOD BID/100%CD
4	11-19-21	ADDENDUM #3
5	11-22-21	ADDENDUM #4

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

INDEX, SYMBOLS AND NOTES

SHEET NUMBER

TY000

FILE NAME: C:\Users\dwidjaja\Documents\HOU-TERM - SECURITY EXIT LANE 080421-2 (2021)_dwidjajaJ7HCZ.rvt
DATESTAMP 11/22/2021 4:45:28 PM

TELECOM GENERAL NOTES

1. FOLLOW TELECOM STANDARDS AND PRACTICES. SEE DIVISION 27 SPECIFICATIONS AND T DRAWINGS
2. REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER (RCDD) SUPERVISOR SHALL REVIEW, APPROVE AND STAMP ALL SHOP DRAWINGS. COORDINATE DRAWINGS AND RECORD DRAWINGS.
3. ALL WALL PENETRATIONS SHALL BE SEALED WITH APPROVED FIRE STOPPING.
4. REFER TO THE ELECTRICAL FLOOR PLAN DRAWINGS FOR ADDITIONAL ROUGH-IN REQUIREMENTS. WHERE THERE ARE DRAWING DISCREPANCIES, THE CONTRACTOR SHALL INSTALL THE GREATER QUANTITY OF DEVICES.
5. REFER TO THE SITE PLAN ON AND RISER DIAGRAM FOR TELECOMMUNICATION BACKBONE CONDUITS/CABLES. FIELD COORDINATE EXACT ROUTING WITH OTHER TRADES.
6. ALL COMMUNICATIONS EQUIPMENT SHOWN SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE.
7. BOND ALL COMMUNICATIONS CABINETS, RELAY RACKS, CABLE TRAYS, AND OTHER METALLIC SUPPORTING DEVICES TO TELECOMMUNICATIONS GROUND BUSBAR INSIDE COMMUNICATIONS ROOM. BOND WITH A #6 GROUND CONDUCTOR.
8. ALL HORIZONTAL VOICE AND DATA CABLES SHALL BE DISTRIBUTED VIA MINIMUM 1" CONDUIT AND/OR CABLE TRAY. NO EXCEPTIONS.
9. SINGLE LINE DIAGRAMS, SCHEMATICS, DETAILS AND CONDUIT PATHS SHOWN HEREIN ARE CONCEPTUAL AND ILLUSTRATE ONLY THE FUNCTIONAL RELATIONSHIPS BETWEEN COMPONENTS OF THE SYSTEM. ACCORDINGLY, FULL SHOP DRAWING DEVELOPMENT IS REQUIRED TO REALIZE THE SPECIFIED FUNCTIONS.
10. DEVICE LOCATIONS ON PLANS ARE CONCEPTUAL. LOCATE AS SITE CONDITIONS REQUIRE AND AS APPROVED BY GC.
11. REFER TO THE BID SPECIFICATION FOR ADDITIONAL REQUIREMENTS REGARDING THIS WORK.
12. PAINTING, PATCHING AND FINISHES FOR DEVICES LOCATED IN EXISTING AREAS SHALL MATCH EXISTING FINISHES AS APPROVED BY GC.
13. FINISHES OF DEVICES IN NEW/REMODEL AREAS SHALL BE APPROVED BY GC.
14. WORK AND MATERIALS SHALL CONFORM TO THE MOST CURRENT UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AS FURNISHED BY GC. WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE SPECIFICATIONS AND DETAILS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
15. IN SOME INSTANCES THE IDF MAY BE OVER 90 METERS FROM THE IP DEVICE DUE TO LEGACY DESIGN STANDARDS WHEN THE BUILDING WAS CONSTRUCTED. IF TESTED CABLE DOES NOT PASS CERTIFICATION, CONTRACTOR MUST USE MIDSPAN EXTENDER INSTALLED INSIDE OF ENCLOSURE. REFERENCE DETAIL SHEETS FOR INSTALLATION DIAGRAM.

CCVS SYSTEM NOTES

1. ALL OUTDOOR CAMERAS, TERMINATION BOXES, AND PULLBOXES SHALL BE INSTALLED WITH WEATHER RESISTANT HARDWARE.
2. PROVIDE ALL INTEGRATION WITH ALARM ACCESS CONTROL SYSTEM COMPONENTS.
3. PROVIDE ALL COORDINATION WITH OTHER DISCIPLINES FOR INSTALLATION OF EQUIPMENT.
4. COORDINATE ALL SITE WORK WITH OWNER'S REP.
5. DRAWINGS INDICATE CAMERA 'HOME POSITIONS'. VERIFY FIELD OF VIEW WITH HOUSTON AIRPORT SYSTEM (HAS) REPRESENTATIVE AND DESIGN CONSULTANT DURING INSTALLATION. SUBSTITUTION OF LENS TYPE & SIZE TO ACCOMPLISH INTENDED FIELD OF VIEW SHALL BE AT NO ADDITIONAL COST.
6. CAMERAS MAY INCLUDE MULTIPLE TRANSMISSION METHODS. VERIFY EACH CAMERA PRIOR TO INSTALLATION.
7. FIELD VERIFY ALL CAMERA LOCATIONS PRIOR TO INSTALLATION. CAMERA MAY BE RELOCATED WITHIN 25' OF LOCATION SHOWN ON FLOOR PLANS WITHOUT ADDITIONAL COST.

CAMERA SERVER AND DIGITAL STORAGE NOTES

1. PROVIDE DIGITAL STORAGE FOR THIS PROJECT IN THE HAS ADMIN BUILDING AS REQUIRED.
2. THE EXISTING CAMERA SERVERS AND DIGITAL STORAGE ARE LOCATED AT THE HAS ADMINISTRATION BUILDING AND TERMINAL C. THEY ARE REDUNDANT.
3. PROVIDE HONEYWELL MAXPRO CAMERA LICENSING AS REQUIRED AT THE HAS ADMINISTRATION BUILDING AND TERMINAL C TO SUPPORT ALL HAS CAMERAS INSTALLED AS PART OF THIS PROJECT.

ACS SYSTEM NOTES

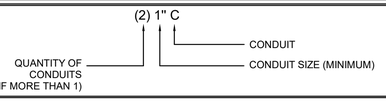
1. ALL OUTDOOR MOUNTED CARD READERS SHALL BE INSTALLED WITH WEATHER RESISTANT AND TAMPER PROOF HARDWARE.
2. CARD READER PEDESTALS SHALL BE SIZED FOR VOICE COMMUNICATIONS.
3. PROVIDE ALL INTEGRATION WITH CLOSED CIRCUIT VIDEO SURVEILLANCE COMPONENTS.
4. PROVIDE ALL COORDINATION WITH OTHER DISCIPLINES FOR INSTALLATION OF EQUIPMENT.
5. COORDINATE ALL SITE WORK WITH OWNERS REP.
6. PROVIDE ACCESS CONTROL LICENSES AS REQUIRED PART OF THIS PROJECT.
7. CARD READER iCLASS ELITE KEY SHALL BE REQUIRED, AND ONLY AUTHORIZED PURCHASER ARE AUTHORIZED TO PURCHASE. THE iCLASS ELITE PROGRAM INCLUDES A CREDENTIAL FORMAT AND CUSTOM AUTHENTICATION KEY.
8. PROVIDE ALL COORDINATION AND INTEGRATION WITH BREACH CONTROL EXIT LANE SYSTEM. 4

SECURITY CABLE DESIGNATION/TYPE *

DESIGNATION	DESCRIPTION	USAGE	PART #
A	1 PAIR 22AWG SHIELDED	ALARM MONITORING	BELDEN 5500FE
B	2 PAIR 20AWG SHIELDED	MOTION DETECTOR, BEAM DETECTORS	BELDEN 5441 FE
C	3 PAIR 22AWG SHIELDED	CARD READER	BELDEN 5542 FE
D	2/C 18AWG	CAMERA PWR, PUSH BUTTON, LOCK PWR	BELDEN 5300 UE
E	2 PAIR 22AWG SHIELDED	DATA, CCVS PTZ CONTROL	BELDEN 5541 FE
F	2/C 18AWG SHIELDED	HORN	BELDEN 5300 UE
G	COAXIAL W/2C POWER	VIDEO	
H	1 PAIR 20AWG TWISTED	INTERCOM	BELDEN 5400 FE
I	1 PAIR TWISTED SH 18AWG PLUS 2/C 18AWG	EMERGENCY PHONE	BELDEN 5302GE
J	ENHANCED CAT-5E BONDED-PAIR UTP	NETWORK AND CAMERA	BELDEN 7815A
K	ACCESS CONTROL COMPOSITE CABLE, 4C 18AWG,3PR 22 AWG, 4C 22 AWG	LOCK PWR, CR, DOOR CONTACT, REX, 1 SPARE YELLOW JACKET	WSECCOMP2835
L	CCTV COMPOSITE CABLE 2C 18AWG, UNSHIELDED, CABLE ETHERNET (PLENUM), R659 (PLENUM)	CAM PWR, UTP/IP VIDEO ANALOG VIDEO CONNECT K112	WSECOMP-2817

* THIS TABLE IS REFERENCED AND IS SHOWN AS AN EXAMPLE OF ACCEPTABLE CABLE DESIGNATIONS. CONTRACTOR SHALL UTILIZE CABLE DESIGNATION TABLE FOR SHOP DRAWING AND RECORD DRAWING SUBMITTALS.

CONDUIT DESIGNATION KEY



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HAS TIP # 21-157 - IAH

REGISTRATION

STATE OF TEXAS
RAINI PAYNE
101220
LICENSED
PROFESSIONAL ENGINEER

11/19/21

DRAWING HISTORY

Nr.	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOD BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM HOBBY
HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

1004345

SHEET TITLE

NOTES

SHEET NUMBER

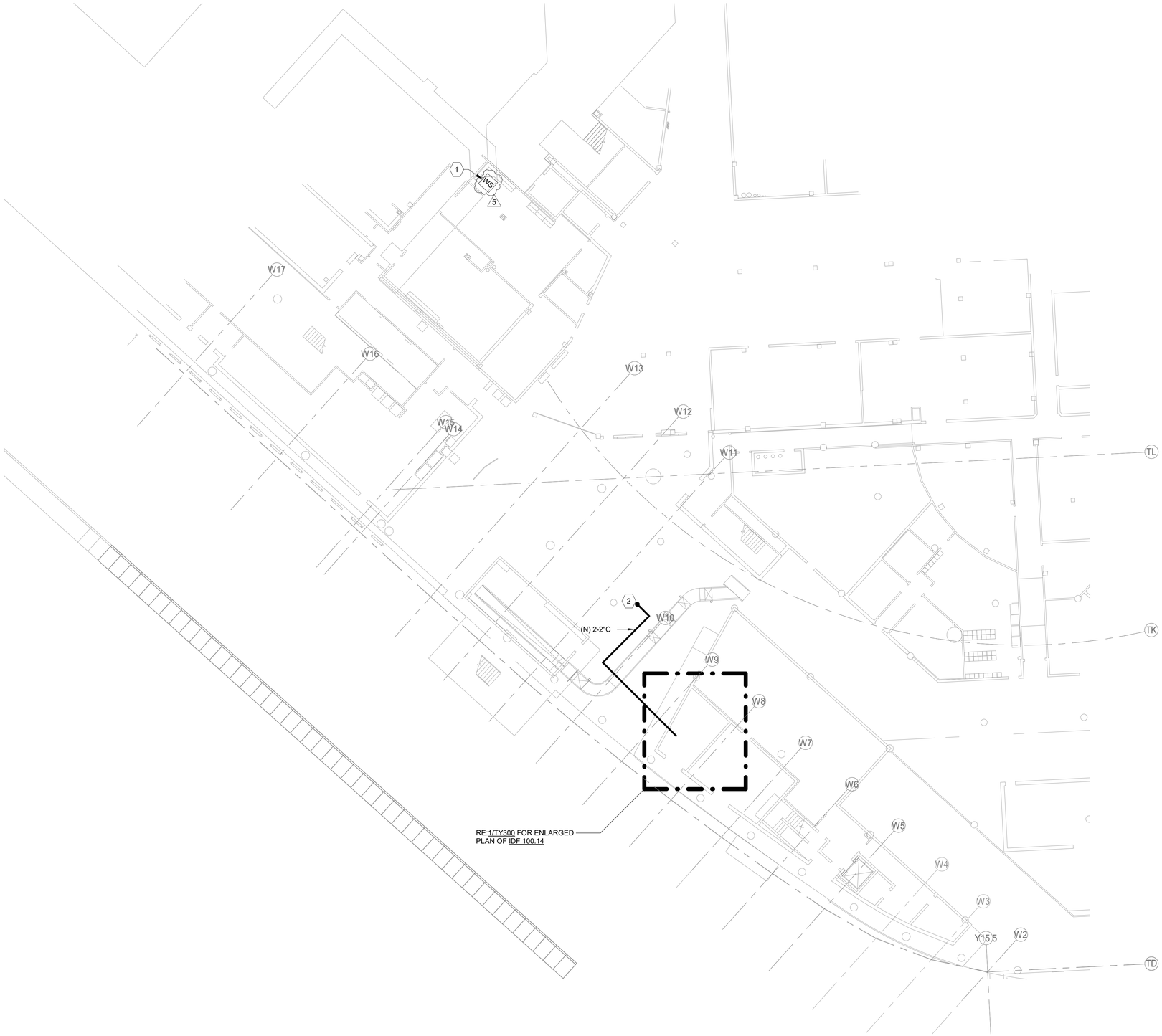
TY001

GENERAL NOTES:

1. ALL SECURITY DEVICES SHALL TERMINATE IN IDF 100.14.
2. EXIT LANE CONTAINMENT DEVICES SHALL TERMINATE IN CCR AT IDF 100.14.

KEY NOTES:

1. PROVIDE TWO (2) DATA DROPS FOR SECURITY WORKSTATION (MONITOR ONLY) TO MONITOR EXIT LANE CAMERAS AND ALARMS VIA MAXPRO AND PROWATCH. DELL PRECISION i7 16GB RAM, 2TB HARD DRIVE, DUAL DISPLAY 8GB GRAPHIC CARD, AND 2 24" LED DISPLAYS, KEYBOARD, AND MOUSE. SUBMIT PRODUCT DATA FOR REVIEW AND APPROVAL AS REQUIRED.
2. (N) 2-2"C FROM CCR IN IDF 100.14 TO EXIT LANE ON LEVEL 2. REFER TO DIV 27 SPECS FOR COMMUNICATION PATHWAY REQUIREMENT.



OVERALL SECURITY FLOOR PLAN - HOBBY TERMINAL, LEVEL 01

1/16" = 1'-0" (1)

PLAN NORTH

1 : 256 SCALE

0 2.56 5.12 12.8 25.6 m

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5	11-22-21	ADDENDUM #4

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

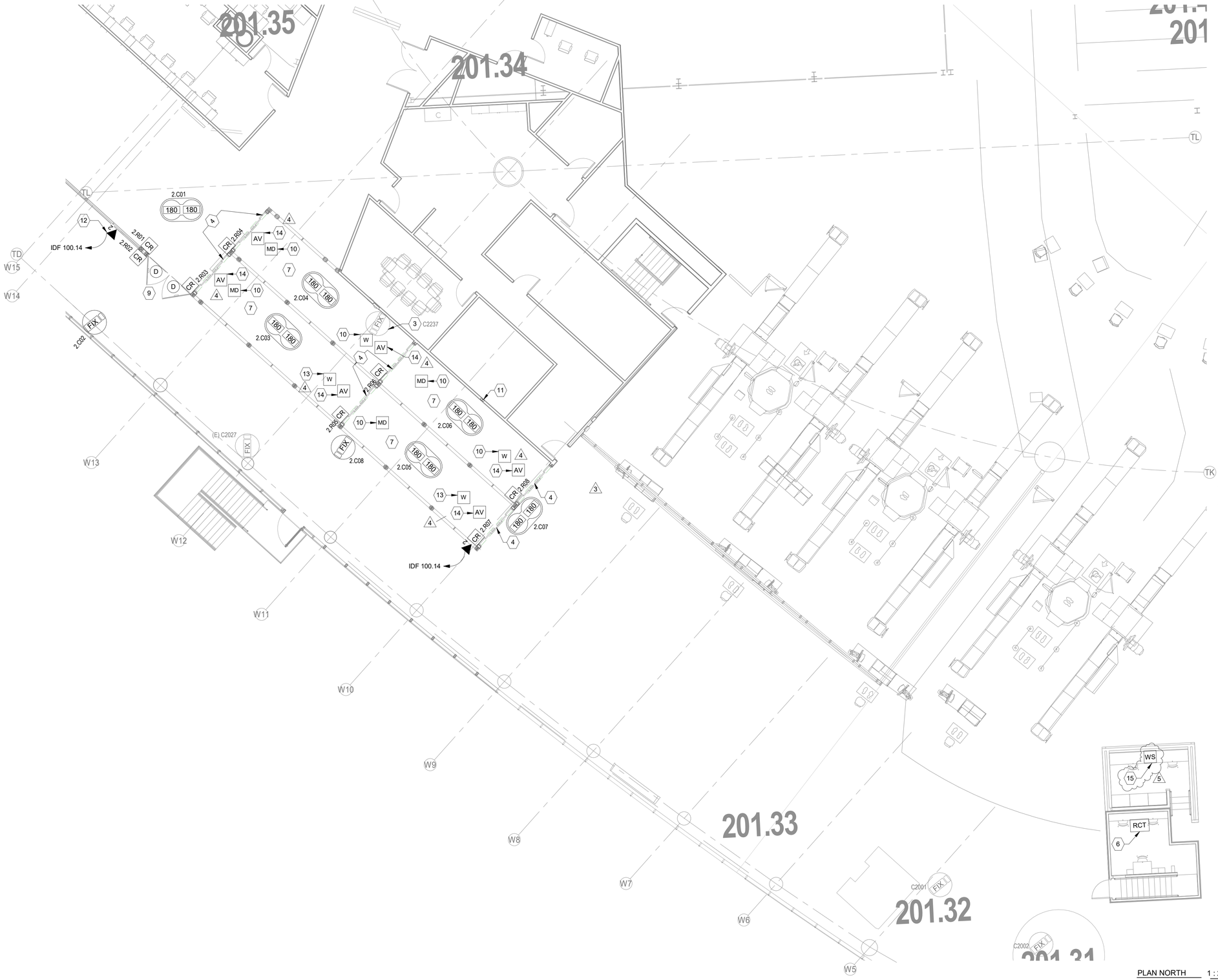
1004345

SHEET TITLE

OVERALL SECURITY FLOOR PLAN - HOBBY TERMINAL, LEVEL 01

SHEET NUMBER

TY100



GENERAL NOTES:

1. ALL SECURITY DEVICES SHALL TERMINATE IN IDF 100.14.
2. EXIT LANE CONTAINMENT DEVICES SHALL TERMINATE IN CCR AT IDF 100.14.

KEY NOTES:

1. (E) CARD READER TO BE RELOCATED, REMOVE ALL UNUSED CABLES.
2. RELOCATE (E) CARD READER TO THIS LOCATION.
3. REMOVE AND RETURN (E) CAMERA TO HAS.
4. ADD (N) DOOR CONTACT AND CARD READER. RE: 1/ TY500 FOR DOOR DETAIL.
5. NOT USED.
6. PROVIDE FOUR (4) DATA DROPS FOR RCT, COORDINATE W/ TSA REPRESENTATIVE FOR LOCATION ON RCT PRIOR TO INSTALLATION. UTILIZE EXISTING DATA OUTLET IF POSSIBLE. THERE ARE EXISTING DATA JACKS AVAILABLE PER SURVEY ON 9/20/2021. IF EXISTING DATA OUTLET NOT AVAILABLE, EXTEND 4 DATA DROPS TO CCR IN IDF 100.14.
7. (E) SPEAKERS IN THE IMPACTED PROJECT AREA SHALL BE RELOCATED. COORDINATE SPEAKERS NEW LOCATIONS W/ HAS IT.
8. (E) DURESS BUTTON IN THE IMPACTED AREA SHALL BE RELOCATED. COORDINATE NEW LOCATIONS W/ TSA REP.
9. REFER TO 3/TY500 FOR DOOR DETAIL.
10. MOTION DETECTION CAMERA. PROVIDE QUANTITY AS REQUIRED BY SUPPLIER. TERMINATE IN CCR AT IDF 100.14.
11. (N) 2-2"C ROUTED FROM IDF 100.14 FOR NEW EXIT LANE DATA CABLING. (N) 2-2"C SHALL CORE UP TO EXIT LANE DECK THEN GOES DOWN TO EACH IT EQUIPMENT.
12. COORDINATE WITH DIV 26 TO PROVIDE 2-CHANNEL RACEWAY FOR DATA AND ELECTRICAL CABLING. MOUNT RACEWAY TO MULLION. COORDINATE WITH ARCHITECT FOR COLORS.
13. WATCHER CAMERA. PROVIDE QUANTITY AS REQUIRED BY SUPPLIER. TERMINATE IN CCR AT IDF 100.14.
14. EXIT LANE SPEAKER STROBE. PROVIDE QUANTITY AS REQUIRED BY SUPPLIER. TERMINATE IN CCR AT IDF 100.14.
15. PROVIDE TWO (2) DATA DROPS FOR SECURITY WORKSTATION (MONITOR ONLY) TO MONITOR EXIT LANE CAMERAS AND ALARMS VIA MAXPRO AND PROWATCH. DELL PRECISION i7 16GB RAM, 2TB HARD DRIVE, DUAL DISPLAY 8GB GRAPHIC CARD, AND 2 24" LED DISPLAYS, KEYBOARD, AND MOUSE. SUBMIT PRODUCT DATA FOR REVIEW AND APPROVAL AS REQUIRED.

ENLARGED SECURITY FLOOR PLAN - HOBBY TERMINAL, LEVEL 02

1/8" = 1'-0" (1)

PLAN NORTH

1 : 256 SCALE

0 2.56 5.12 12.8 25.6 m

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11/19/21

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1	08-06-21	100% CD
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4	11-19-21	ADDENDUM #3
5	11-22-21	ADDENDUM #4

PROJECT NAME

HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER

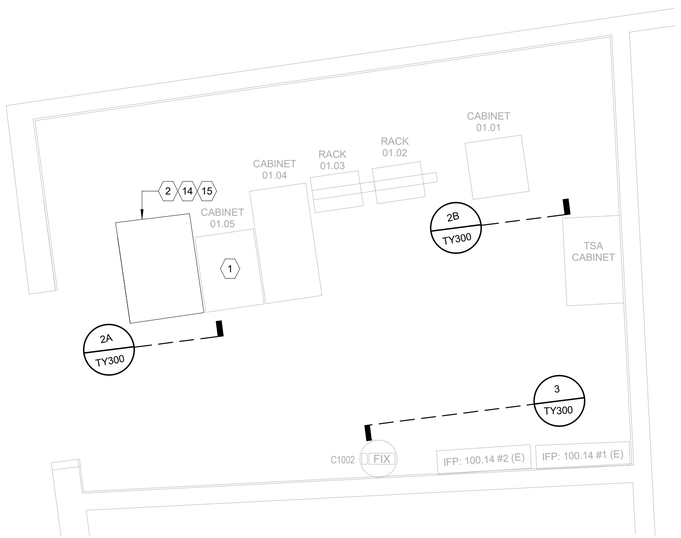
1004345

SHEET TITLE

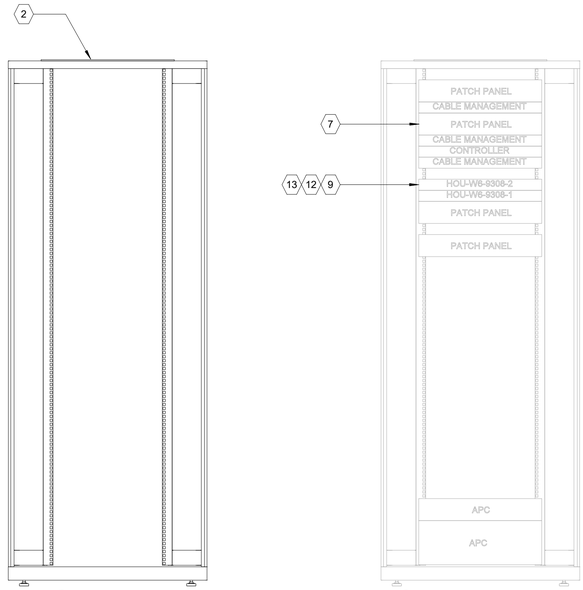
ENLARGED SECURITY FLOOR PLAN - HOBBY TERMINAL, LEVEL 02

SHEET NUMBER

TY200



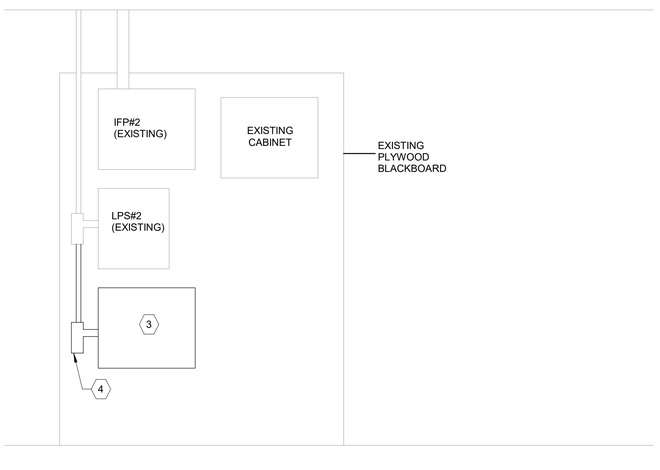
ENLARGED PLAN AT IDF 100.14 (EXISTING) 3/8" = 1'-0" 1



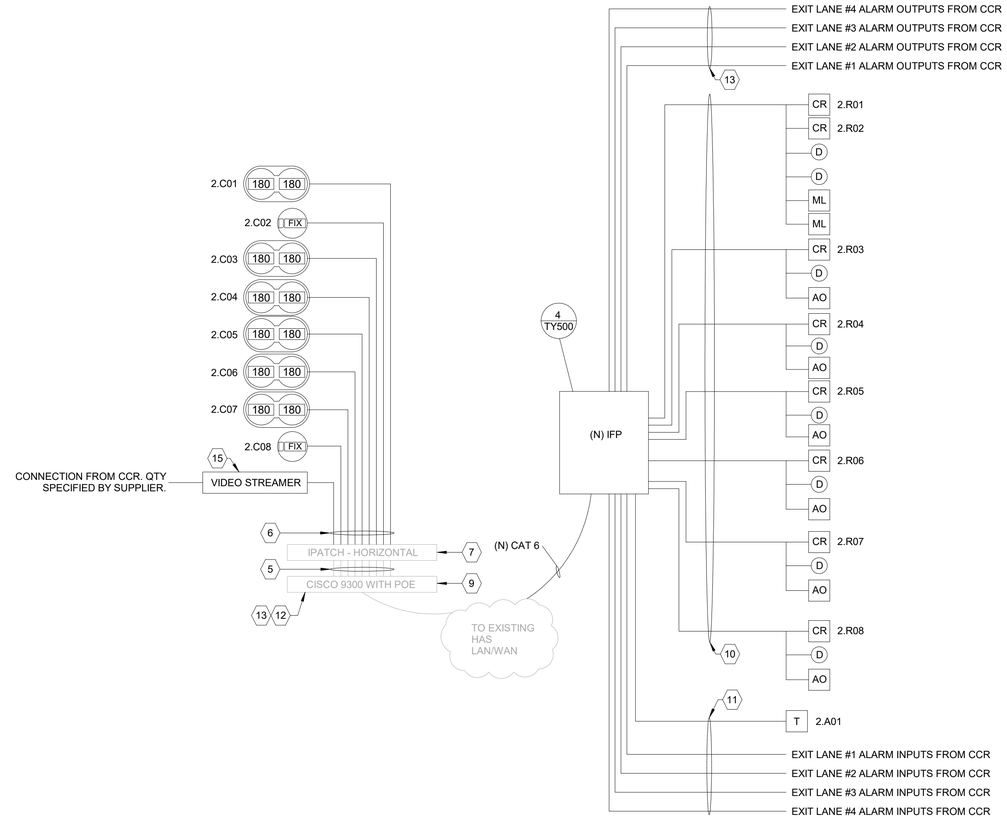
RACK ELEVATIONS AT IDF 100.14 1" = 1'-0" 2

KEY NOTES:

1. COORDINATE REMOVAL OF EXISTING RACK. LEAVE SPACE FOR NEW CENTRAL CONTROL RACK (CCR).
2. PROVIDE CENTRAL CONTROL RACK (CCR) WITH BREACH CONTROL EXIT EQUIPMENT. SHOWN RACK DIMENSION IS 30" X 42". PROVIDE SHOP DRAWING SHOWING DIMENSION OF RACK AND ALL EXIT LANE EQUIPMENT (FRONT ELEVATION). 4
3. PROVIDE (N) IFP W/ READER, INPUT, OUTPUT MODULES AND POWER SUPPLY AS REQUIRED FOR THIS PROJECT.
4. EXTEND 120VAC TO NEW IFP.
5. (E) CAT 6 PATCH CORD.
6. CAT 6, ONE (1) PER CAMERA (TYP).
7. (E) IPATCH HORIZONTAL, SYSTIMAX 360 48 PORT PATCH PANEL.
8. NOT USED.
9. (E) 48 PORT NETWORK SWITCH (HOU-W6-9308-2).
10. COMPOSITE ACCESS CONTROL CABLE.
11. 2 PAIR 22 AWG.
12. TERMINATE CAMERAS AND (N) IFP IN THIS NETWORK SWITCH. COORDINATE PORTS ASSIGNMENT AND IP ADDRESSES W/ HAS IT.
13. PROVIDE SIXTEEN (16) CAT 6 CABLES BETWEEN (E) HAS NETWORK SWITCH AND CCR FOR NETWORK CONNECTIVITY. COORDINATE WITH HAS IT FOR NETWORK PORTS ASSIGNMENT AND IP ADDRESS.
14. PROVIDE 120VAC 20A POWER CIRCUIT FOR CCR (BY DIV 26, ELECTRICAL).
15. VIDEO STREAMER (ANALOG TO ETHERNET). QTY AS REQUIRED FOR THIS PROJECT
16. 3 PAIR 22 AWG.



WALL ELEVATION AT IDF 100.14 1 1/2" = 1'-0" 3



ONE LINE DIAGRAM AT IDF 100.14 3/4" = 1'-0" 4

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11/19/21

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3	10-20-21	ISSUE FOD BID/100%CD
4	11-19-21	ADDENDUM #3

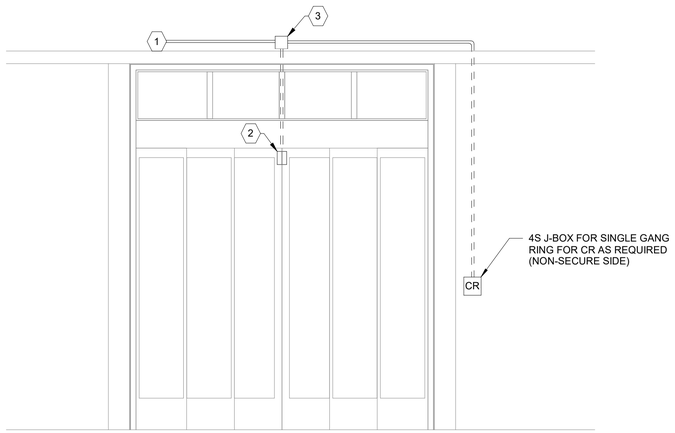
PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

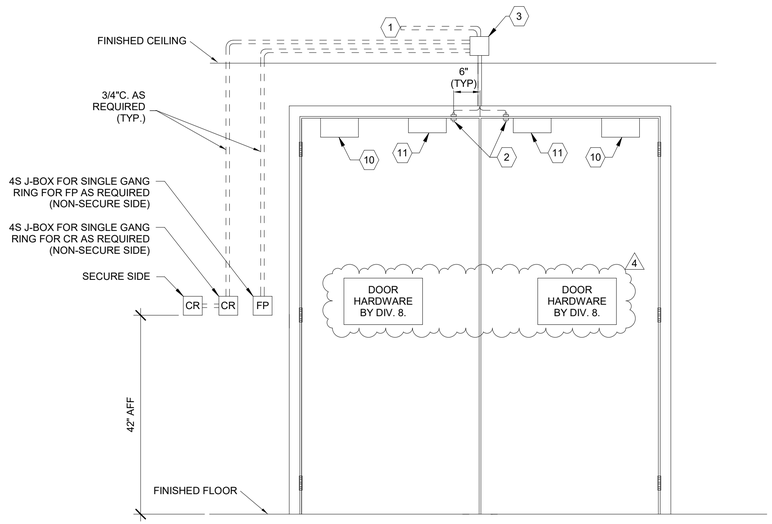
PROJECT NUMBER
1004345

SHEET TITLE
ENLARGED PLAN AT IDF 100.14

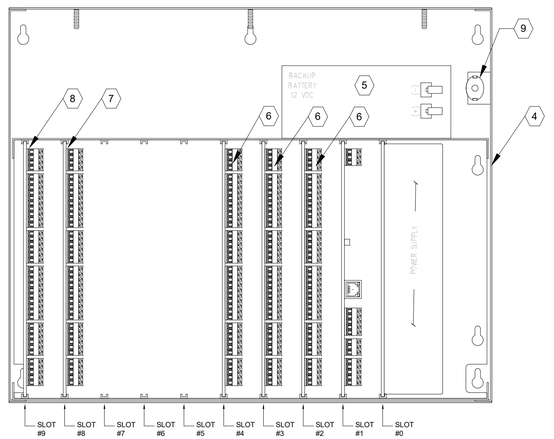
SHEET NUMBER
TY300



MONITORED AUTO FOLDING DOOR W/ CARD READER | 1/2" = 1'-0" | 1



DOOR WITH ELECTROMAGNETIC LOCKS, DOOR SWITCHES, AND CARD READERS | NTS | 2



IFP DETAIL | NTS | 3

GENERAL NOTES:

1. VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT BOXED AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
2. CONDUITS MAY BE COMBINED, IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS PER NEC.
3. COORDINATE MOUNTING LOCATIONS, ROUGH-IN AND FINISHES WITH THE OWNER.
4. CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
5. DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY. ALL DOOR HARDWARE SHALL HAVE KEY CYLINDER UNLESS NOTED OTHERWISE. DOOR HARDWARE BY DIV.8.
6. PROVIDE CONDUIT ONLY WHERE WIRING CANNOT ROUTE IN DOOR FRAME.
7. ALL SECURITY DOORS SHALL HAVE DOOR CLOSER.
8. COORDINATE WITH HAS FOR ADDRESSING SCHEME.
9. PROVIDE PATCH CABLE (CAT 6) FOR CONNECTIVITY TO THE NEAREST LAN/WAN.
10. CONFIGURE THE INTELLIGENT CONTROLLER (IC) TO BE ABLE TO DETECT STATIC IP AUTOMATICALLY.
11. PROVIDE BATTERY BACKUP TO SUPPORT FULL LOAD FOR 4 HOURS.
12. SUBMIT PROGRAMMING WORK SHEETS AS GENERAL SUBMITTAL REQUEST FROM HAS IT.
13. PROVIDE ADDITIONAL PANEL ENCLOSURE AND MODULE TO MEET REQUIREMENTS OF PROJECT.
14. PROVIDE FIRE ALARM RELAY AS REQUIRED FOR AUTO DOOR.

KEY NOTES:

1. 1"C. TO NEAREST IDF. TERMINATE CABLES IN IFP.
2. DOOR POSITION SWITCH, FLUSH MOUNT.
3. MOUNT 4S J-BOX 6" AFC. OR AS APPROVED BY THE OWNER.
4. PROVIDE FIELD PANEL ENCLOSURE WITH POWER SUPPLY AND BATTERY BACK UP. THE FIRST FIELD PANEL SHALL HAVE THE INTELLIGENT CONTROLLED MOUNTED TO SLOT #1.
5. BATTERY BACKUP SHALL BE SIZED TO CARRY FULL LOAD FOR FOUR (4) HOURS.
6. DUAL READER MODULE. PROVIDE DUAL READER MODULES AS NECESSARY FOR THE PROJECT.
7. PROVIDE INPUT MODULE IN SLOT 8. QTY AS REQUIRED FOR PROJECT.
8. PROVIDE OUTPUT MODULE IN SLOT 9. QTY AS REQUIRED FOR PROJECT.
9. TAMPER SWITCH
10. DOOR CLOSER (BY DIV. 8)
11. ELECTROMAGNETIC LOCK (BY DIV. 8).

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PROJECT NAME
HOU-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
WILLIAM HOBBY HOU
7800 AIRPORT BLVD.
HOUSTON, TX 77061

PROJECT NUMBER
1004345

SHEET TITLE
DOOR AND IFP DETAILS

SHEET NUMBER
TY500

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IAH-TERMINAL - SECURITY EXIT LANE

SECURE EXIT LANE BREACH CONTROL

GEORGE BUSH IAH

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HOUSTON, TX 77032

ARCHITECT

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3131 Briarpark Drive
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T 713-622-1444

REGISTERED ARCHITECT MICHAEL LLOYD 18250 STATE OF TEXAS
10/20/21

STRUCTURAL

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MEP

VOLT AIR
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Suite 205
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PGA ENGINEERS
3838 N. Sam Houston Pkwy E
Suite 550
Houston, TX 77032
T 346-570-2418

ISSUE FOR BID
100% CD

SHEET INDEX

Sheet No.	Sheet Name
G000	COVER SHEET / SHEET INDEX
G002	GENERAL PROJECT INFORMATION
G003	LIFE SAFETY ANALYSIS
A011	PARTITION TYPES
A012	STOREFRONT TYPES
A013	STOREFRONT DETAILS
A030	DOOR SCHEDULE
A035	DOOR DETAILS
A102	OVERALL FLOOR PLAN - TERMINAL C CENTRAL
AP202	ENLARGED FLOOR PLAN - TERMINAL C CENTRAL - PHASING PLAN
AD202	DEMOLITION FLOOR PLAN - TERMINAL C CENTRAL
AD302	DEMOLITION REFLECTED CEILING PLAN - TERMINAL C CENTRAL

SHEET INDEX

Sheet No.	Sheet Name
A202	ENLARGED FLOOR PLAN - TERMINAL C CENTRAL
A302	ENLARGED REFLECTED CEILING PLAN - TERMINAL C CENTRAL
A402	ENLARGED ELEVATIONS & AXO - TERMINAL C CENTRAL
A502	ENLARGED AXO - TERMINAL C CENTRAL
A701	DETAILS
AD202	IAH TERMINAL C SIGNAGE DEMO PLAN
AG202	IAH TERMINAL C SIGNAGE PLAN
AG700	WAYFINDING ELEVATIONS / DETAILS
S200	LEVEL 02 - TICKETING - FRAMING PLAN
S301	DETAILS
E000	ELECTRICAL LEGEND
E203	DEMOLITION PLAN - TERMINAL C - ELECTRICAL POWER
E303	FLOOR PLAN -TERMINAL C - LIGHTING
E403	FLOOR PLAN - TERMINAL C - POWER
E601	ELECTRICAL RISER DIAGRAMS
E801	ELECTRICAL PANEL SCHEDULES
E901	ELECTRICAL DETAILS
E902	ELECTRICAL DETAILS

SHEET INDEX

Sheet No.	Sheet Name
FP000	FIRE PROTECTION LEGEND
FP303	FLOOR PLAN - TERMINAL C - FIRE PROTECTION
FP901	FIRE PROTECTION DETAILS
TY000	INDEX, SYMBOLS & NOTES
TY001	NOTES
TY002	EQUIPMENT SCHEDULES
TY102.2	OVERALL SECURITY FLOOR PLAN - TERMINAL C, LEVEL 02
TY102.3	OVERALL SECURITY FLOOR PLAN - TERMINAL C, LEVEL MEZZANINE
TY202	SECURITY FLOOR PLAN - TERMINAL C CENTRAL, LEVEL 02
TY404	ENLARGED PLAN AT BDF C3320
TY500	DOOR AND IFP DETAILS
TY501	CAMERA DETAILS
TY502	TELECOM DETAILS

PROJECT No. 1004345

11-19-21

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DEPARTMENT OF AVIATION
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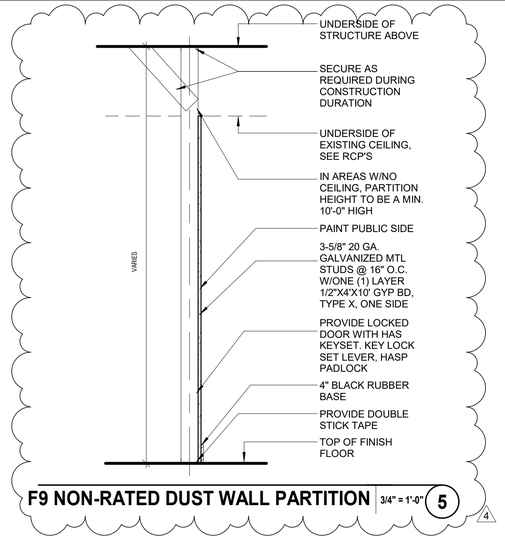
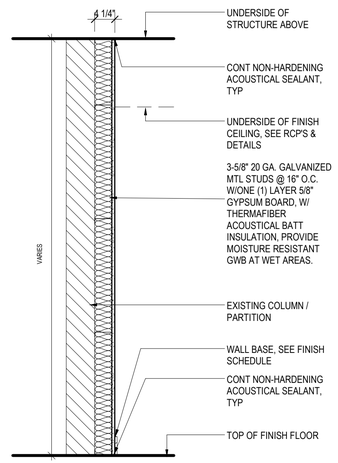
PROJECT NUMBER
1004345

SHEET TITLE
COVER SHEET / SHEET INDEX

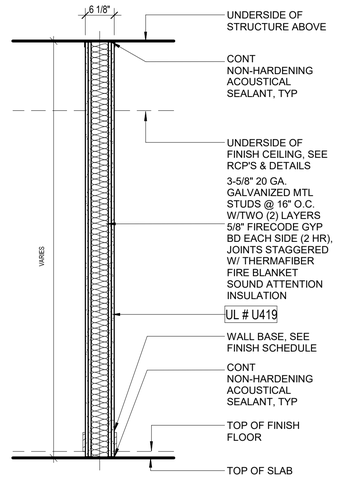
SHEET NUMBER
G000



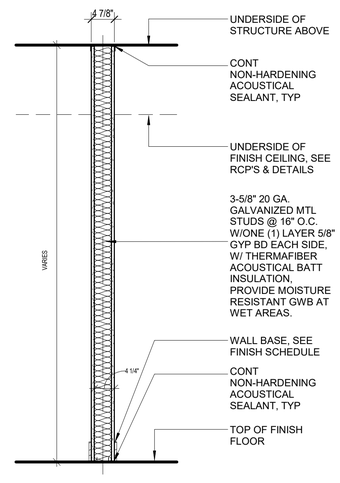
F9 NON-RATED DUST WALL PARTITION 3/4" = 1'-0" (5)



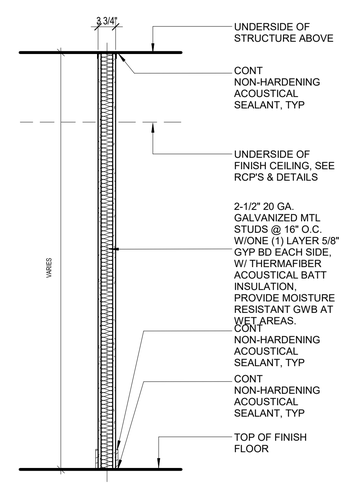
B7.1 FURRING WALL PARTITION 3-5/8" STUD 3/4" = 1'-0" (4)



B2.1 RATED PARTITION1 3/4" = 1'-0" (2)



B1.3 NON-RATED PARTITION 3-5/8" STUD1 3/4" = 1'-0" (3)

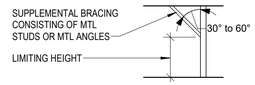


B1.1 NON-RATED PARTITION 2-1/2" STUD1 3/4" = 1'-0" (1)

COLD FORMED FRAMING NOTES

ALL METAL STUDS TO BE 20 ga. AND PLACED AT 16 INCHES O.C. UNLESS NOTED OTHERWISE OR WHERE THE LIMITING HEIGHT REQUIRES 16ga AT 16" O.C.

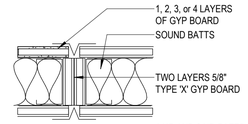
1. ALL FURRING CHANNELS TO BE 25 ga. AND PLACED AT 16 INCHES 0.C. UNLESS NOTED OTHERWISE.
2. PARTITIONS SUPPORTING WALL HUNG PLUMBING FIXTURES SHALL BE 16 ga. AND PLACED 16 INCHES O.C.
3. REFER TO STRUCTURAL DRAWINGS FOR STUD ga. SIZE AND SPACING FOR ALL STRUCTURALLY DESIGNED PARTITIONS.
4. REFER TO ASTM C754 FOR LIMITING HEIGHTS CRITERIA. LIMITING HEIGHTS ARE TO BE DETERMINED BY DEFLECTION CRITERIA RATIO OF L/240, AND LATERAL PRESSURE OF 5 PSF UNLESS NOTED OTHERWISE OR DICTATED OTHERWISE BY PRESIDING BUILDING CODE. WHERE FLOOR TO STRUCTURE HEIGHT OF PARTITION EXCEEDS THE INDICATED LIMITING HEIGHT, PROVIDE SUPPLEMENTAL BRACING TO THE STRUCTURE OVERHEAD AS REQUIRED TO MAINTAIN REQUIRED DEFLECTION RATIO.
5. FOR PARTITIONS WITH "BRITTLE" FINISHES SUCH AS PLASTER AND CERAMIC TILE, DESIGN PARTITION SYSTEM TO MAINTAIN DEFLECTION RATIO WITHIN L/360. SUSPENDED CEILINGS SHALL NOT BE CONSIDERED AS BRACING.



ACOUSTICAL NOTES

1. ALL ACOUSTICALLY CLASSED PARTITIONS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE TO THE REFERENCED TEST.
2. STAGGER AND SEAL ALL JOINTS ON MULTIPLE GYPSUM BOARD LAYER PARTITIONS.
3. SEAL ALL PERIMETER GAPS, AIR TIGHT, AT THE FLOORS, HEAD, ADJACENT CONSTRUCTION AND AROUND ANY PENETRATING ELEMENTS WITH INTERIOR GRADE ACOUSTICAL SEALANT.
4. ALL BATTS AND BLANKETS IN RATED WALLS MUST BEAR THE REQUIRED U.L. CLASSIFICATION MARKING AS TO FIRE-RESISTANCE. ALSO REFER TO CODE COMPLIANCE DETAILS IN G010 SERIES.
5. AT ACOUSTICALLY RATED PARTITIONS, DO NOT FILL THE STUD CAVITY (DEPTH) FULLY WITH SOUND BATTS. THE WIDTH OF THE SOUND BATTS SHOULD BE SLIGHTLY SMALLER THAN CAVITY TO AVOID BATTS COMPRESSION. HOWEVER, THE ENTIRE LENGTH AND HEIGHT OF THE WALL SHOULD HAVE CONTINUOUS AND UNINTERRUPTED SOUND ATTENUATION BATTS.
6. SEAL ALL WALL INTERSECTIONS AND CONTROL JOINTS AT ACOUSTICALLY CLASSED PARTITIONS
7. SEAL ALL CONDUIT, STRUCTURAL, DUCT AND LARGE PIPE PENETRATIONS UNLESS THE PARTITION IS ALSO FIRE RATED WHERE THE CODE COMPLIANCE DETAILS
8. OUTLETS ON OPPOSITE SIDES OF ACOUSTICALLY CLASSED PARTITIONS .

FIREWALL CONTROL JOINTS



FIRE RATING NOTES

1. UNDERWRITERS LABORATORY AND OTHER TESTING AGENCY DESIGNATIONS INDICATED FOR FIRE RESISTIVE CONSTRUCTION ARE GIVEN FOR PURPOSES OF DESCRIBING CONSTRUCTION REQUIREMENTS ONLY AND ARE NOT INTENDED TO LIMIT MANUFACTURERS OF MATERIALS. COMPLY WITH THE CONSTRUCTION REQUIREMENTS OF THE INDICATED DESIGN.
2. ALL PARTITION TYPES SHOWN HERE ARE DRAWN AS "NON FIRE-RATED". WHERE FIRE RESISTIVE WALL CONSTRUCTION IS INDICATED, ON THE FLOOR PLANS, PROVIDE "TYPE X" GYPSUM WALLBOARD. AND FIRE RATED SEALANT AT PERIMETER JOINTS AND ALL PENETRATIONS, TYPICAL BOTH SIDES OF PARTITION AS INDICATED ON THE U.L. DETAILS AND ASSEMBLIES.
3. REFER TO SHEET G010 FOR U.L. LISTED ASSEMBLIES.

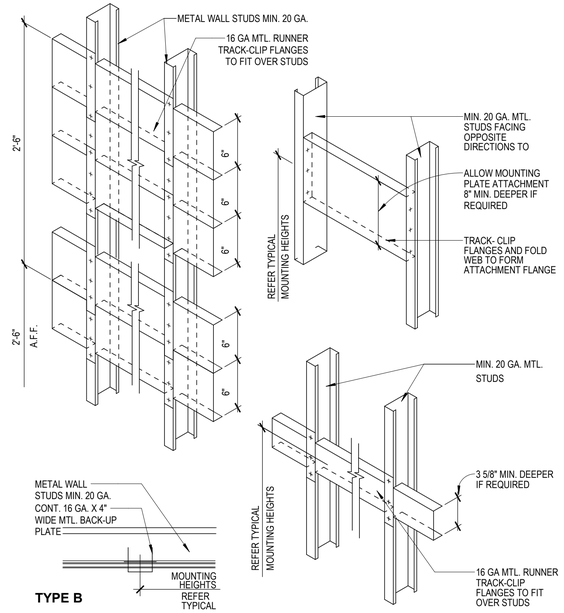
GYPSUM BOARD PARTITION PRIORITY LEGEND

PARTITION	DOOR RATING	PRIORITY
FOUR HOUR FIRE PARTITION	3 HOUR - A LABEL	PRIORITY 1 - HIGHEST
TWO HOUR FIRE/SMOKE PARTITION	1 1/2 HOUR - B LABEL	PRIORITY 2
TWO HOUR FIRE PARTITION	1 1/2 HOUR - B LABEL	PRIORITY 3
ONE HOUR FIRE/SMOKE PARTITION	3/4 HOUR - C LABEL	PRIORITY 4
ONE HOUR FIRE PARTITION	3/4 HOUR - C LABEL	PRIORITY 5
ONE HOUR FIRE PARTITION	20 MIN RATING	PRIORITY 6
NON-RATED PARTITION	NONE	PRIORITY 7 - LOWEST

GENERAL NOTES

1. ALL POSSIBLE VARIATIONS OF PARTITIONS TYPES AND U.L. FIRE RATINGS ARE NOT NECESSARILY UTILIZED IN THIS PROJECT AND ARE SHOWN FOR REFERENCE ONLY. UNLESS RATED PARTITIONS ARE INDICATED ON THE FLOOR PLANS. WHERE U.L. RATED PARTITIONS ARE INDICATED, REFER TO FLOOR PLANS AND PROVIDE FIRE SEALANT AT THOSE LOCATIONS AS REQUIRED.
2. WHERE FULL HEIGHT PARTITIONS ARE PERPENDICULAR TO SPAN OF STRUCTURAL JOISTS OR GIRDERS, THE PARTITION SHALL EXTEND TO THE UNDERSIDE OF STRUCTURE AND FOLLOW THE LINE OF STRUCTURE.
3. PROVIDE CEMENTITIOUS BACKER BOARD ON ALL WALLS TO RECEIVE CERAMIC TILE FINISH. PROVIDE WATER RESISTANT GYPSUM PANELS ON CEILINGS IN ROOMS THAT INCLUDE SHOWERS. FRAMING NOT TO EXCEED SPACING RECOMMENDED BY MANUFACTURER.
4. PROVIDE ONE LAYER OF 5/8" MOISTURE RESISTANT GYPSUM BOARD AT WALLS BEHIND SINKS AND LAVATORIES WITHOUT TILE. MOISTURE RESISTANT GYPSUM BOARD SHALL BE INSTALLED WITHIN 2' OF ALL URINALS AND WATER CLOSETS, TO A HEIGHT OF 4' AFF.
5. WHERE FIRE RESISTIVE CONSTRUCTION IS INDICATED, PROVIDE TYPE X-W/R BOARD. IN CONDITIONS WHERE NOTE 3 AND 4 APPLY, INSTALL 1 LAYER OF APPLICABLE MOISTURE RESISTANT BOARD OR CEMENTITIOUS BACKER BOARD OVER THE TYPE X- W/R BOARD. INSTALL PER MANUFACTURER LIMITATIONS.
6. STC RATINGS SHOWN FOR SOUND WALLS ARE BASED ON LABORATORY TESTED ASSEMBLIES AND DO NOT NECESSARILY INDICATE THE ACTUAL STC RATING OF THE COMPLETED WORK. PROVIDE MTL. DECK FILLERS WHERE FULL HEIGHT PARTITIONS ARE PERPENDICULAR TO SPAN OF DECK. DECK FILLERS ARE TO BE COMPATIBLE WITH ALL FIRE RATED ASSEMBLIES AND ARE TO BE APPROVED BY ALL GOVERNING AGENCIES.
7. PROVIDE FIRE TREATED WOOD BLOCKING, SHEET METAL OR STEEL BACKING IN PARTITIONS TO SUPPORT WALL MOUNTED ITEMS AND EQUIPMENT, ETC.
8. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

PARTITION DETAILS



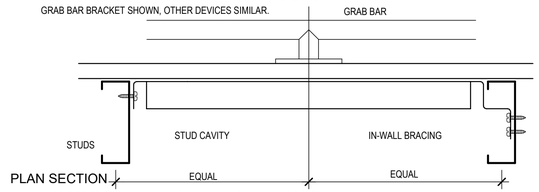
MOUNTING SUPPORT DETAILS

SCALE: NONE

PROVIDE IN-WALL BRACING IN ALL PARTITIONS OR EXTERIOR WALLS WHERE GRAB BARS, HANDRAILS, SHOWER SEATS OR OTHER EQUIPMENT ANCHORS TO METAL STUD WALLS AND IN OTHER LOCATIONS AS NOTED ON THE DRAWINGS.

CENTER STUDS ABOUT THE LOCATION OF THE DEVICE ANCHOR POINT.

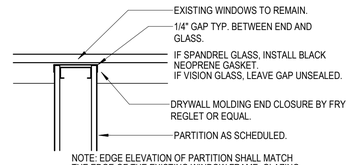
GRAB BAR BRACKET SHOWN, OTHER DEVICES SIMILAR.



IN-WALL BRACING SHALL BE NO LESS THAN A 6" x 1 1/4" x 14 GUAGE CHANNEL, STEEL Fy = 50ksi, AND SHALL SUPPORT A 250 POUND GRAVITY LOAD CONCENTRATED AT ANY POINT ON THE DEVICE BEING ANCHORED.

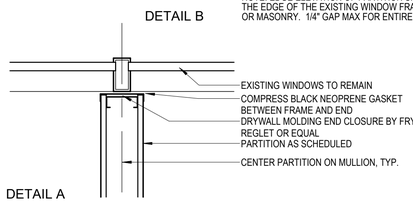
16 GA.x4" WIDE MTL BACKUP PLATE MAY BE USED

IN-WALL BRACING



DETAIL B

NOTE: EDGE ELEVATION OF PARTITION SHALL MATCH THE EDGE OF THE EXISTING WINDOW FRAME, GLAZING, OR MASONRY. 1/4" GAP MAX FOR ENTIRE HEIGHT.



DETAIL A

PARTITION AT MULLION DETAILS

SCALE: NONE

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REGISTRATION

REGISTERED ARCHITECT STATE OF TEXAS 11-19-21

DRAWING HISTORY

№	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100% CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

PARTITION TYPES

SHEET NUMBER

A011

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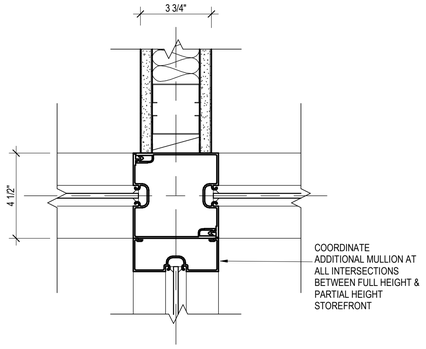
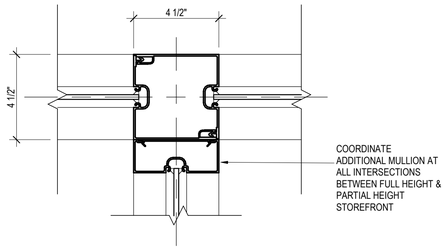


MULLION AT INTERSECTION 3" = 1'-0" 12



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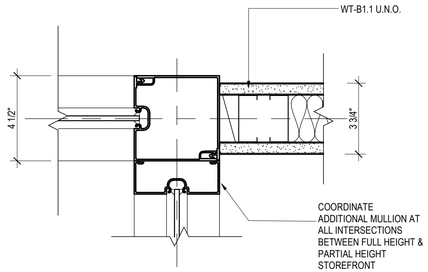
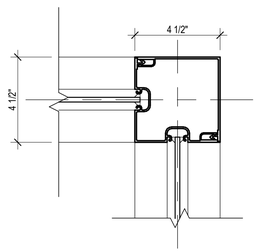
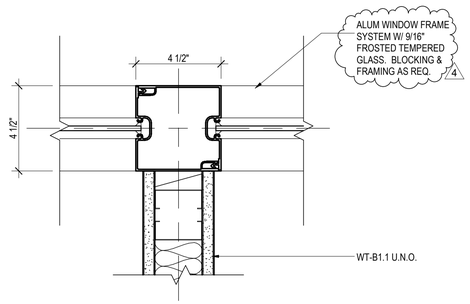


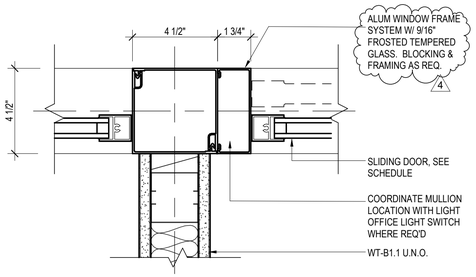
MULLION AT INTERSECTION 3" = 1'-0" 6



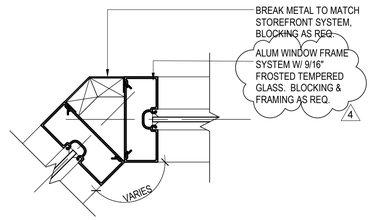
MULLION AT CORNER 3" = 1'-0" 3



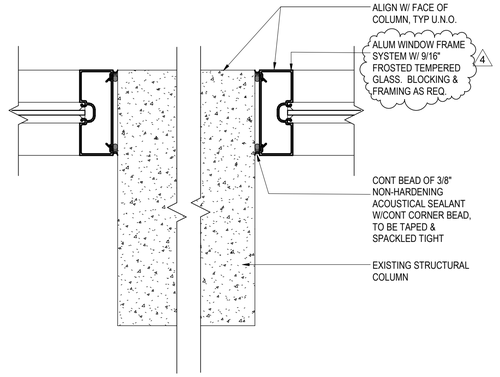
MULLION AT DIVIDING WALL 3" = 1'-0" 11



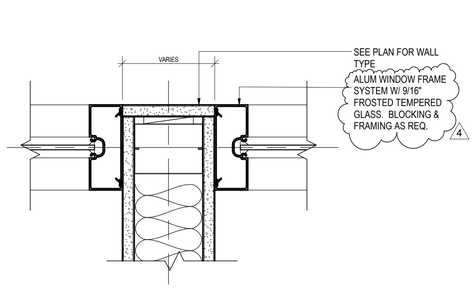
MULLION AT SLIDING DOORS & DIVIDING WALL 3" = 1'-0" 8



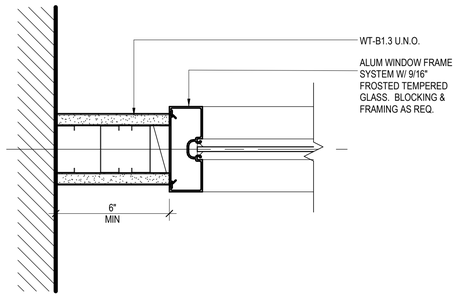
CUSTOM BREAK METAL DETAIL 3" = 1'-0" 5



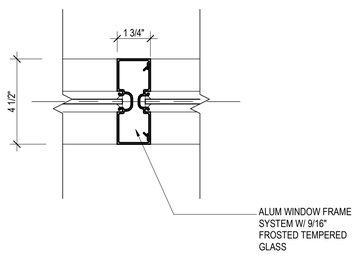
MULLION AT COLUMN 3" = 1'-0" 2



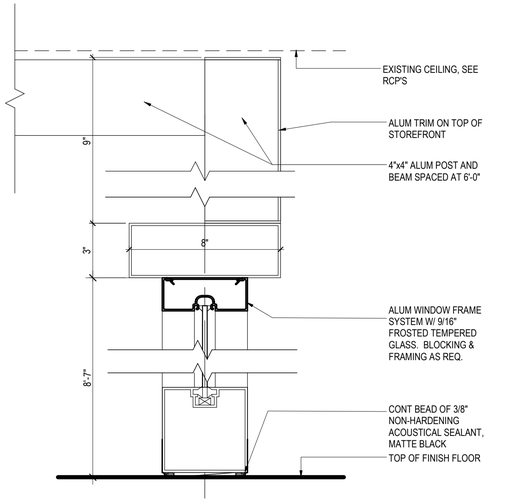
MULLION AT DIVIDING WALL 3" = 1'-0" 10



MULLION AT PERIMETER WALL 3" = 1'-0" 7



TYPICAL MULLION DETAIL 3" = 1'-0" 4



FULL HEIGHT STOREFRONT SYSTEM 3" = 1'-0" 1

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DIRECTOR OR DESIGN REPRESENTATIVE

HAS TIP 21-156 - IAH

REGISTRATION

11-19-21

DRAWING HISTORY

No.	DATE	DESCRIPTION
1	08-06-21	100% CD
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4	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

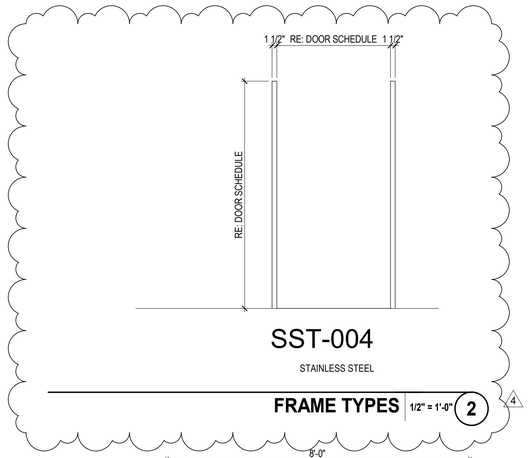
STOREFRONT DETAILS

SHEET NUMBER

A013

DOOR SCHEDULE

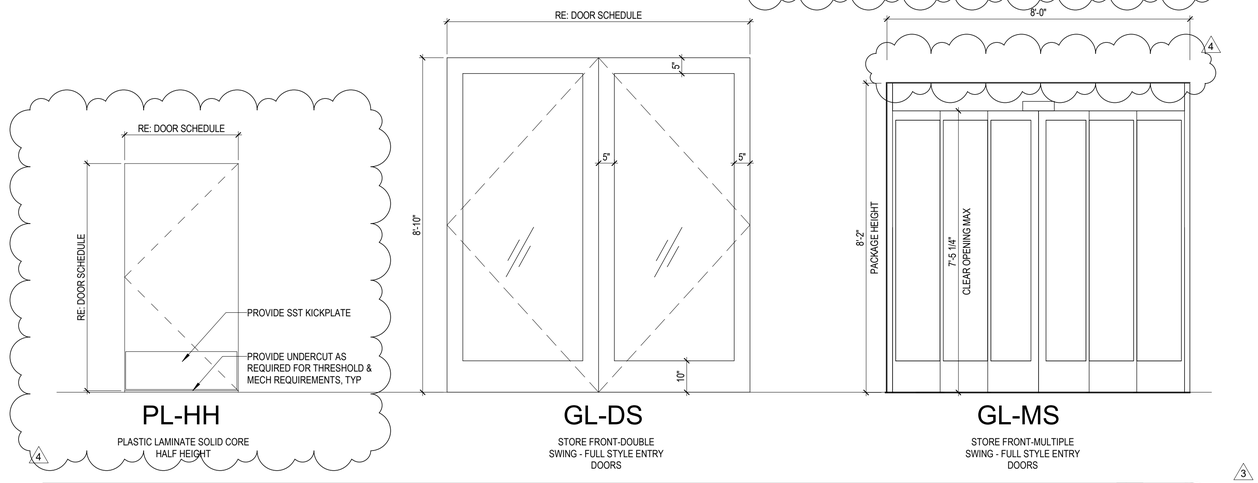
Mark	Room Name	Size Width	Size Height	Size THK	Panel Matl	Panel Panel	Panel Finish	Frame Matl	Frame Type	Frame Finish	Details on A0.35 UNO Jamb	Details on A0.35 UNO Head	Details on A0.35 UNO Sill	Fire Rating	General HDWR	Remarks
LEVEL 02 - TICKETING DEPARTURES																
112	ELECTRIC PRE ALARM ZONE	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
113	EXIT ALARM ZONE 01	8'-4"	8'-10"	--	GL	DS	GL1	AL	002	PT1	2/A035	2/A035	2/A035		2	
114	EXIT ALARM ZONE 02	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
115	ELECTRICAL CHASEWAY	EX	EX	EX	EX	EX	EX	EX	EX	EX	--	--	--		--	
116	EXIT ALARM ZONE 02	8'-0"	8'-2"	6"	GL	MS	GL1	AL	002	PT1	1/A035	1/A035	1/A035		3	
117	NEW HPD BOOTH	3'-0"	6'-0"	2"	PL	HH	--	--	004	SST						



SST-004

STAINLESS STEEL

FRAME TYPES 1/2" = 1'-0" (2)



PL-HH

PLASTIC LAMINATE SOLID CORE HALF HEIGHT

GL-DS

STORE FRONT-DOUBLE SWING - FULL STYLE ENTRY DOORS

GL-MS

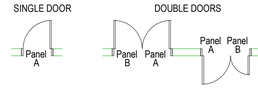
STORE FRONT-MULTIPLE SWING - FULL STYLE ENTRY DOORS

DOOR TYPES 1/2" = 1'-0" (1)

GENERAL NOTES

A. PROVIDE UNDERCUT AS REQUIRED FOR THRESHOLD MECHANICAL REQUIREMENTS.
B. PROVIDE TEMPERED GLASS WHERE REQUIRED BY CODE.
C. PROVIDE SILICONE SEALANT OVER BACKER ROD AT ALL EXTERIOR FRAMES.
D. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
E. ALL HOLLOW METAL FRAMES TO BE WELDED FRAMES.
F. SEE SHEETS A0.020 FOR FINISHES AND MATERIAL LEGENDS.
G. USE GRAY GASKETS AT ALL GLASS DOORS UNLESS NOTED OTHERWISE.
H. ALL ALUMINUM DOOR FRAMES TO BE CLEAR ANODIZED AS SPECIFIED U.N.O.
I. ALL EXIT HARDWARE TO BE TIED TO FIRE ALARM SYSTEM

DOOR PANEL LEGEND



PANEL "A" WILL ALWAYS BE FROM LEFT HINGE SWINGING OUTWARD.

FRAME MATERIALS

AL - Aluminum

HM - Hollow Metal

WD - Wood

SST - Stainless Steel (4)

FRAME CONFIGURATION

Transom: **0** - No Transom
1 - Transom

Sidelite: **0** - No Sidelite
1 - 1 Sidelite
2 - 2 Sidelites, 1 each side or both

Frame Config: **1** - 2" Jamb/Head Wraps Wall
2 - 2" Jamb/Head, Mfr Standard
3 - 2" Jamb, 4" Head, Masonry
4 - 1 1/2" Jambs only
5 - Transom & Sidelites Both Sides
6 - Sidelite On Either Side
S - Sliding Door Frame

Frame Legend: X ###
- Frame Configuration
- Side Lite
- Transom
- Material

DOOR PANEL MATERIALS

AL - Aluminum

WD - Wood

GL - Glass

PL - Plastic Laminate

DOOR PANEL TYPES

F - Flush Panel, Single
DF - Flush Panel, Double
SS - Storefront Panel, Single
DS - Storefront Panel, Double
MS - Storefront Panel, Multiple (More than 2)
HH - HALF HEIGHT (4)

Door Panel Legend: XX-XX
- Panel Type
- Panel Material

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REGISTRATION

11-19-21

DRAWING HISTORY

No.	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100% CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

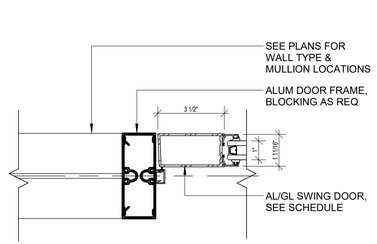
SHEET TITLE

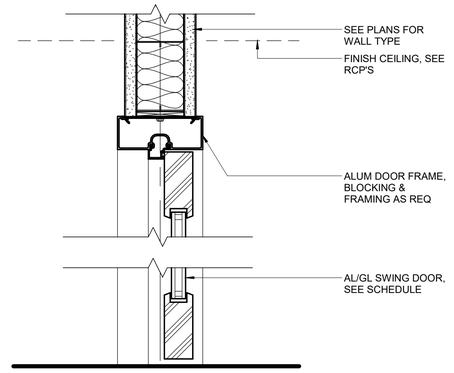
DOOR SCHEDULE

SHEET NUMBER

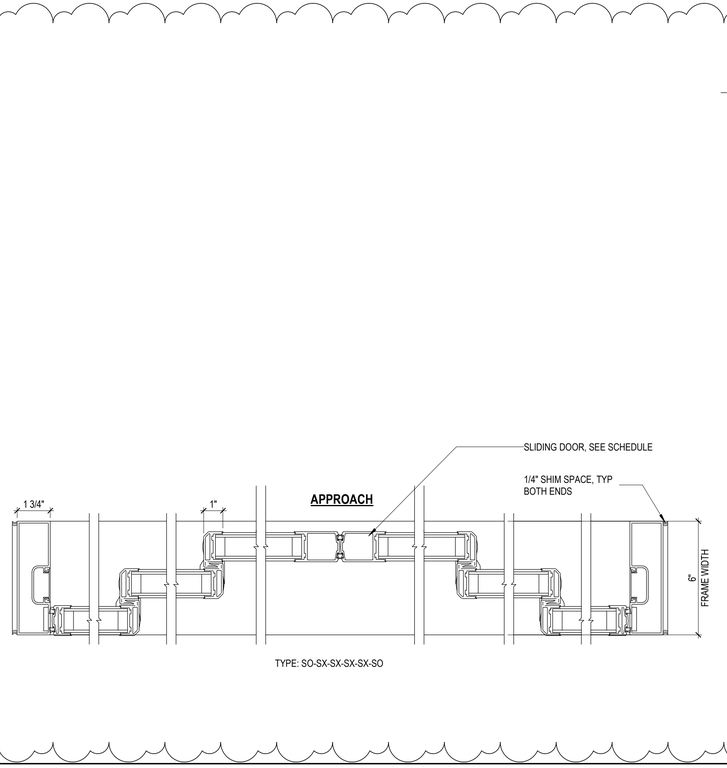
A030

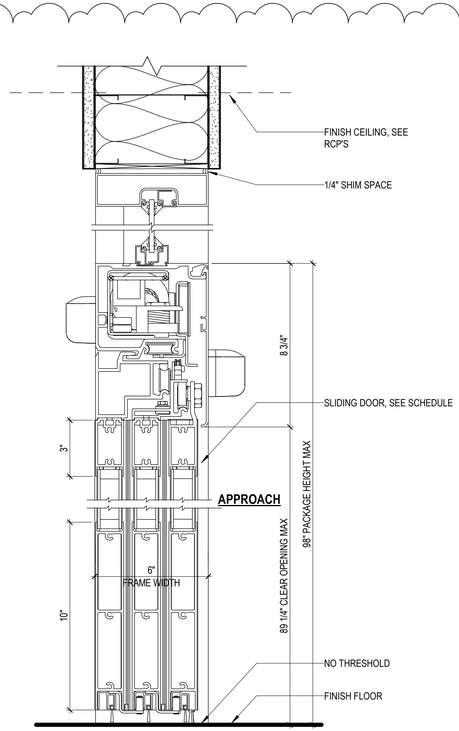
FILE NAME: C:\@Revit\Locals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
DATESTAMP: 11/16/2021 9:32:26 AM





FR2 - STOREFRONT SWING DOOR FRAME TYPE | 3" = 1'-0" (2)





FR1 - STOREFRONT SLIDING DOOR FRAME TYPE | 3" = 1'-0" (1)

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4	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

DOOR DETAILS

SHEET NUMBER

A035

FILE NAME: C:\@RevitLocals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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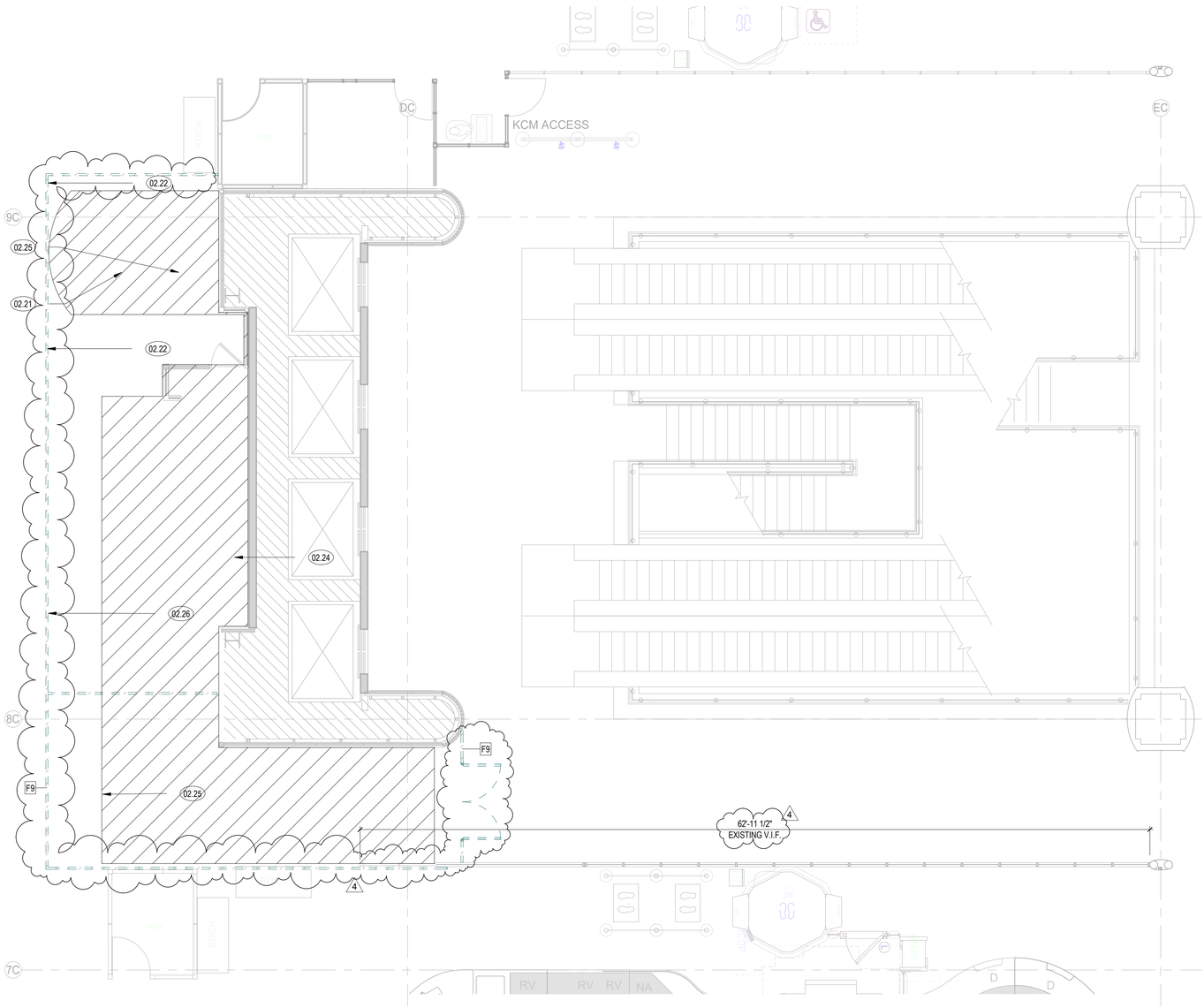

LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL C - PHASING PLAN 3/16" = 1'-0" (1)

GENERAL NOTES - PLAN

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFESSIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INACCURACY OR CONFLICTING INFORMATION BEFORE EXECUTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. CONTRACTOR SHALL FIELD COORDINATE LOCATION, SIZE AND TYPE OF BLOCKING FOR INSTALLATION OF SIGNAGE, MILLWORK, ETC. ALL CONCEALED WOOD SHALL BE FIRE RETARDANT TREATED (FRT).

GENERAL NOTES

1. CONTRACTOR TO INSURE PROPER EXITING AT AL TIMES DURING PHASING.
2. PHASED WORK AND NIGHT HOURS, AS ALLOWED BY HAS, WILL BE REQUIRED AS A SCOPE OF THE WORK.
3. THE WORK AREA SHALL BE LOCKED AND SECURED PER HAS AND TSA SECURITY REQUIREMENTS
4. PHASING PLANS SHOWN ARE GENERAL IN NATURE. THE CONTRACTOR IS TO PROVIDE AND MAINTAIN A DETAILED WORK PHASING PLAN FOR HAS/PGAL APPROVAL.

LEGEND

- EXISTING TO REMAIN
- NEW PARTITIONS
- # KEYED NOTE
- NOT INCLUDED IN SCOPE OF WORK
- EXISTING WALL TO BE DEMOLISHED
- EXISTING DOOR TO BE DEMOLISHED
- EXISTTING QUEING STATION TO BE DEMOLISHED
- TEMPORARY DUST WALLS
- EXISTING DOOR TO REMAIN
- SCOPE OF NEW WORK

PHASING PLAN KEYNOTES

02.21	PHASE ONE: DEMOLISH EXISTING POLICE BOOTH. GC TO SUPPORT EFFORT AND MAKE SAFE WITH ELECTRICAL TERMINATIONS. ADD TEMP DUSTWALLS FOR DEMO SCOPE IF MORE THAN ONE NIGHT OF WORK.
02.22	PHASE TWO: INSTALL NEW DUST WALL. REFER TO PARTITION TYPE F9, PAINTED WHITE TO PUBLIC SIDE. WALLS TO BE LOCKABLE.
02.24	PHASE THREE: DEMO WALLS SCOPE INSIDE THE WORK AREA.
02.25	PHASE FOUR: INSTALL NEW WORK PER SCOPE – TEST & CLOSEOUT.
02.26	PHASE FIVE: REMOVE DUSTWALLS.

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PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
ENLARGED FLOOR PLAN - TERMINAL C CENTRAL - PHASING PLAN

SHEET NUMBER
AP202

FILE NAME: C:\@RevitLocals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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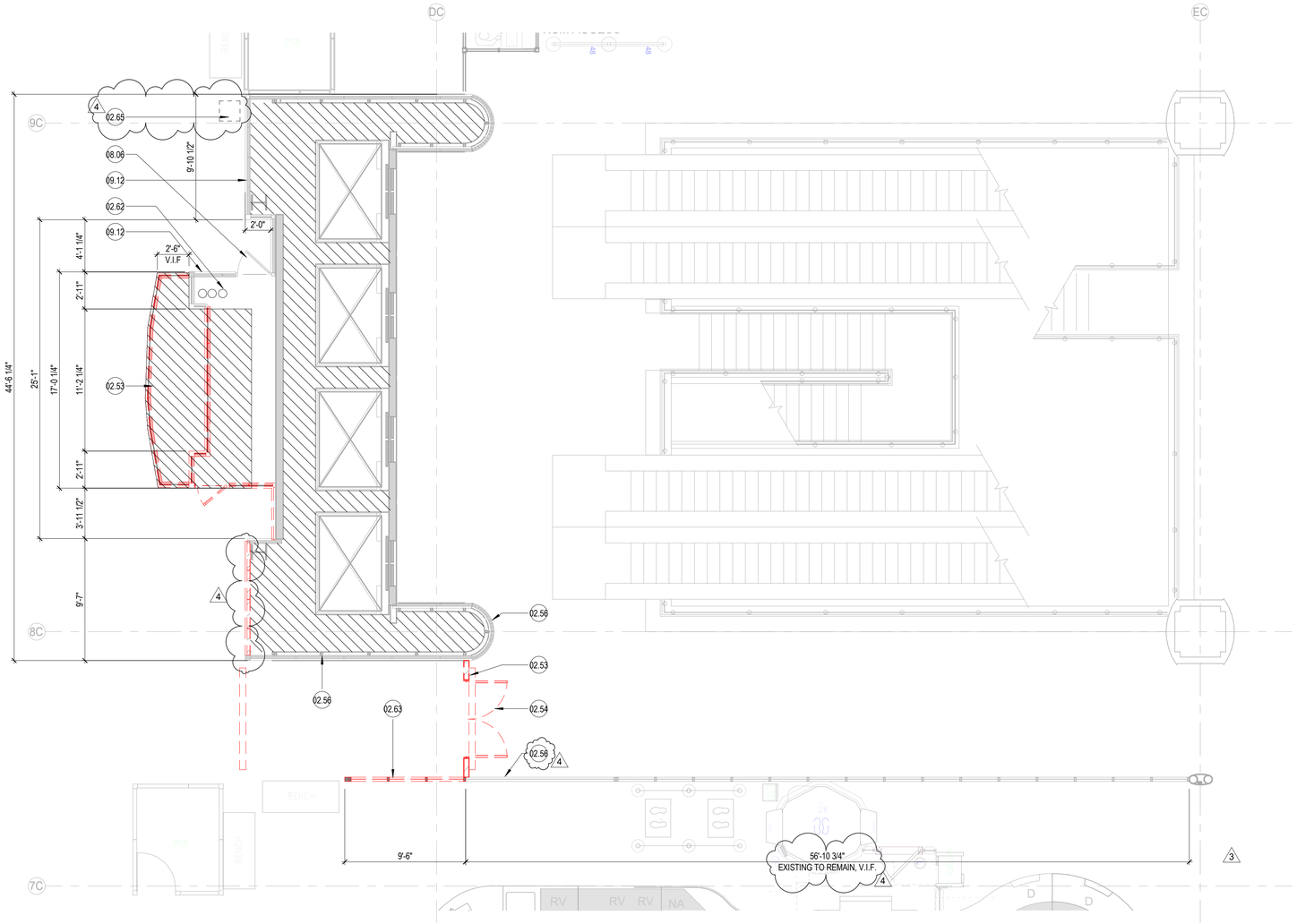

LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL C - ENLARGED DEMO 3/16" = 1'-0" 1

GENERAL NOTES - DEMO

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
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4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. ARCHITECTURAL LIGHTING ARE FOR LOCATE AND TYPE REFERENCE ONLY, REFER TO ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS AND SPECIFICATIONS.
9. USE UNISTRUT BELOW MECHANICAL DUCT OR STRUCTURAL BEAMS TO ACCOMMODATE LIGHT FIXTURES AS NEEDED.
10. PATCH AND REPAIR EXISTING EXPOSED CEILINGS AS NEEDED.

LEGEND - DEMO

- EXISTING WALL TO BE DEMOLISHED
- EXISTING DOOR TO BE DEMOLISHED
- EXISTING WALL TO REMAIN
- EXISTING DOOR TO REMAIN
- QUEUING STANCHION
- # KEYED NOTE
- NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.53	EXISTING GYPSUM WALL AND STUD PARTITION TO BE REMOVED IN ITS ENTIRETY, V.I.F. REMOVAL TO INCLUDE BUT NOT LIMITED TO ALL WALL GYP, BASE, MOLDING, EQUIPMENT, MILLWORK, WIRING, ETC. EQUIPMENT TO BE SALVAGED TO HAS/TSA. BRING ALL WIRING BACK TO NEAREST SOURCE PANEL. CAREFULLY CUT WALLS IN AREAS WHERE PORTION OF EXISTING IS TO REMAIN. PATCH AND PREP ADJACENT FLOOR/WALLS TO RECEIVE NEW FINISHES, TYP. PROVIDE ADDITIONAL CFMF AND STEEL TO SUPPORT EXISTING WALL TO REMAIN.
02.54	EXISTING DOORS TO BE REMOVED IN THEIR ENTIRETY AND SALVAGE TO OWNER. REMOVAL TO INCLUDE HARDWARE, FRAME, ETC.
02.56	EXISTING TO REMAIN, PROTECT EXISTING FINISHES AND STOREFRONT AS NEEDED
02.62	EXISTING COMMUNICATIONS CONDUIT TO REMAIN
02.63	EXISTING STOREFRONT TO BE REMOVED, PATCH REPAIR EXISTING TERRAZZO AS NEEDED. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS NEEDED FOR REMAINING STOREFRONT
02.65	EXISTING MAILSAFE EXPRESS TO BE RELOCATED
08.06	EXISTING DOOR TO REMAIN
09.12	EXISTING WALL PANEL SYSTEM TO REMAIN

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11-19-21

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1	08-06-21	100% CD
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3	10-20-21	ISSUE FOR BID/100% CD
4	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
DEMOLITION FLOOR PLAN - TERMINAL C CENTRAL

SHEET NUMBER
AD202

FILE NAME: C:\@Revit\Locals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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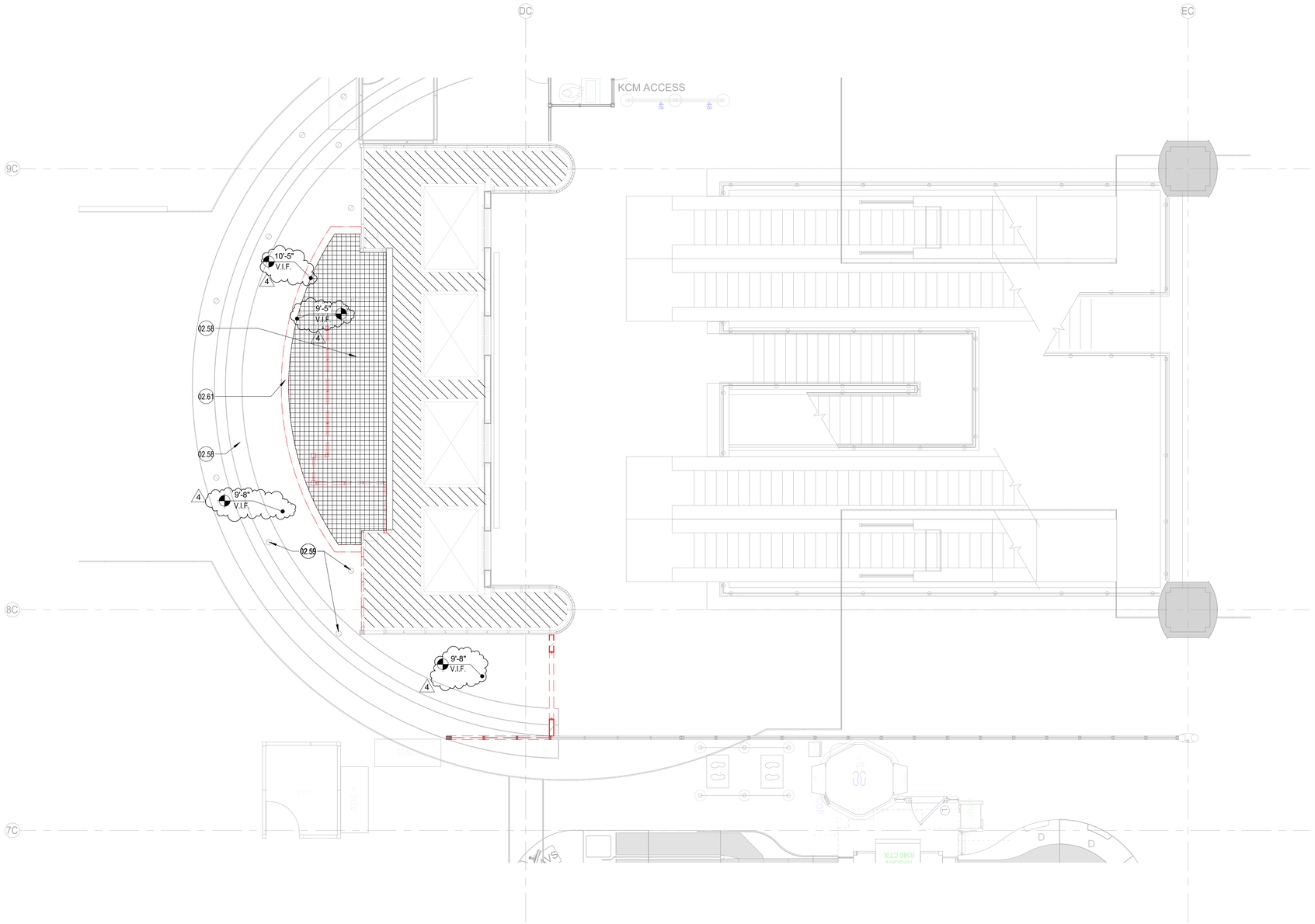

LEVEL 02 - TICKETING - REFLECTED CEILING PLAN - TERMINAL C - ENLARGED DEMO 3/16" = 1'-0" (1)

GENERAL NOTES

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
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3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INCACURACY OR CONFLICTING INFORMATION BEFORE EXECURTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. ARCHITECTURAL LIGHTING ARE FOR LOCATE AND TYPE REFERENCE ONLY, REFER TO ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS AND SPECIFICATIONS.
9. PATCH AND REPAIR EXISTING EXPOSED CEILINGS AS NEEDED.

LEGEND - DEMO RCP

- EXISTING WALL TO BE DEMOLISHED
- EXISTING DOOR TO BE DEMOLISHED
- EXISTING LIGHT FIXTURE TO DEMOLISHED
- EXISTING LIGHT FIXTURE TO REMAIN
- 6 X 6 ACT CEILING
- EXISTING WALL TO REMAIN
- EXISTING DOOR TO REMAIN
- # KEYED NOTE
- NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

NUMBER	DESCRIPTION
02.58	EXISTING CEILING TO REMAIN, ANY DAMAGED TILE/GYP DURING WORK TO BE REPLACED
02.59	EXISTING DOWNLIGHTS INSTALLED OVER PROPOSED AREA OF EXIT LANE TO BE REMOVED, V.I.F. RE: ELECTRICAL
02.61	EXISTING BULKHEAD TO BE REMOVED

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11-19-21

DRAWING HISTORY

№	DATE	DESCRIPTION
3	10-20-21	ISSUE FOR BID/100% CD
4	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
DEMOLITION REFLECTED CEILING PLAN - TERMINAL C CENTRAL

SHEET NUMBER
3 AD302

FILE NAME: C:\@Revit\Locals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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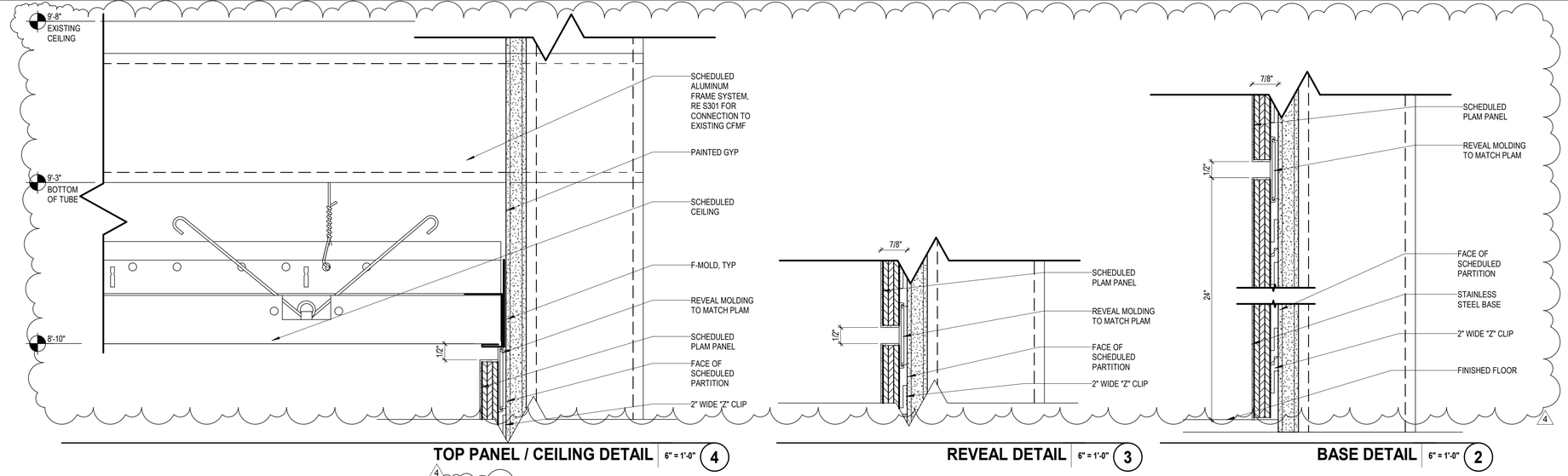
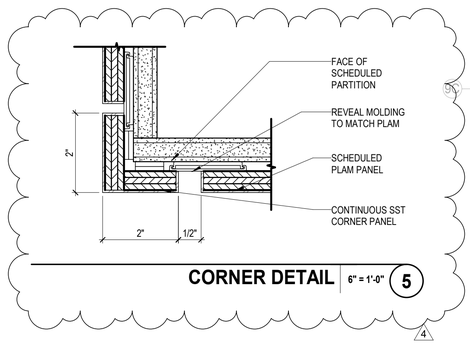


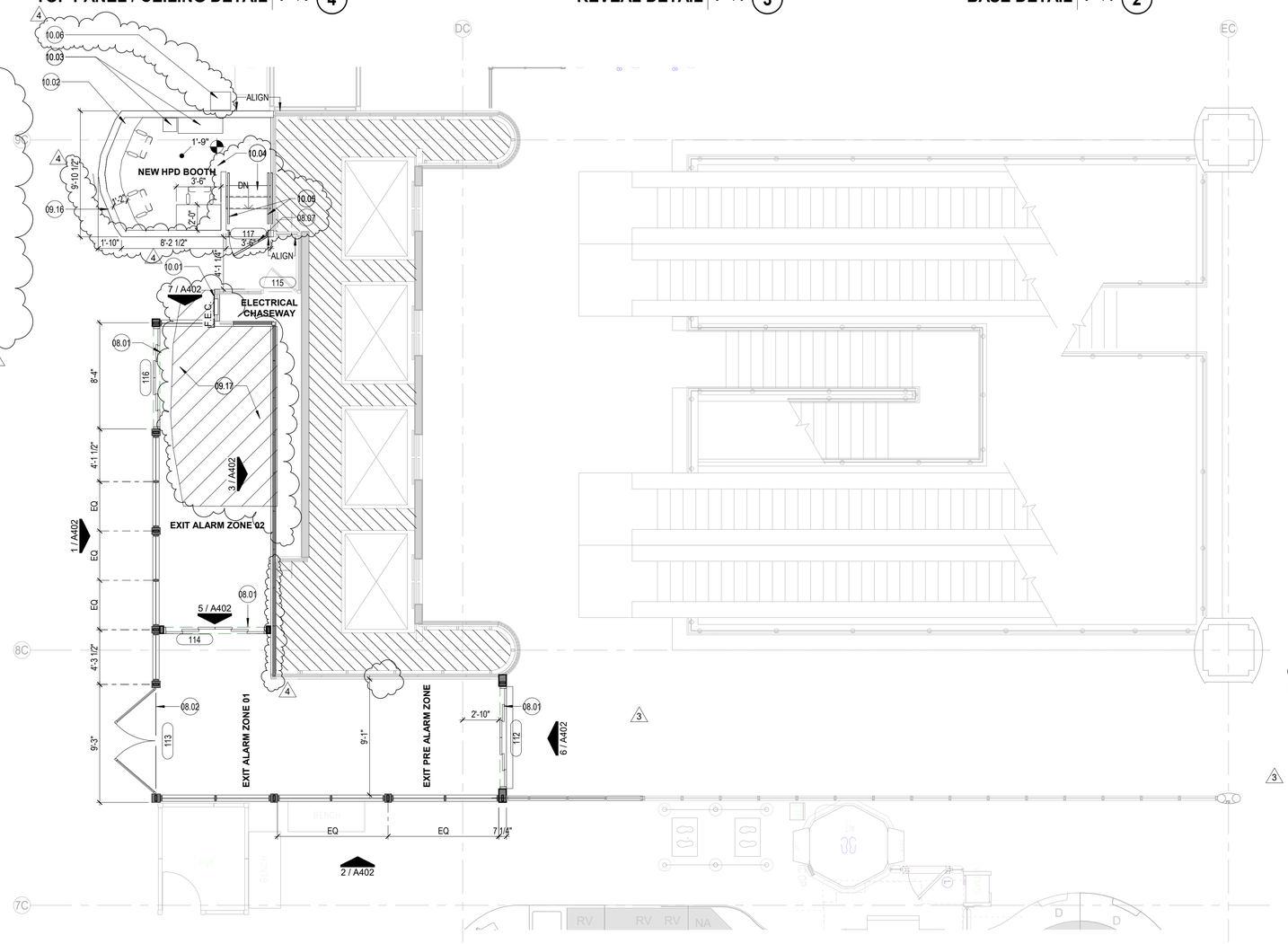
TOP PANEL / CEILING DETAIL 6" = 1'-0" (4)

REVEAL DETAIL 6" = 1'-0" (3)

BASE DETAIL 6" = 1'-0" (2)



CORNER DETAIL 6" = 1'-0" (5)



LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL C - ENLARGED 3/16" = 1'-0" (1)

GENERAL NOTES - PLAN

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
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7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. CONTRACTOR SHALL FIELD COORDINATE LOCATION, SIZE AND TYPE OF BLOCKING FOR INSTALLATION OF SIGNAGE, MILLWORK, ETC. ALL CONCEALED WOOD SHALL BE FIRE RETARDANT TREATED (FRT).

GENERAL NOTES

1. FIELD COOORDINATE CONDUIT ROUTING
2. EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES
3. LABEL SECURITY CONDUITS. REFER TO NOTES ON SHEET G002.
4. ALL SECURITY SYSTEM EQUIPMENT FURNISHINGS, CONDUIT, CABLING AND OTHER RELATED MATERIALS AND INTERFACES SHALL BE INSTALLED IN ACCORDANCE WITH PROJECT CONTRUCTION DOCUMENTS AND SCHEDULES.
5. CONTRACTOR SHALL FURNISH AND INSTALL ALL CABLING AND CONDUIT FROM SECURITY DEVICE LOCATIONS TO DESIGNATED NODES/ROOMS. CABLING SHALL BE OF APPROPRIATE TYPE AND GAUGE AS REQUIRED BY THE MANUFACTURER, FOR PROPER SYTEM OPERATION. CONTRACTOR SHALL ENSURE CABLES TO EACH DEVICE PROVIDE SUFFICIENT VOLTAGE, OR SIGNAL STRENGTH TO OPERATE WITHIN MANUFACTURERS SPECIFIED LIMITS.
6. CONTRACTOR SHALL COORDINATE EXACT DEVICE MOUNTING LOCATIONS WITH OWNERS DESIGNATED REPRESENTATIVE AND OTHER TRADES PRIOR TO INSTALLATION OF DEVICES AND RELATED INFRASTRUCTURE.
7. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH OWNERS DESIGNATED REPRESENTATVIE FINAL FIELD OF VIEW OF SECURITY CAMERAS.
8. ALL SECURITY CAMERAS SHALL BE PROVIDED WITH APPROPRIATE HOUSING AND MOUNTS IN IDENTIFIED LOCATIONS.
9. CONTRACTOR SHALL PATCH AND REPAIR ANY SURFACE AFFECTED FROM INSTALLLATION IN THE COURSE OF THE SCOPE OF WORK TO ORIGINAL OR MATCHING CONDITIONS.
10. EXISTING SECURITY INFRASTRUCTRE AND COMPONENTS AFFECTED BY CONSTRUCTION SHALL BE REROUTED AND/OR DECOMMISIONED.

LEGEND

- EXISTING TO REMAIN
- NEW PARTITIONS
- NEW DOOR
- NEW SLIDING DOOR
- 1271.2 — SCHEDULED DOOR. REFER TO SHEET A0.30
- A0.0 — SCHEDULED PARTITION REFER TO SHEETS A0.11
- # — KEYED NOTE
- PTXX — MATERIAL TAG
- NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

NUMBER	DESCRIPTION
08.01	MULTI PANEL EXIT DOORS
08.02	VEHICULAR BYPASS DOORS
08.07	PROVIDE CONTINUOUS HINGE WITH HEAVY DUTY BARREL SLIDE BOLT AT HPD BOOTH DOOR
09.16	PROVIDE BULLET PROOF FINISH AT THE HPD BOOTH AS AN ALTERNATE
09.17	MATCH TO EXISTING TERRAZZO FLOORING WITHIN THIS HATCHED AREA
10.01	PROVIDE NEW RECESSED MOUNTED FIRE EXTINGUISHER CABINET, REPAIR EXISTING FINISHES AS NEEDED
10.02	NEW 24" COUNTERTOP
10.03	RELOCATED HPD STORAGE AND WEAPONS SAFE
10.04	HPD BOOTH PLATFORM AND STAIR, REQUIRED TO COMPLY WITH CH. 10 OF THE IBC, RE:A701
10.05	WALL MOUNTED HAND RAIL, REQUIRED TO COMPLY WITH CH. 10 OF THE IBC, RE:12/A701
10.06	RELOCATED MAILSAFE EXPRESS

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REGISTRATION

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PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

ENLARGED FLOOR PLAN - TERMINAL C CENTRAL

SHEET NUMBER

A202

FILE NAME: C:\@Revit\Locals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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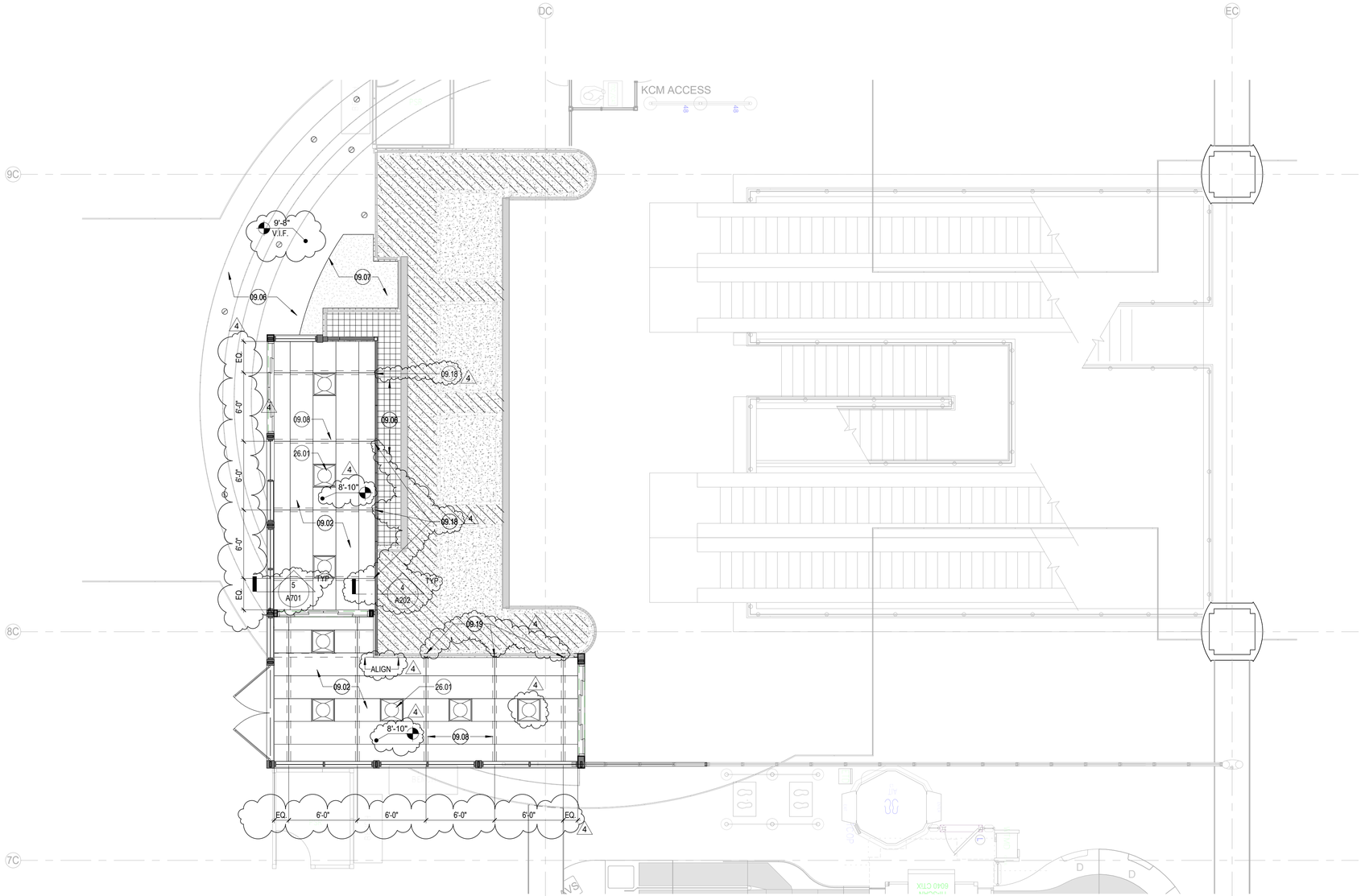

LEVEL 02 - TICKETING - REFLECTED CEILING PLAN - TERMINAL C - ENLARGED

3/16" = 1'-0"

1

GENERAL NOTES

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSION SHALL BE OBTAINED FROM DESIGN PROFFESIONALS VIA REQUEST FOR INFORMATION (RFI).
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCY, INCACURACY OR CONFLICTING INFORMATION BEFORE EXECURTION OF WORK.
4. REFER TO WALL PARTITION/STOREFRONT TYPES SHEET A011 FOR ADDTIONAL INFORMATION.
5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.
6. REFER TO DOOR SCHEDULES AND DOOR TYPES SHEET A030.
7. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
8. ARCHITECTURAL LIGHTING ARE FOR LOCATE AND TYPE REFERENCE ONLY, REFER TO ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS AND SPECIFICATIONS.
9. USE UNISTRUT BELOW MECHANICAL DUCT OR STRUCTURAL BEAMS TO ACCOMMODATE LIGHT FIXTURES AS NEEDED.
10. PATCH AND REPAIR EXISTING EXPOSED CEILINGS AS NEEDED.

GENERAL NOTES - RCP

1. FIELD COOORDINATE CONDUIT ROUTING
2. EXPOSED CODUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES
3. LABEL SECUREITY CONDUITS PER HAS STANDARDS
4. ALL SECURITY SYSTEM EQUIPMENT FURNISHINGS, CONDUIT, CABLING AND OTHER RELATED MATERIALS AND INTERFACES SHALL BE INSTALLED IN ACCORDANCE WITH PROJECT CONTRUCTION DOCUMENTS AND SCHEDULES.
5. CONTRACTOR SHALL FURNISH AND INSTALL ALL CABLING AND CONDUIT FROM SECURTIY DEVICE LOCATIONS TO DESIGNTATED NODES/ROOMS. CABLING SHALL BE OF APPROPRIATE TYPE AND GAUGE AS REQUIRED BY THE MANUFACTURER, FOR PROPER SYTEM OPERATION. CONTRACTOR SHALL ENSURE CABLES TO EACH DEVICE PROVIDE SUFFICIENT VOLTAGE, OR SIGNAL STRENGTH TO OPERATE WITHIN MANUFACTURERS SPECIFIED LIMITS.
6. CONTRACTOR SHALL COORDINATE EXACT DEVICE MOUNTING LOCATIONS WITH OWNERS DESIGNATED REPRESENTATIVE AND OTHER TRADES PRIOOR TO INSTALLATION OF DEVICES AND RELATED INFRASTRUCTURE.
7. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH OWNERS DESIGNATED REPRESENTATVIE FINAL FIELD OF VIEW OF SECURITY CAMERAS.
8. ALL SECURITY CAMERAS SHALL BE PROVIDED WITH APPROPRIATE HOUSING AND MOUNTS IN IDENTIFIED LOCATIONS.
9. CONTRACTOR SHALL PATCH AND REPAIR ANY SURFACE AFFECTED FROM INSTALLLATION IN THE COURSE OF THE SCOPE OF WORK TO ORIGINAL OR MATCHING CONDITIONS.
10. EXISTING SECURTIY INFRASTRUCTRE AND COMPONENTS EFFECTED BY CONSTRUCTION SHALL BE REROUTED AND/OR DECOMMISIONED.

LEGEND

- EXISTING TO REMAIN
- LED 2X2 FLAT PANEL TROFFER, RE: ELECTRICAL
- EXISTING DOOR TO REMAIN
- EXISTING WALL TO REMAIN
- 2'X6' PERFORATED METAL CEILING
- NOT INCLUDED IN SCOPE OF WORK
- # KEYED NOTE

KEYNOTE LEGEND

NUMBER	DESCRIPTION
09.02	NEW PERFORATED CEILING PANEL SYSTEM, MCP-1
09.06	EXISTING CEILING TO REMAIN, ANY DAMAGED TILE/GYP DURING WORK TO BE REPLACED
09.07	PROVIDE NEW GYP DROP CEILING TO MATCH EXISTING FINISH AND CEILING HEIGHT OF 9'-8" V.I.F.
09.08	4"X4" POST AND BEAM ALUMINUM FRAME SYSTEM ABOVE CEILING
09.18	PROVIDE PAINTED GYP BD ABOVE SCHEDULED NEW CEILING AND AROUND ALUMINUM FRAME SYSTEM
09.19	PENETRATE EXISTING WALL PANEL ABOVE SCHEDULED NEW CEILING TO PROVIDE ALUMINUM TUBE ACCESS TO STUD WALL / PATCH / REPAIR AS NECESSARY
26.01	NEW LIGHT FIXTURE, RE: ELECTRICAL

4

INTERIOR CEILING FINISH

MCP-1 METAL CEILING PANEL

MANUFACTURER:	USG
TYPE:	2'X6' CELEBRATION METAL PANELS
COLOR:	PERFORATED ALUMINUM SILVER SATING PATTERN A116 (17% OPEN AREA)
SUSPENSION SYSTEM:	CELEBRATION TORSION SPRING CEILING SYSTEM
REMARKS:	USG COMPASSO STANDARD TRIM / F-MOLD TO BE USED AS PERIMETER TRIM AS CONDITION PERMITS

4

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DEPARTMENT OF AVIATION
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DIRECTOR OR DESIGN REPRESENTATIVE

HAS TIP 21-156 - IAH

11-19-21

DRAWING HISTORY

№	DATE	DESCRIPTION
3	10-20-21	ISSUE FOR BID/100% CD
4	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
ENLARGED REFLECTED CEILING PLAN - TERMINAL C CENTRAL

SHEET NUMBER
3 A302

FILE NAME: C:\@Revit\Locals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
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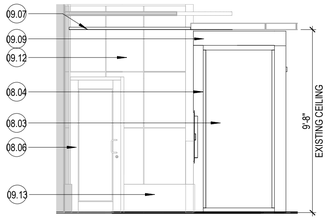
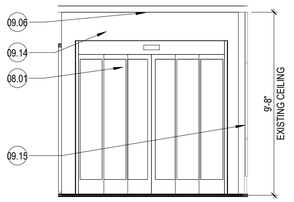
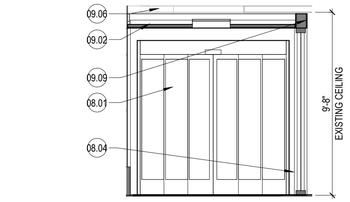


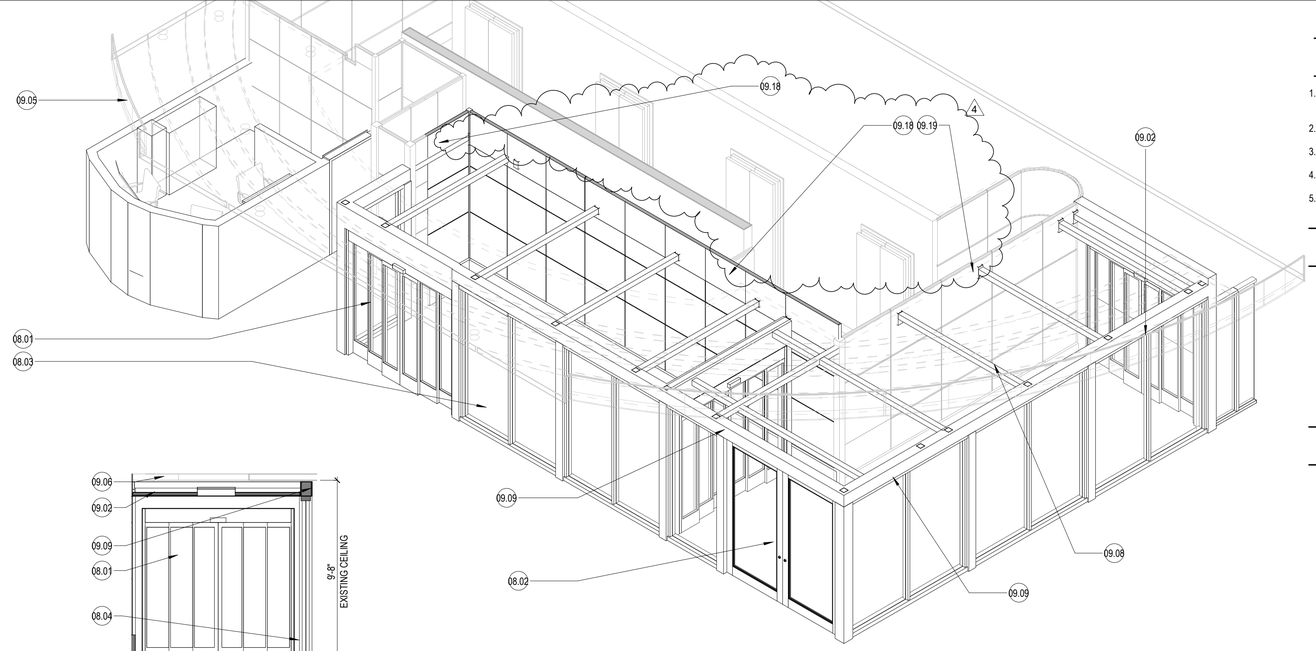
ELEVATION 07 - TERM C | 1/4" = 1'-0" | 7



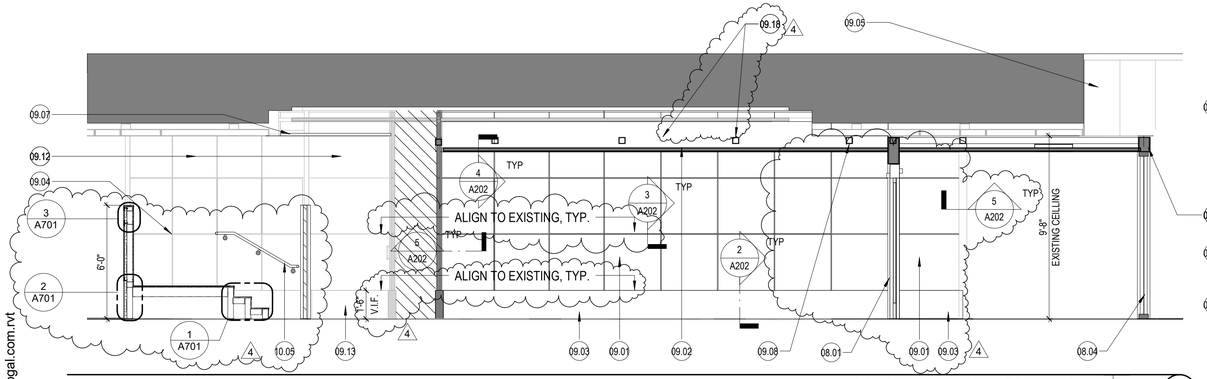
ELEVATION 06 - TERM C | 1/4" = 1'-0" | 6



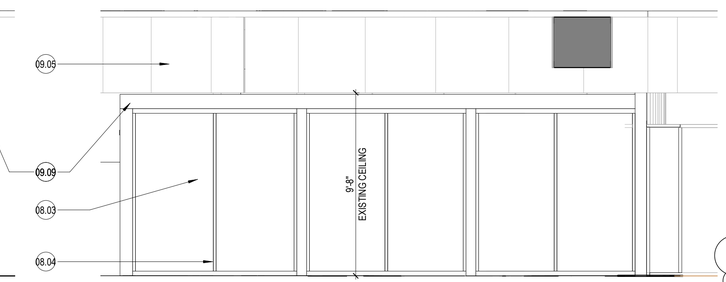
ELEVATION 05 - TERM C | 1/4" = 1'-0" | 5



INTERIOR AXO - TERM C | 4



INTERIOR ELEVATION 03 - TERM C | 1/4" = 1'-0" | 3



INTERIOR ELEVATION 02 - TERM C | 1/4" = 1'-0" | 2

INTERIOR ELEVATION 01 - TERM C | 1/4" = 1'-0" | 1

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LEGEND

1 / A101 SIM — VIEW REFERENCE CALLOUT

NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

NUMBER	DESCRIPTION
08.01	MULTI PANEL EXIT DOORS
08.02	VEHICULAR BYPASS DOORS
08.03	9/16" LAMINATED FROSTED GLASS WITH INTERNAL PVB FILM
08.04	ALUMINUM STOREFRONT MULLION SYSTEM
08.06	EXISTING DOOR TO REMAIN
09.01	NEW WALL PANEL SYSTEM TO MATCH EXISTING
09.02	NEW PERFORATED CEILING PANEL SYSTEM, MCP-1
09.03	1'-6" STAINLESS STEEL BASE (BRUSHED) V.I.F.
09.04	1/2" REVEAL
09.05	LEVEL 03 PLENUM
09.06	EXISTING CEILING TO REMAIN, ANY DAMAGED TILE/GYP DURING WORK TO BE REPLACED
09.07	PROVIDE NEW GYP DROP CEILING TO MATCH EXISTING FINISH AND CEILING HEIGHT OF 9'-8" V.I.F.
09.08	4"X4" POST AND BEAM ALUMINUM FRAME SYSTEM ABOVE CEILING
09.09	CONTINUOUS ALUMINUM TRIM FINISH AT WALL PERIMETER
09.12	EXISTING WALL PANEL SYSTEM TO REMAIN
09.13	EXISTING STAINLESS STEEL BASE TO REMAIN
09.14	PAINTED GYP WALL
09.15	EXISTING FINISHES TO REMAIN, ANY DAMAGED EXISTING FINISH DURING WORK TO BE REPLACED
09.18	PROVIDE PAINTED GYP BD ABOVE SCHEDULED NEW CEILING AND AROUND ALUMINUM FRAME SYSTEM
09.19	PENETRATE EXISTING WALL PANEL ABOVE SCHEDULED NEW CEILING TO PROVIDE ALUMINUM TUBE ACCESS TO STUD WALL. PATCH / REPAIR AS NECESSARY
10.01	PROVIDE NEW RECESSED MOUNTED FIRE EXTINGUISHER CABINET, REPAIR EXISTING FINISHES AS NEEDED
10.05	WALL MOUNTED HAND RAIL, REQUIRED TO COMPLY WITH CH. 10 OF THE IBC, RE:12/A701

FLOOR FINISH

CP-1 CARPET

LOCATION:	HPD BOOTH
MANUFACTURER:	TARKETT
STYLE:	WORLD WOVEN
PATTERN:	EXPLORER
PATTERN TYPE:	TEXTURE
SETTING BED:	DIRECT GLUE
COLOR:	--

WALL BASE FINISH

SSB-1 STAINLESS STEEL BASE

DESCRIPTION:	STAINLESS STEEL BASE
LOCATION:	TYPICAL PUBLIC AREAS
TYPE:	16 GAUGE
FINISH:	NO. 4 BRUSH FINISH, GRAIN PARALLEL TO GROUND
REMARKS:	REFER TO ELEVATIONS FOR HEIGHT, ADHERED TO 1/2" FIRE RETARDENT PLYWOOD, WRAP ALL EXPOSED EDGES

WALL FINISH

WP-1 WALL PANEL

DESCRIPTION:	WALL PANEL - PLASTIC LAMINATE
LOCATION:	TYPICAL PUBLIC AREAS
TYPE:	WILSONART
FINISH:	D381-60 FASHION GREY, MATTE FINISH
REMARKS:	MATCH TO EXISTING PANELS

PAINT FINISH

PT-1 PAINT FINISH

DESCRIPTION:	PAINT & COATINGS
LOCATION:	TYPICAL PUBLIC AREAS
MANUFACTURER:	BENJAMIN MOORE OR SHERWIN WILLIAMS
PRODUCT NAME:	PANTONE WHITE
COLOR/FINISH:	C0 M0 Y0 K0
REMARKS:	--

MILLWORK FINISH

PL-2 PLASTIC LAMINATE

LOCATION:	HPD BOOTH MILLWORK
MANUFACTURER:	WILSON ART
STYLE:	HIGH PRESSURE LAMINATE
FINISH:	MATTE
COLOR:	

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DEPARTMENT OF AVIATION
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HOUSTON AIRPORT SYSTEM
DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP 21-156 - IAH

REGISTRATION

11-19-21

DRAWING HISTORY

No.	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100% CD
4	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
ENLARGED ELEVATIONS & AXO - TERMINAL C CENTRAL

SHEET NUMBER
A402

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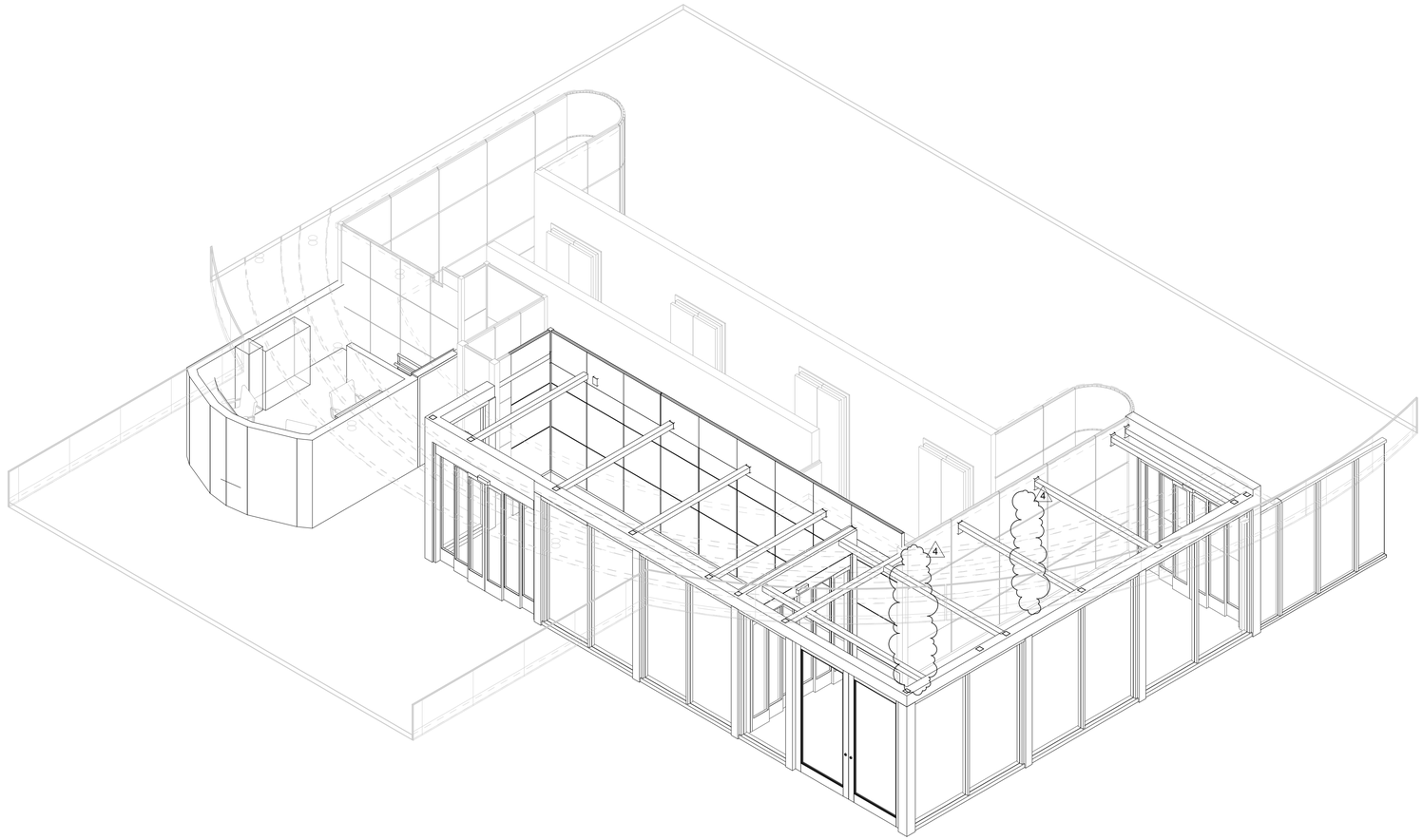

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5. REFER TO ENLARGED ELEVATIONS AND AXO ON SERIES SHEETS A400.

LEGEND

1 / A101 SIM — VIEW REFERENCE CALLOUT

NOT INCLUDED IN SCOPE OF WORK

KEYNOTE LEGEND

CLIENT

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REGISTRATION

11-19-21

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4	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

ENLARGED AXO - TERMINAL C CENTRAL

SHEET NUMBER

A502

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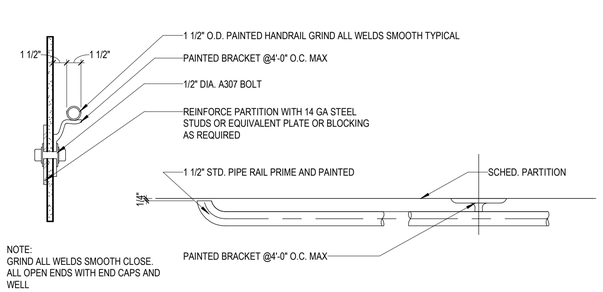
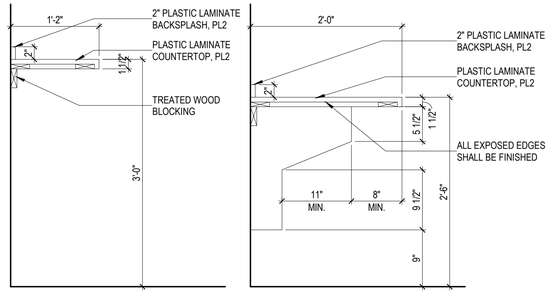
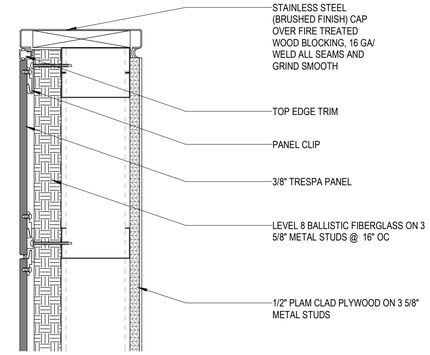


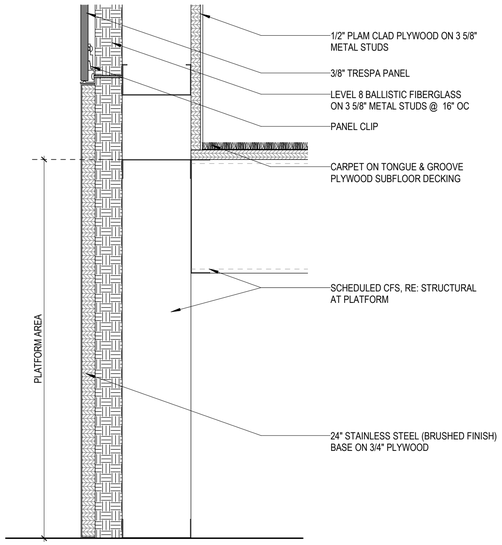
WALL MOUNTED HANDRAIL DETAILS 1 1/2" = 1'-0" 12



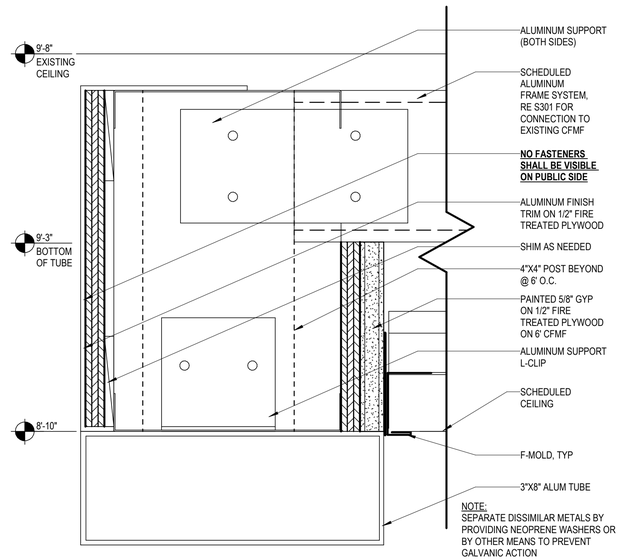
MILLWORK DETAIL 1" = 1'-0" 8



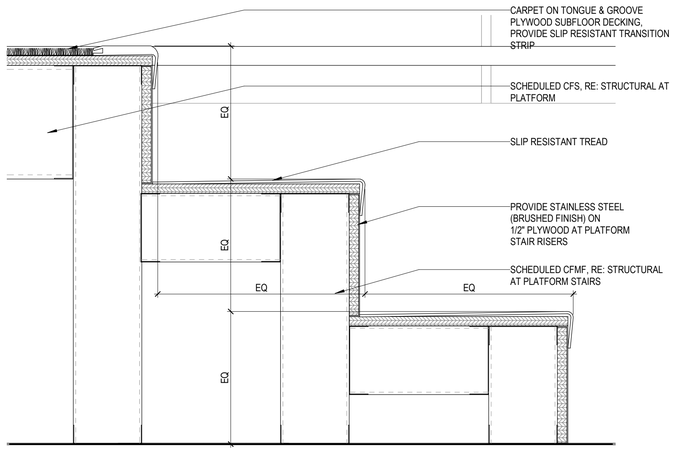
TOP RAIL AT HPD BOOTH 3" = 1'-0" 3



WALL BASE / PLATFORM AT HPD BOOTH 3" = 1'-0" 2



END PANEL 6" = 1'-0" 5



HPD BOOTH - STAIR 3" = 1'-0" 1

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HAS TIP 21-156 - IAH

11-19-21

DRAWING HISTORY

Nr.	DATE	DESCRIPTION
4	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
DETAILS

SHEET NUMBER
A701
4

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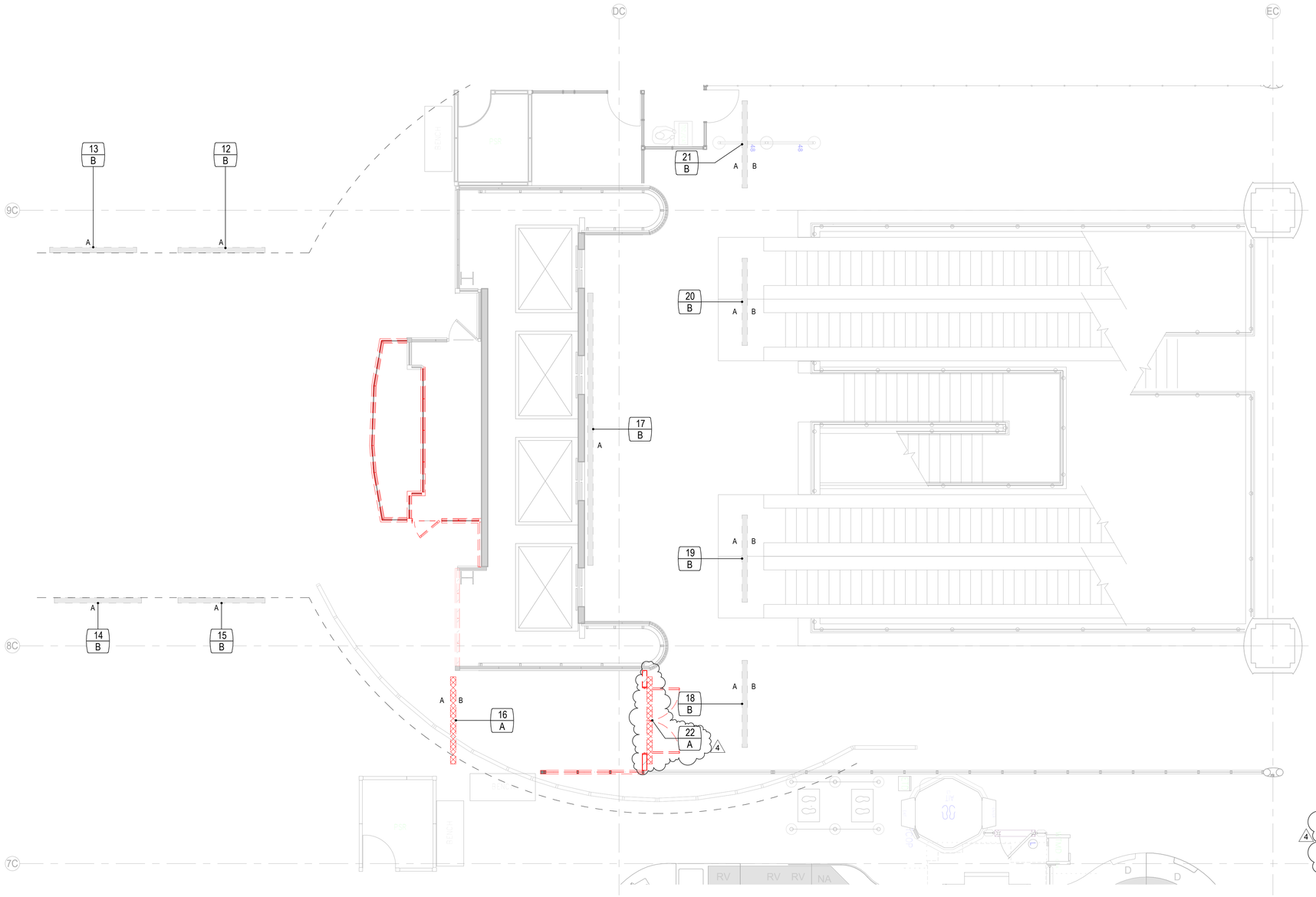

KEYNOTES

4 A EXISTING SIGN TO BE REMOVED. PATCH/REPAIR AS REQUIRED.
B EXISTING SIGN TO REMAIN, UNLESS NOTED OTHERWISE

GENERAL NOTES

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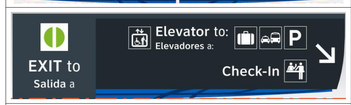
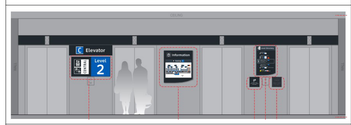
4. ALL SHAFT PENETRATING SLAB SHALL BE RATED 2H.
5. CONTRACTOR SHALL FIELD COORDINATE LOCATION, SIZE AND TYPE OF BLOCKING FOR INSTALLATION OF SIGNAGE, MILLWORK, ETC. ALL CONCEALED WOOD SHALL BE FIRE RETARDANT TREATED (FRT).

LEGEND

EXISTING SIGNAGE TO REMAIN

EXISTING TO REPLACED

MARK 01 A KEYNOTE — SIGNAGE TAG

IMAGE	MARK	NOTES
	12	B
	13	B
	14	B
	15	B
	16	A
	17	B
	18	B
	19	B
	20	B
	21	B
	22	A

LEVEL 02 - DEMO SIGNAGE - FLOOR PLAN - TERMINAL C - ENLARGED 3/16" = 1'-0" (2)

FILE NAME: C:\@RevitLocals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
DATESTAMP: 11/16/2021 9:33:37 AM

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REGISTRATION

11-19-21

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PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

IAH TERMINAL C SIGNAGE DEMO PLAN

SHEET NUMBER

ADG202

KEYNOTES

A NEW SURFACE MOUNTED SIGN
B NEW CEILING MOUNTED SIGN
C PROVIDE DECAL FROM DOOR MANUFACTURER ON THE NON-APPROACH SIDE

NOTE: NEW SIGNS TO MATCH IAH TERMINAL C WAYFINDING STANDARDS WHICH CONSISTS SIGNS OF BEING 1" FOAMCORE

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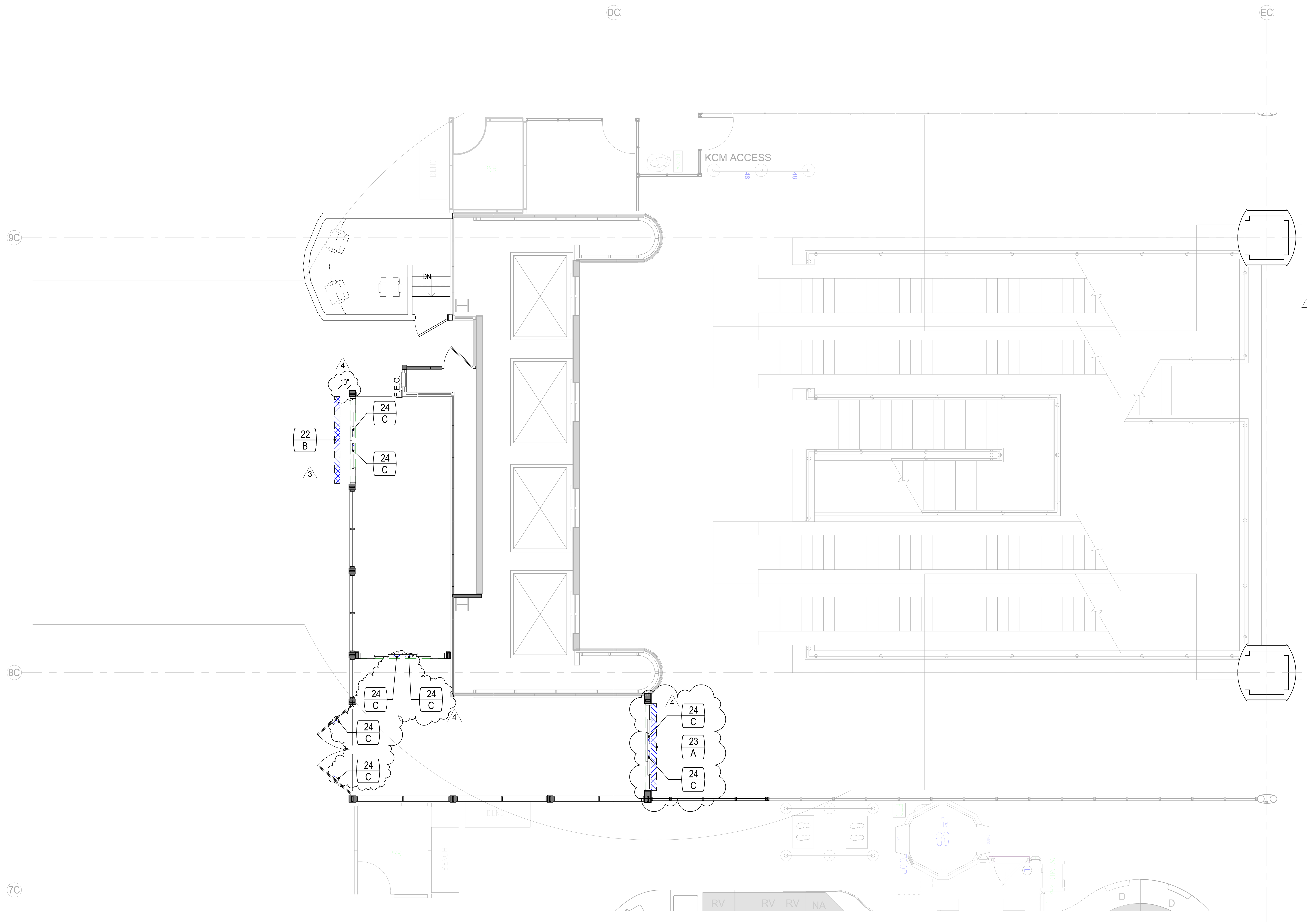
LEGEND

NEW SIGNAGE

MARK 01 A KEYNOTE SIGNAGE TAG

IMAGE	MARK	NOTES
Side A: EXIT to: Salida a; Elevator to; Check-in; P — Side B	22	B
Do Not Enter	23	A
DO NOT ENTER	24	C



LEVEL 02 - SIGNAGE - FLOOR PLAN - TERMINAL C - ENLARGED 3/16" = 1'-0" 1

FILE NAME: C:\@RevitLocals\IAH-TERM - SECURITY EXIT LANE_VQuijada@pgal.com.rvt
DATESTAMP: 11/16/2021 9:33:46 AM

CLIENT

HOUSTON AIRPORTS

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DEPARTMENT OF AVIATION
RECOMMENDED:
HOUSTON AIRPORT SYSTEM DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP 21-156 - IAH

REGISTRATION

STATE OF TEXAS 18250
11-19-21

DRAWING HISTORY

№.	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100% CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

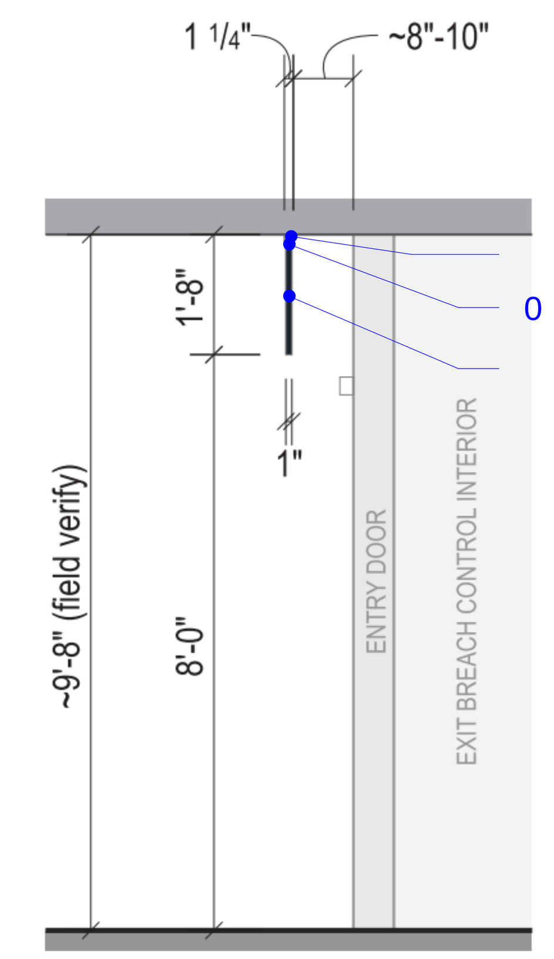
1004345

SHEET TITLE

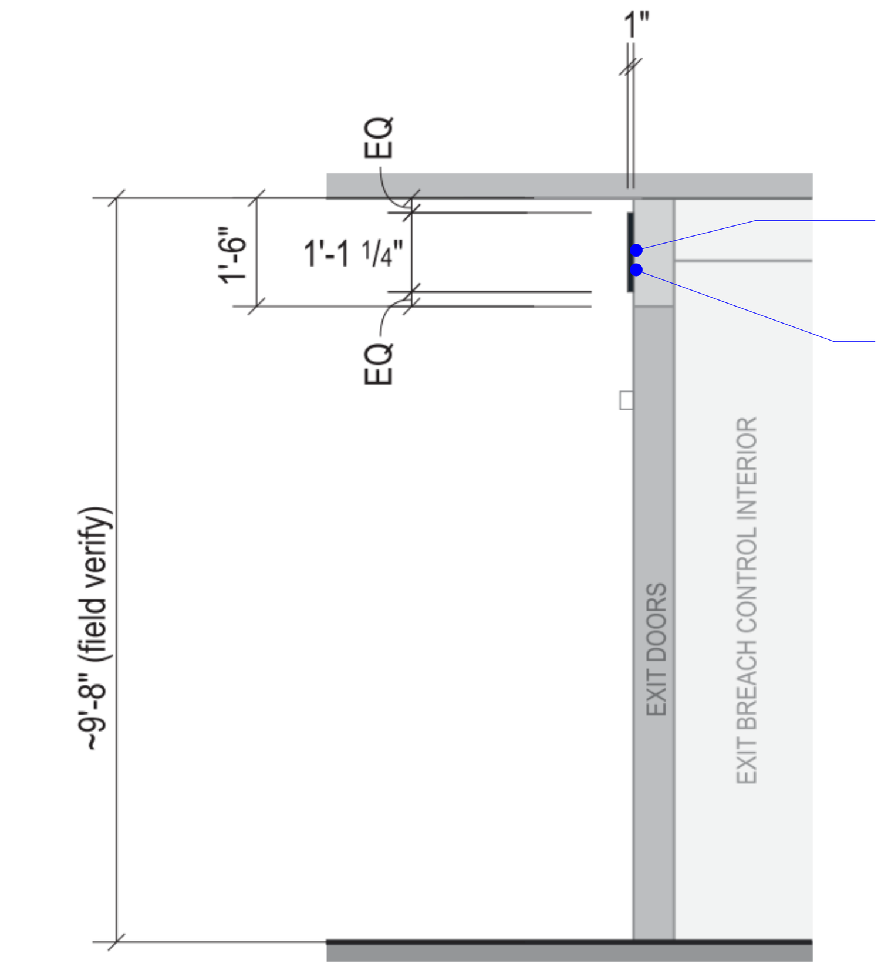
IAH TERMINAL C SIGNAGE PLAN

SHEET NUMBER

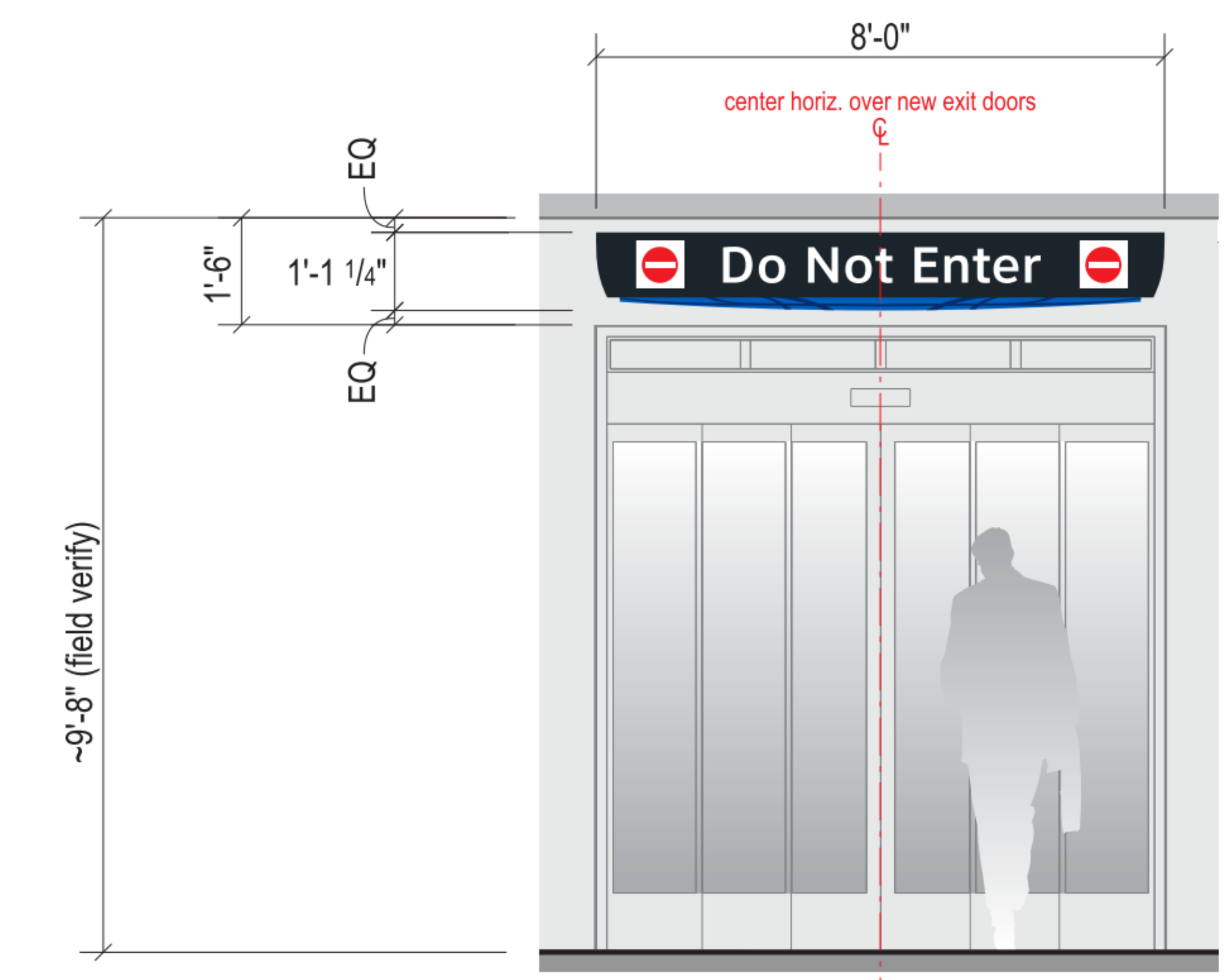
AG202



1 1/4"
~8"-10"
1'-8"
~9'-8" (field verify)
8'-0"
1"
ENTRY DOOR
EXIT BREACH CONTROL INTERIOR

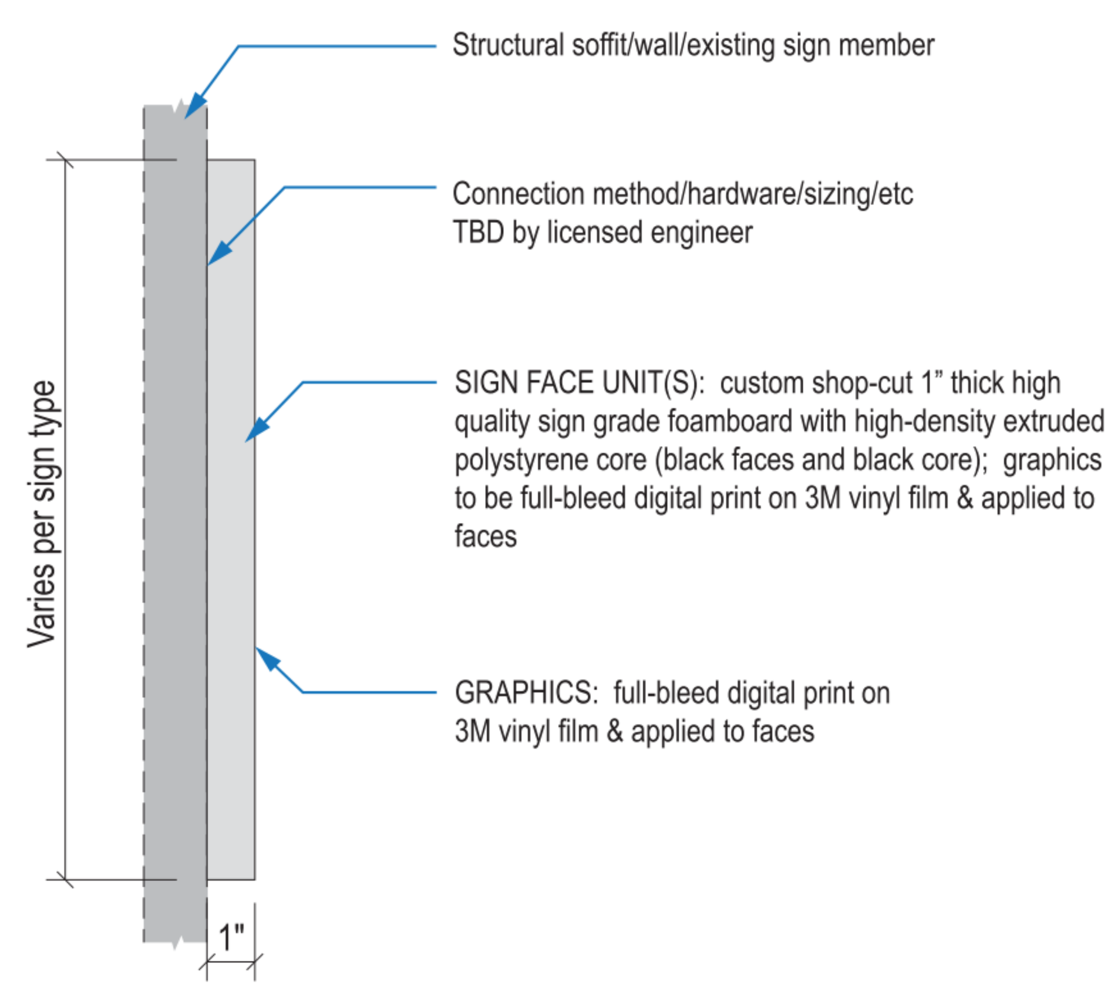


1"
EQ
1'-6"
1'-1 1/4"
EQ
~9'-8" (field verify)
EXIT DOORS
EXIT BREACH CONTROL INTERIOR

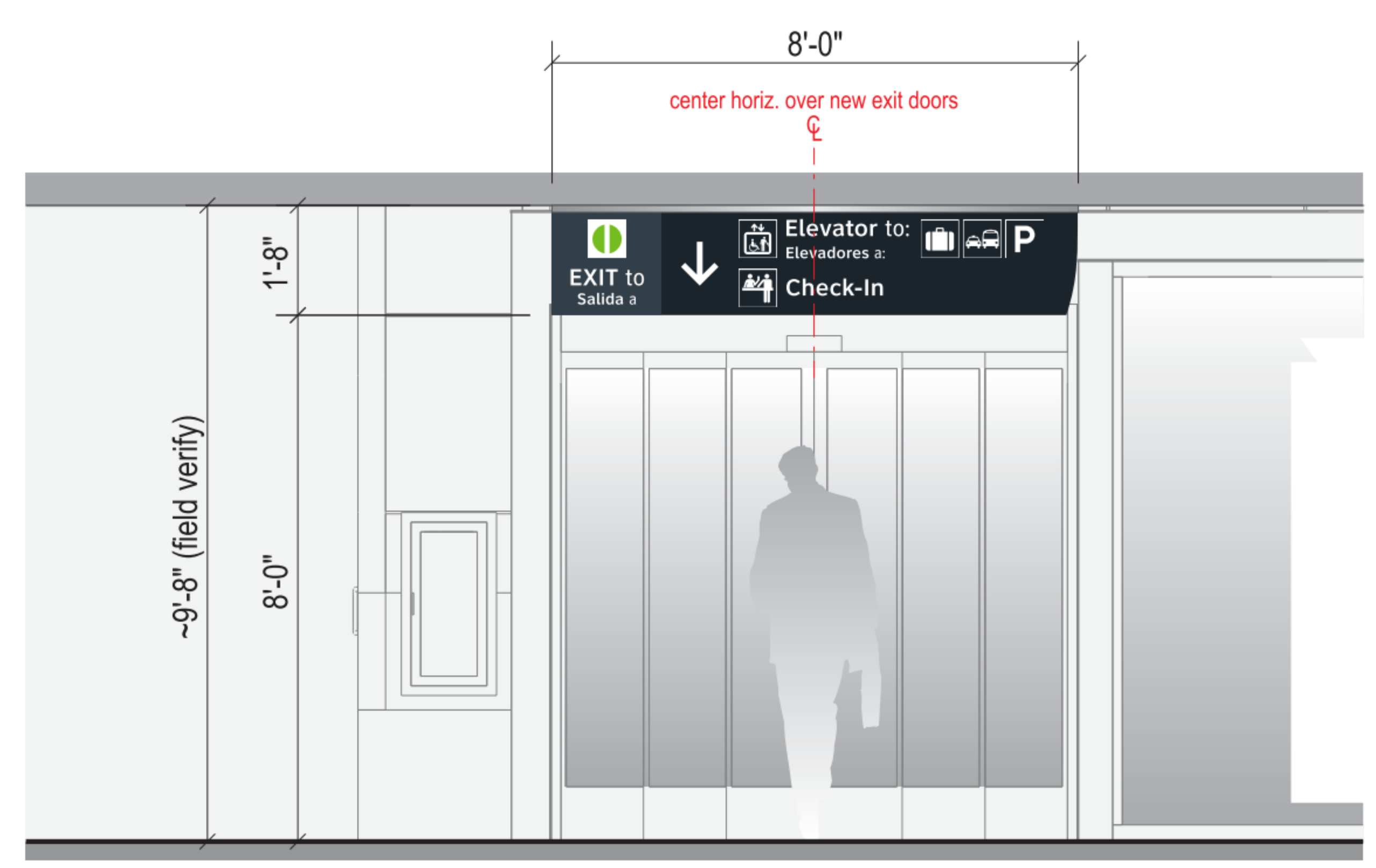


8'-0"
center horiz. over new exit doors
EQ
1'-6"
1'-1 1/4"
EQ
~9'-8" (field verify)
Do Not Enter

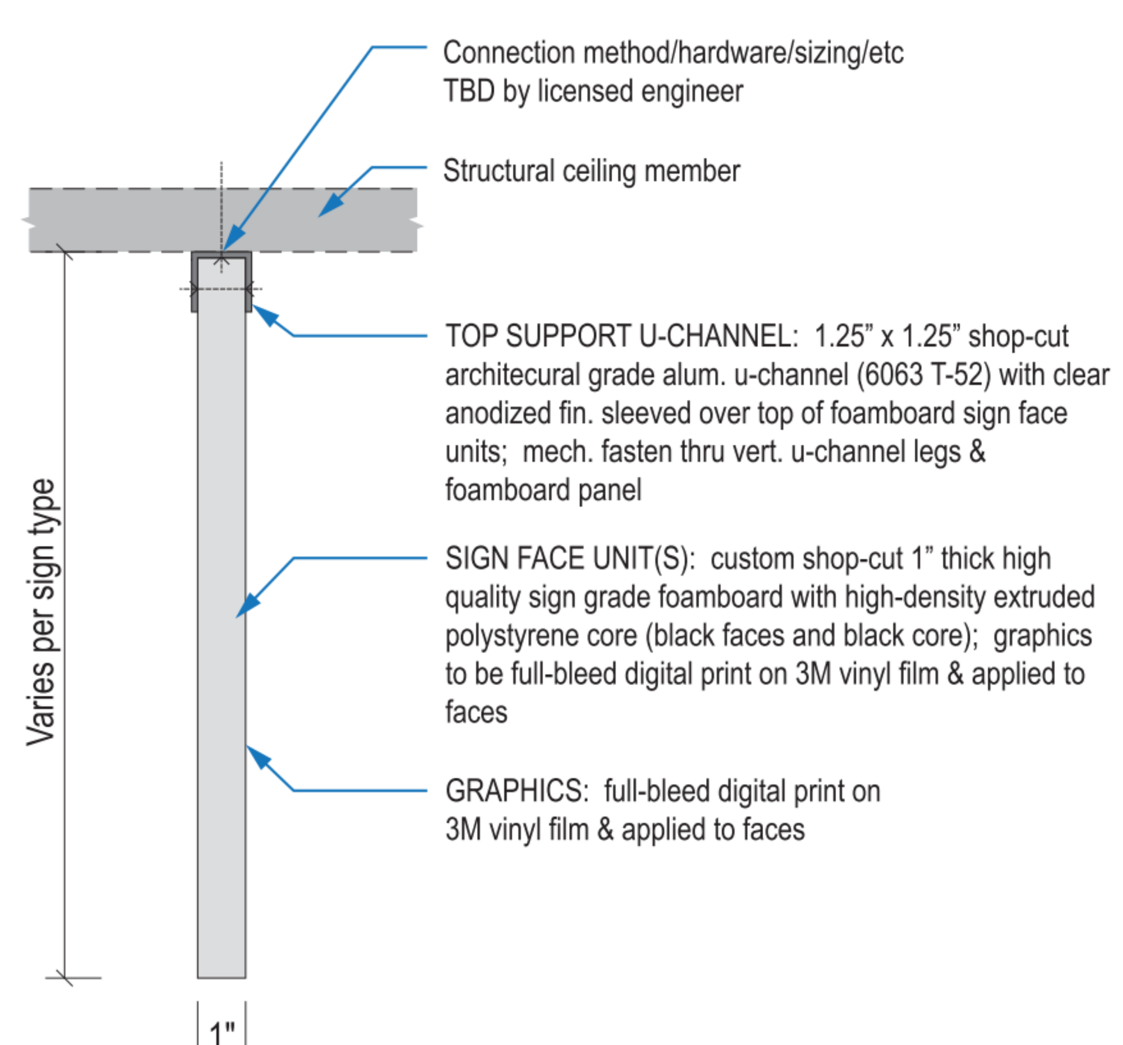
Do Not Enter



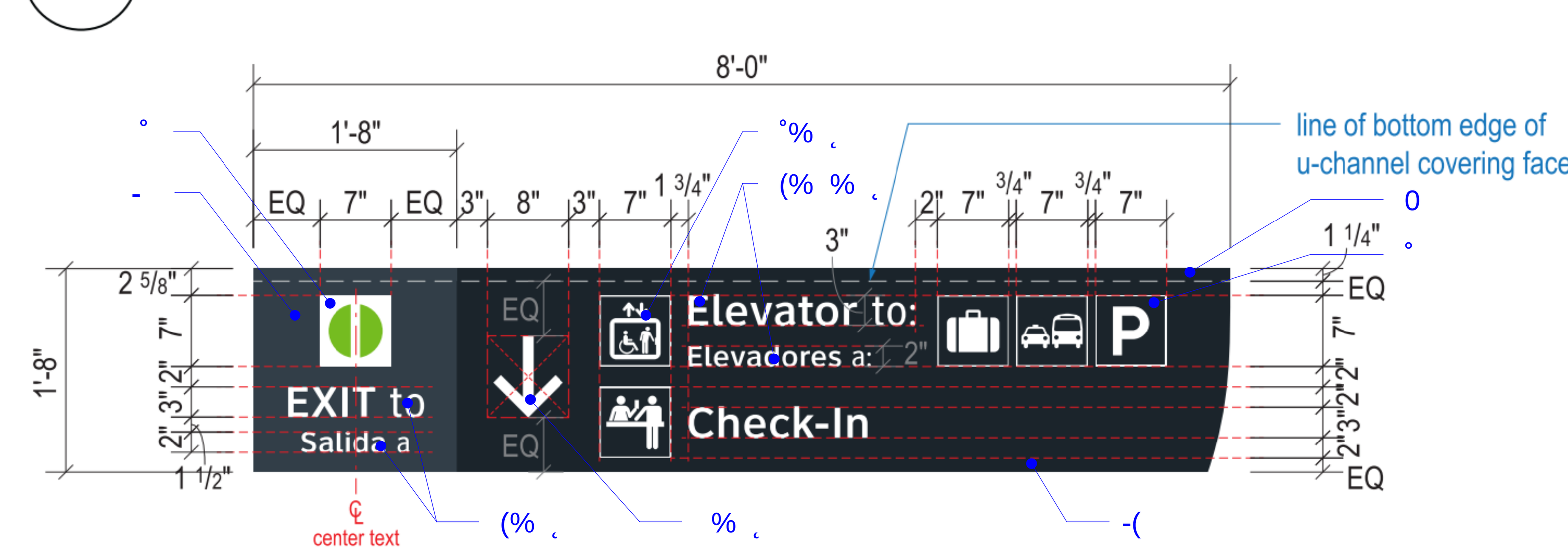
Structural soffit/wall/existing sign member
Connection method/hardware/sizing/etc TBD by licensed engineer
SIGN FACE UNIT(S): custom shop-cut 1" thick high quality sign grade foamboard with high-density extruded polystyrene core (black faces and black core); graphics to be full-bleed digital print on 3M vinyl film & applied to faces
GRAPHICS: full-bleed digital print on 3M vinyl film & applied to faces
Varies per sign type
1"



8'-0"
center horiz. over new exit doors
1'-8"
~9'-8" (field verify)
8'-0"
EXIT to
Salida a
Elevator to:
Elevadores a:
Check-In
P



Connection method/hardware/sizing/etc TBD by licensed engineer
Structural ceiling member
TOP SUPPORT U-CHANNEL: 1.25" x 1.25" shop-cut architectural grade alum. u-channel (6063 T-52) with clear anodized fin. sleeved over top of foamboard sign face units; mech. fasten thru vert. u-channel legs & foamboard panel
SIGN FACE UNIT(S): custom shop-cut 1" thick high quality sign grade foamboard with high-density extruded polystyrene core (black faces and black core); graphics to be full-bleed digital print on 3M vinyl film & applied to faces
GRAPHICS: full-bleed digital print on 3M vinyl film & applied to faces
Varies per sign type
1"



8'-0"
1'-8"
EQ
7"
EQ
3"
8"
3"
7"
1 3/4"
2"
7"
3/4"
7"
3/4"
7"
3"
1 1/4"
line of bottom edge of u-channel covering face
2 5/8"
1'-8"
1 1/2"
EXIT to
Salida a
Elevator to:
Elevadores a:
Check-In
P
center text horiz. on symbol

* $!

PGAL

GENERAL STRUCTURAL NOTES

PART I - DESIGN CRITERIA

A. GENERAL BUILDING CODE

1. THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2012 WITH HOUSTON AMENDMENTS TO THE 2012 INTERNATIONAL BUILDING CODE.

B. DEAD LOADS

1. GLASS WALL : 15 PSF

C. OTHER LOADS

1. LATERAL LOAD ON GLASS WALL: 5 PSF OR
   200 LBS AT 42" ABOVE FINISH FLOOR OR
   50 PLF AT 42" ABOVE FINISH FLOOR

PART II - STRUCTURAL STEEL

A. MATERIAL

1. HOT ROLLED STRUCTURAL MEMBERS: ALL HOT ROLLED STEEL PLATES, SHAPES, SHEET PILING, AND BARS SHALL BE NEW STEEL CONFORMING TO ASTM SPECIFICATION A 6.

2. ASTM SPECIFICATION AND GRADE: CLEARLY MARK THE GRADE OF STEEL ON EACH PIECE, WITH A DISTINGUISHING MARK VISIBLE FROM FLOOR SURFACES, FOR THE PURPOSE OF FIELD INSPECTION OF PROPER GRADE OF STEEL. UNLESS NOTED OTHERWISE ON THE DRAWINGS, STRUCTURAL STEEL SHALL BE AS FOLLOWS:
   a. W- AND WT-SHAPES: ASTM A 992
   b. C-SHAPES: ASTM A 36
   c. L-SHAPES: ASTM A 36
   d. RECTANGULAR HSS: ASTM A 500, GRADE B (FY=46 KSI)
   e. STEEL PIPES: ASTM A 53 (TYPES E OR S), GRADE B.
   f. BASE PLATES: ALL BASE PLATES SHALL CONFORM TO ASTM A 36 UNLESS NOTED OTHERWISE ON THE DRAWINGS.
   g. EDGE ANGLES, BENT PLATES, ANGLE HANGERS, AND ANGLE KICKERS: ASTM A 36
   h. CONNECTION MATERIAL:
      1) ALL CONNECTION MATERIAL, EXCEPT AS NOTED OTHERWISE HEREIN OR ON THE DRAWINGS, INCLUDING BEARING PLATES, GUSSET PLATES, STIFFENER PLATES, FILLER PLATES, ANGLES, ETC. SHALL CONFORM TO ASTM A 36 UNLESS A HIGHER GRADE OF STEEL IS REQUIRED BY STRENGTH AND PROVIDED THE RESULTING SIZES ARE COMPATIBLE WITH THE CONNECTED MEMBERS.
   i. OTHER STEEL: ANY OTHER STEEL NOT INDICATED OTHERWISE SHALL CONFORM TO ASTM A 992 OR ASTM A 572, GRADE 50, EXCEPT PLATES AND ANGLES THAT SHALL BE ASTM A 36.

B. STRUCTURAL BOLTS AND THREADED FASTENERS

1. A 325 BOLTS: ALL BOLTS IN STRUCTURAL CONNECTIONS SHALL CONFORM TO ASTM A 325 TYPE 1, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

2. THREADED ROUND STOCK: THREADED RODS SHALL CONFORM TO:
   a. ASTM A 36.

C. WELDING

1. UNLESS NOTED OTHERWISE, ELECTRODES FOR WELDING SHALL CONFORM TO E70XX (SMAW), F7XX-EXXX (SAW), ER70S-X (GMAW), OR E7XT-X (FCAW).

2. ELECTRODES FOR GRADE 60 OR GRADE 65 MATERIAL SHALL CONFORM TO E80XX (SMAW), F8XX-EXX-XX (SAW), ER80S-X (GMAW), OR E8XT-X (FCAW).

PART III - COLD-FORMED METAL FRAMING

A. MATERIALS

1. STUD AND TRACK PROFILES SHALL BE STANDARD SECTIONS USED BY MEMBERS OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA). SSMA MEMBER DESIGNATIONS AS SHOWN ON THE FOLLOWING EXAMPLE:

   600 S 162-43 REPRESENTS A 6.00" DEEP, STUD SECTION, 1.625" WIDE FLANGE, 0.043" (43 MILS) MINIMUM STEEL THICKNESS.

   NOTES:
   S = STUD SECTION
   T = TRACK SECTION
   U = CHANNEL SECTION
   F = FURRING CHANNEL

2. UNLESS NOTED OTHERWISE ON THE DRAWINGS, MEMBERS SHALL HAVE THE FOLLOWING YIELD STRENGTHS:
   a. STUDS: 33, 43 MIL THICKNESS FY = 33 KSI
   b. STUDS: 54, 68, 97 MIL THICKNESS FY = 50 KSI
   c. TRACKS: 33, 43, 54, 68, 97 MIL FY = 33 KSI
   d. U-CHANNELS, FURRING CHANNELS: FY = 33 KSI

3. ALL COLD-FORMED STEEL FRAMING MATERIALS SHALL HAVE A MINIMUM G60 GALVANIZED COATING.

B. CONNECTIONS

1. CONNECTIONS NOT FULLY DETAILED ON THE CONTRACT DOCUMENTS SHALL BE DESIGNED BY THE CONTRACTOR PER THE SPECIFICATION.

2. SCREWS: UNLESS NOTED OTHERWISE SCREWS SHALL BE AS FOLLOWS:
   a. SHEET STEEL TO SHEET STEEL: #10-16, 5/8 INCH LONG SELF DRILLING SCREWS.
   b. SHEET STEEL TO STRUCTURAL STEEL: #12-24, 1-1/2 INCH LONG SELF DRILLING SCREWS WITH NO 5 TIP STYLE.

3. POWDER ACTUATED FASTENERS: UNLESS NOTED OTHERWISE, PAF SHALL BE AS FOLLOWS:
   a. SHEET STEEL TO CONCRETE: 0.145" DIAMETER, 1-1/4" LONG, SMOOTH SHANK.
   b. SHEET STEEL TO POST-TENSIONED CONCRETE: 0.145" DIAMETER, 3/4" LONG, SMOOTH SHANK.
   c. SHEET STEEL TO STRUCTURAL STEEL: 0.145" DIAMETER, 3/4" LONG, KNURLED SHANK.
   d. MANUFACTURER. UNLESS NOTED OTHERWISE, ALL POWDER ACTUATED FASTENERS SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE (LARR #25469) OR POWERS FASTENERS (LARR #25304) OR HILTI (LARR #02582) OR ITW RAMSET/RED HEAD (LARR #22668).

4. WELDING:
   a. WELDING PROCEDURES FOR SHEET STEEL TO BE IN ACCORDANCE WITH AWS D1.3. WELDERS SHALL BE CERTIFIED FOR SHEET STEEL IN ALL POSITIONS REQUIRED PER AWS D1.3
   b. SUGGESTED WELD METAL AND PROCESS FOR SHOP WELDING ARE: 60KSI WELD METAL STRENGTH(MINIMUM) - MIG.
   c. SUGGESTED METHODS FOR FIELD WELDING: 1/8 INCH E60XX (MINIMUM) ELECTRODE - SMAW.
   d. MINIMUM WELD THROAT THICKNESS (T) MUST MATCH OR EXCEED THE BASE STEEL THICKNESS OF THE THINNEST CONNECTED STEEL SHEET UNLESS NOTED OTHERWISE.
   e. AFTER WELDING ALL FLUX SHALL BE REMOVED, AND A ZINC-RICH PAINT, WITH A DRY FILM CONTAINING 94% ZINC DUST BY WEIGHT, SHALL BE APPLIED TO THE WELD AREA TO RESTORE CORROSION RESISTANCE.
   f. FIELD WELDING TO BE DONE BY WELDERS CERTIFIED BY THE LADBS FOR COLD-FORMED STEEL FRAMING. CONTINUOUS INSPECTION BY A DEPUTY INSPECTOR IS REQUIRED.
   g. SHOP WELDS MUST BE PERFORMED IN AN LADBS-LICENSED FABRICATION SHOP.

PART IV - ALUMINUM

1. REFER TO ARCHITECTURAL DRAWINGS FOR ALUMINUM MEMBER SIZES AND LOCATION.

2. ALL ALUMINUM HSS MEMBERS AND CONNECTION TO BE 6061-T6 EXTRUSIONS ALUMINUM WITH YIELD STRENGTH OF 35 KSI AND ULTIMATE STRENGTH OF 38 KSI

PART V - MISCELLANEOUS

A. CONTRACT DOCUMENTS

1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS, AND ERECTION IN THE FIELD.

2. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE.

B. DRAWING CONFLICTS

1. THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCY BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.

C. CONFLICTS IN STRUCTURAL REQUIREMENTS

1. WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN.

D. EXISTING CONDITIONS

1. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING AT THE JOB SITE AND REPORT ANY DISCREPANCIES FROM ASSUMED CONDITIONS SHOWN ON THE DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND ERECTION OF ANY MEMBERS.

2. WORK SHOWN ON THE DRAWINGS IS NEW, UNLESS NOTED AS EXISTING.

3. EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS WAS OBTAINED FROM EXISTING CONSTRUCTION DOCUMENTS AND LIMITED SITE OBSERVATION. THESE DRAWINGS OF EXISTING CONSTRUCTION ARE AVAILABLE FOR CONTRACTOR USE. HOWEVER, THE AVAILABLE DRAWINGS OF EXISTING CONSTRUCTION ARE NOT NECESSARILY COMPLETE. THE CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT INFORMATION.

4. DEMOLITION, CUTTING, DRILLING, ETC. OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE SO AS NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING. IF ANY ARCHITECTURAL, STRUCTURAL, OR MEP MEMBERS NOT DESIGNATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY AND APPROVAL OBTAINED PRIOR TO REMOVAL OF THOSE MEMBERS.

5. THE CONTRACTOR SHALL SAFELY SHORE EXISTING CONSTRUCTION WHEREVER EXISTING SUPPORTS ARE REMOVED TO ALLOW THE INSTALLATION OF NEW WORK. ALL SHORING METHODS AND SEQUENCING OF DEMOLITION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HIS ENGINEER.

6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES AND DUCT WORK PRIOR TO THE START OF CONSTRUCTION AND TAKE CARE TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN IN SERVICE.

7. THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED DURING CONSTRUCTION WITH SIMILAR MATERIALS AND WORKMANSHIP TO RESTORE CONDITIONS TO LEVELS ACCEPTABLE TO THE ARCHITECT.

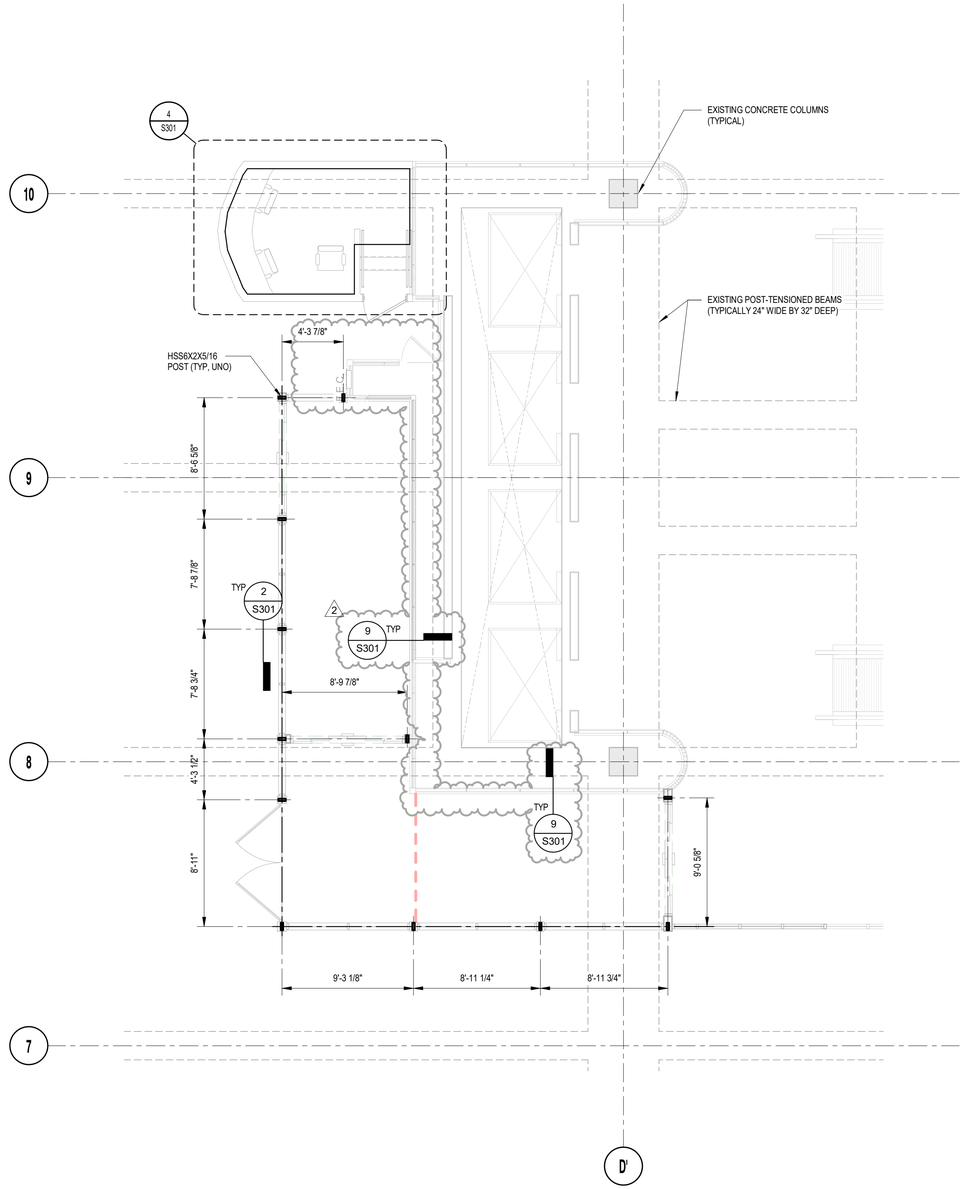
E. CONTRACTOR SUBSTITUTIONS

1. ANY MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL THAT ARE DIFFERENT FROM THE MATERIAL OR PRODUCTS SPECIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS WILL BE APPROVED ONLY IF THE FOLLOWING CRITERIA ARE SATISFIED:
   a. A COST SAVINGS TO THE OWNER IS DOCUMENTED AND SUBMITTED WITH THE REQUEST.
   b. THE MATERIAL OR PRODUCT HAS BEEN APPROVED BY THE INTERNATIONAL CODE COUNCIL (ICC) AND THE ICC REPORT IS SUBMITTED WITH THE REQUEST.
      1) THE ICC ESR THAT IS SUBMITTED MUST REFERENCE THE BUILDING CODE UNDER WHICH THE PROJECT IS PERMITTED.
      2) ICC REPORTS THAT HAVE BEEN DISCONTINUED AT THE TIME OF PRODUCT INSTALLATION WILL NOT BE ACCEPTED.

2. SUBMITTALS NOT SATISFYING THE ABOVE CRITERIA WILL NOT BE CONSIDERED.

NOTES:

1. EXISTING BUILDING STRUCTURE IS POST-TENSIONED CONCRETE BEAM AND SLAB CONSTRUCTION. CONTRACTOR SHALL ENSURE THAT NO TENDONS OR REINFORCEMENT IS CUT OR OTHERWISE DAMAGED DURING THE COURSE OF CONSTRUCTION OPERATIONS. EDGES OF CORES AND ANCHORS ARE TO BE LOCATED AS FAR AS POSSIBLE FROM TENDONS OR REINFORCING, AND IN NO CASE CLOSER THAN 2 INCHES. PRIOR TO ANY DRILLING, CORING, CHIPPING, PLACEMENT OF ANCHORS, OR ANY OTHER PENETRATION OF EXISTING CONCRETE, INSTALLER SHALL ACCURATELY DETERMINE THE LOCATION OF STEEL CABLE TENDONS AND REINFORCMENT BY USE OF GROUND PENETRATING RADAR (GPR) OR OTHER APPROVED NON-DESTRUCTIVE METHOD.



1 LEVEL 02 - TICKETING - FRAMING PLAN
SCALE: 3/16" = 1'-0"

CLIENT

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KENNEDY BLVD.
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DEPARTMENT OF AVIATION
RECOMMENDED:
HOUSTON AIRPORT SYSTEM
DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP 21-156 - IAH

REGISTRATION

TBPE Firm Registration No. 2194

STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED
PROFESSIONAL ENGINEER
K. Elaine Rogers
11/19/2021

DRAWING HISTORY

No.	DATE	DESCRIPTION
1	10-20-21	ISSUE FOR BID/100%CD
2	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 N. TERMINAL RD
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
LEVEL 02 - TICKETING - FRAMING PLAN

SHEET NUMBER
S200

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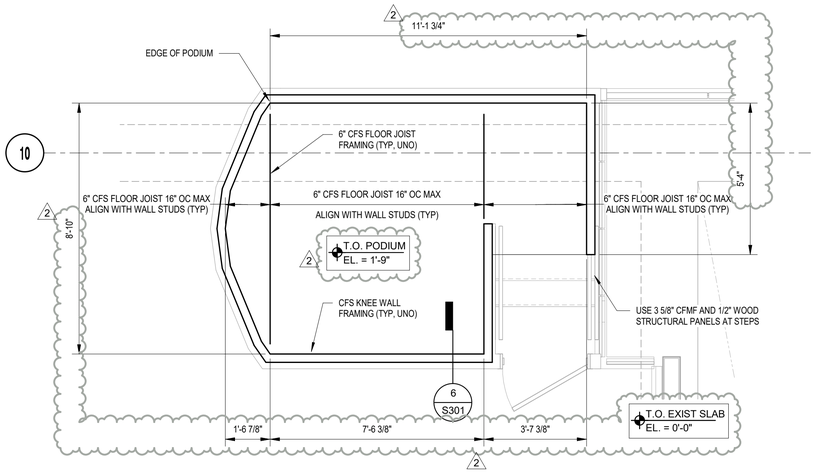
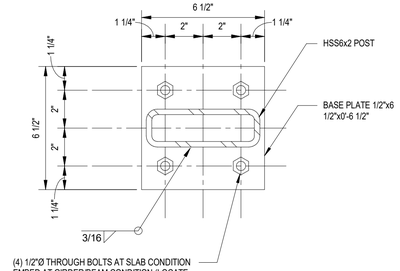
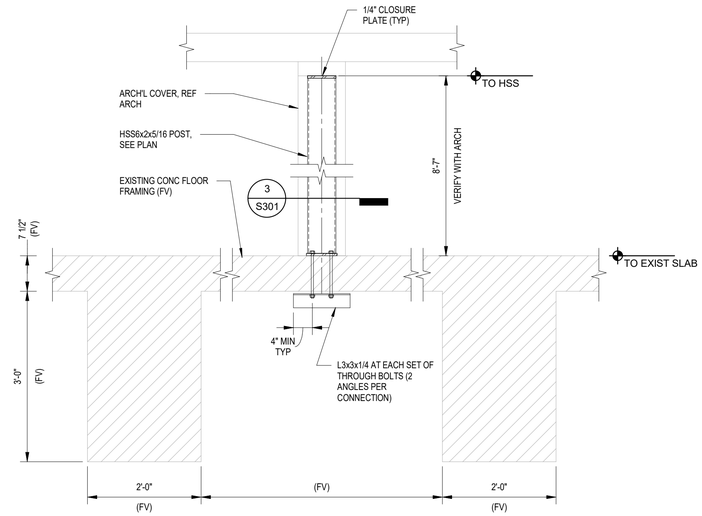






4 PARTIAL PLAN - HPD PODIUM - FRAMING PLAN

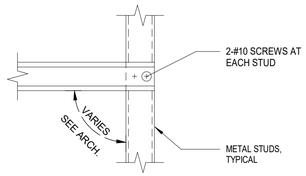
SCALE: 3/8" = 1'-0"

3 SECTION

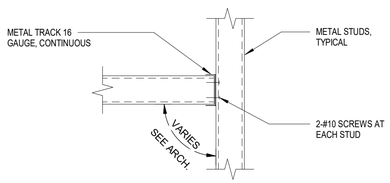
3" = 1'-0"

2 SECTION - AT SLAB CONDITION

3/4" = 1'-0"



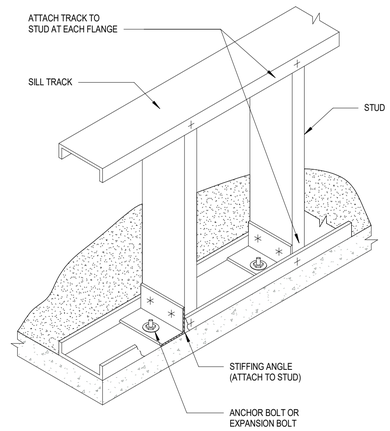
STUD CONNECTION WITHOUT TRACK



STUD CONNECTION WITH TRACK

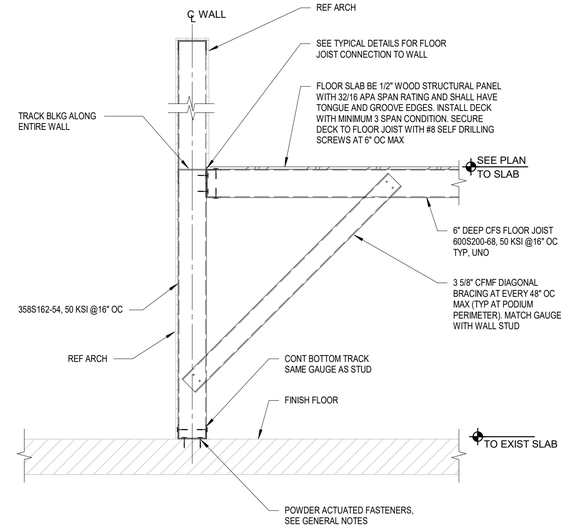
NOTE:

1. SEE ARCHITECTURAL/INTERIOR DESIGN DRAWINGS FOR STUD CONFIGURATION.



NOTE:

STIFFENER ANGLE AND ANCHOR BOLT AS REQUIRED TO SUIT DESIGN LOADS



9 TYPICAL DETAIL - ALUMINUM TUBE CONNECTION TO EXISTING CFMF WALL

SCALE: 1 1/2" = 1'-0"

8 METAL STUD CONNECTION

SCALE: 3/4" = 1'-0"

7 STIFFENED KNEEWALL

SCALE: 1" = 1'-0"

6 SECTION

SCALE: 3/4" = 1'-0"

FILE NAME: G:\Users\Ricardo.Rodriguez\Desktop\0211079_IAH-TERM - SECURITY EXIT LANE_R21.rvt
DATESTAMP 11/17/2021 2:54:07 PM

CLIENT

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DEPARTMENT OF AVIATION
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HAS TIP 21-156 - IAH

REGISTRATION

STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED
11/19/2021

DRAWING HISTORY

No.	DATE	DESCRIPTION
1	10-20-21	ISSUE FOR BID/100%CD
2	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 N. TERMINAL RD
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

DETAILS

SHEET NUMBER

S301

MISCELLANEOUS

SYMBOL	DESCRIPTION
3P/60A 3R NF	DISCONNECT SWITCH, NON-FUSIBLE 3 POLE, 60 AMP, NF: NON-FUSED, 3R: NEMA 3R ENCLOSURE
3P/60A 3R F:50A	DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, FUSED AT 50 AMPS, 3R: NEMA 3R ENCLOSURE
3P/60A 3R Nx	COMBINATION STARTER / DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, NEMA x SIZE, 3R: NEMA 3R ENCLOSURE
	MAGNETIC MOTOR STARTER
	ENCLOSED CIRCUIT BREAKER, AS INDICATED
VFD	VFD-RATED, REMOTE DISCONNECT SWITCH WITH EARLY-BREAK, AUXILIARY CONTACTS FOR VFD DECELERATE-TO-STOP SIGNAL. CONNECT CONTROL WIRING TO ASSOCIATED VFD (AS REQUIRED).
	PANELBOARD, 480 / 277V
	PANELBOARD, 208 /120V
SPD	SURGE PROTECTION DEVICE
	ELECTRICAL METER
TX	TRANSFORMER
	GROUND BUS BAR
	3/4" PLYWOOD TELEPHONE BACKBOARD
	CONCRETE ENCASED DUCTBANK
	HOMERUN TO PANEL INDICATED NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS
	WIRE IN CONDUIT CONCEALED, #12 AWG SIZE WIRE IN 1/2" CONDUIT MINIMUM UNLESS OTHERWISE NOTED
	WIRE IN CONDUIT CONCEALED BELOW SLAB OR GRADE
	CONDUIT EXPOSED
	FLEXIBLE CONDUIT
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	CONDUIT STUB

LOW VOLTAGE (RACEWAY ONLY)

SYMBOL	DESCRIPTION
X,N	INFORMATION OUTLET
	INFORMATION OUTLET, FLOOR MOUNTED
TV	CATV OUTLET

RECEPTACLE(S)

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N.
	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE
	QUADRAPLEX RECEPTACLE, 20 AMP, 120V U.O.N.
	QUADRAPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE
	SINGLE RECEPTACLE, 20 AMP, 120V U.O.N.
	GFI - TYPE DUPLEX RECEPTACLE (WP: DENOTES WEATHERPROOF COVER)
	GFI - TYPE DOUBLE DUPLEX RECEPTACLE
	GFI - DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS OTHERWISE NOTED
	GFI - DOUBLE DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS OTHERWISE NOTED
	SPECIAL PURPOSE RECEPTACLE (NEMA RATING AS INDICATED)
	DUPLEX RECEPTACLE - HALF SWITCHED
	DUPLEX RECEPTACLE - CEILING MOUNTED
IG	DUPLEX RECEPTACLE WITH ISOLATED GROUND
	DUPLEX RECEPTACLE - FLOOR MOUNTED
J	JUNCTION BOX - CEILING MOUNTED
J	JUNCTION BOX - WALL MOUNTED
J	JUNCTION BOX - FLOOR / GROUND MOUNTED

FIELD VERIFY ALL LOCATION

1. DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.
2. THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.
3. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COST FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.
4. EXISTING CONDITIONS REFLECTED IN DESIGN DRAWINGS WERE TAKEN FROM VARIOUS FIELD VISITS CONDUCTED FROM 5/1/19 -8/28/19 (9/20/2021-MOST RECENT). THE ENGINEER AND ARCHITECTURAL FIRM ARE NOT RESPONSIBLE FOR ANY INSTALLATIONS THAT MAY HAVE OCCURRED OUT IN THE FIELD THAT DIFFER FROM WHAT IS SHOWN ON THE PLANS. CONTRACTOR IS RESPONSIBLE TO CONDUCT A SITE VISIT TO VERIFY THE EXISTING CONDITIONS AND PROVIDE A REPORT TO THE A/E FIRMS DOCUMENTING ANY CHANGES THAT HAVE OCCURRED THAT DIRECTLY AFFECT ANY OF THE PROPOSED INSTALLATIONS INDICATED ON ANY PART OF THE DRAWINGS COMPILED IN THIS SET.

LIGHTING

SYMBOL	DESCRIPTION
	CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED NORMAL POWER
	CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED EMERGENCY POWER
	CEILING MOUNTED 1'x4' LUMINAIRE RECESSED OR SURFACE MOUNTED - NORMAL POWER
	CEILING MOUNTED 1'x4' LUMINAIRE RECESSED OR SURFACE MOUNTED - EMERGENCY POWER
	CEILING MOUNTED 1'x4' LUMINAIRE PENDANT MOUNTED - NORMAL POWER
	CEILING MOUNTED 1'x4' LUMINAIRE PENDANT MOUNTED - EMERGENCY POWER
	STRIP LUMINAIRE - NORMAL POWER
	STRIP LUMINAIRE - EMERGENCY POWER
	DOWNLIGHT LUMINAIRE - NORMAL POWER
	DOWNLIGHT LUMINAIRE - EMERGENCY POWER
	WALL MOUNTED LUMINAIRE - NORMAL POWER
	WALL MOUNTED LUMINAIRE - EMERGENCY POWER
	EMERGENCY BATTERY LIGHT UNIT
	EXIT LIGHT - SINGLE FACE WITH DIRECTIONAL ARROW
	EXIT LIGHT - DOUBLE FACE
	EXIT LIGHT - WALL MOUNTED

FIRE ALARM

SYMBOL	DESCRIPTION
R	FIRE ALARM RELAY
P	FIRE ALARM MANUAL PULL STATION
	FIRE ALARM STROBE ONLY DEVICE MINIMUM 75cd RATING
	FIRE ALARM HORN / STROBE ONLY DEVICE MINIMUM 75cd RATING
	FIRE ALARM SPEAKER / STROBE ONLY DEVICE MINIMUM 75cd RATING
	FIRE ALARM SPEAKER DEVICE
	FIRE ALARM HORN DEVICE MINIMUM 75cd RATING
	FIRE ALARM STROBE ONLY DEVICE MINIMUM 75cd RATING - CEILING MOUNTED
	FIRE ALARM HORN / STROBE ONLY DEVICE MINIMUM 75cd RATING - CEILING MOUNTED
	FIRE ALARM SPEAKER / STROBE ONLY DEVICE MINIMUM 75cd RATING - CEILING MOUNTED
	FIRE ALARM SPEAKER DEVICE - CEILING MOUNTED
	FIRE ALARM HORN DEVICE MINIMUM 75cd RATING - CEILING MOUNTED

NOTES:
A. CONNECT ALL NEW FIRE ALARM DEVICES SHOWN TO THE EXISTING FIRE ALARM CONTROL PANEL THAT SERVES THE PROPOSED AREA OF WORK.
B. PROVIDE A MINIMUM 3/4"CONDUIT TO ALL FIRE ALARM DEVICE LOCATIONS.

SWITCHES

SYMBOL	DESCRIPTION
$	SINGLE POWER TOGGLE SWITCH (LETTER DENOTES FIXTURE CONTROLLED)
$3	THREE-WAY TOGGLE SWITCH
$4	FOUR-WAY TOGGLE SWITCH
$M	MOTOR SWITCH
$F	FAN SWITCH
$D	DIMMER SWITCH, COMPATIBLE WITH 0-10V DIMMING.
$T	TIMER SWITCH (60 MINUTES)
$LV	LOW VOLTAGE SWITCH
$K	KEY SWITCH
$WP	SWITCH - WEATHERPROOF
$OS	WALL SWITCH OCCUPANCY SENSOR
$DOS	DIMMER OCCUPANCY SENSOR SWITCH
OS	OCCUPANCY SENSOR - CEILING MOUNTED
OS	OCCUPANCY SENSOR - WALL MOUNTED
PC	PHOTOCELL

GENERAL NOTES

1. THE ELECTRICAL CONTRACT DOCUMENTS ARE SCHEMATIC IN NATURE AND INDICATE THE GENERAL CONFIGURATION OF SYSTEMS AND WORK. EXAMINE ARCHITECTURAL, INTERIOR DESIGN, CIVIL, LANDSCAPE, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, TECHNOLOGY, AND FOOD SERVICE DRAWINGS AND SPECIFICATIONS FOR LOCATIONS AND REQUIREMENTS OF DEVICES, EQUIPMENT, LUMINARIES, AND SYSTEMS. CONTENT INDICATED ON THE SPECIFICATIONS BUT NOT THE DRAWINGS, OR CONTENT INDICATED ON THE DRAWINGS BUT NOT THE SPECIFICATIONS, SHALL BE INTERPRETED AS BEING PRESENT ON BOTH.
2. PROVIDE ALL DEVICES, EQUIPMENT, ACCESSORIES, MATERIALS, AND LABOR REQUIRED FOR A COMPLETE, FUNCTIONAL, AND CODE-COMPLIANT ELECTRICAL SYSTEM. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CODES AND STANDARDS INDICATED ON THIS SHEET.
3. ALL DEVICES, EQUIPMENT, ACCESSORIES, AND MATERIALS SHALL BE NEW, AND, WHERE APPLICABLE, SHALL BE LISTED BY U.L. OR ANOTHER APPROVED ELECTRICAL TESTING AGENCY.
4. COORDINATE LOCATIONS AND REQUIREMENTS OF EQUIPMENT REQUIRING ELECTRICAL SERVICE (I.E. PRINTERS, APPLIANCES, MOTORIZED PROJECTION SCREENS, MOTORIZED SHADES, ELEVATORS, TOOLS, ETC.) WITH APPROVED SHOP DRAWINGS, SPECIFICATION SHEETS, MANUFACTURER'S INSTALLATION LITERATURE, AND EQUIPMENT NAMEPLATE DATA, PRIOR TO ROUGH-IN AND INSTALLATION. PROVIDE ELECTRICAL CONNECTIONS (AS REQUIRED).
5. BID SHALL INCLUDE COSTS ASSOCIATED WITH BACKFILLING, CORE DRILLING, DIRECTIONAL BORING, EXCAVATING, AND REPAIRING OF SURFACES.
6. PAY ALL FEES, TAXES, AND OTHER COSTS ASSOCIATED WITH THE WORK ENCOMPASSED BY THE ELECTRICAL CONTRACT DOCUMENTS. PROVIDE ALL REQUIRED NOTICES AND OBTAIN ALL REQUIRED PERMITS.
7. PROVIDE COOPERATION WITH OTHER TRADES AND PROVIDE ANY INFORMATION REQUIRED TO FACILITATE THE COMPLETION OF THEIR WORK. COORDINATE DEVICE AND EQUIPMENT LOCATIONS AND MOUNTING HEIGHTS WITH OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION. COORDINATE CONDUIT ROUTING WITH OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
8. AN ALLOWANCE OF $12,000 SHALL BE ADDED FOR ANY MISCELLANEOUS MODIFICATIONS THAT WILL BE REQUIRED IN THE FIELD BEYOND BASE BIDE SCOPE. ALLOWANCE SHALL BE INCLUDED IN BID WITH NO EXCEPTIONS. 7
9. PROVIDE TEMPORARY ELECTRICAL SERVICE(S) FOR USE BY OTHER TRADES DURING PROJECT CONSTRUCTION. UPON COMPLETION OF THE PROJECT, THE TEMPORARY ELECTRICAL SERVICE(S) SHALL BE REMOVED.
10. WITHIN THIRTY (30) DAYS OF SYSTEM ACCEPTANCE, PROVIDE RECORD DRAWINGS TO THE OWNER. DRAWINGS SHALL BE COMPRISED OF SINGLE-LINE DIAGRAMS AND FLOOR PLANS INDICATING THE LOCATIONS AND AREAS SERVED FOR ALL DISTRIBUTION.
11. WITHIN THIRTY (30) DAYS OF SYSTEM ACCEPTANCE, PROVIDE AN OPERATING MANUAL AND MAINTENANCE MANUAL TO THE OWNER. THE MANUALS SHALL INCLUDE THE FOLLOWING INFORMATION: SUBMITTAL DATA WITH EQUIPMENT RATINGS AND SELECTED OPTIONS, OPERATION AND MAINTENANCE MANUALS FOR EQUIPMENT REQUIRING MAINTENANCE, NAMES AND ADDRESSES OF A MINIMUM OF ONE (1) QUALIFIED SERVICE AGENCY.
12. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WALL-MOUNTED ELECTRICAL DEVICES AND EQUIPMENT WITH THE ARCHITECTURAL DRAWINGS, GENERAL CONTRACTOR, CASEWORK/MILLWORK, AND OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
13. EQUIPMENT LOCATIONS SHALL SATISFY THE WORKING CLEARANCE REQUIREMENTS AND DEDICATED SPACE REQUIREMENTS OF NEC ARTICLE 110. PROVIDE SHOP DRAWINGS, DEMONSTRATING COMPLIANCE AND INTER-DISCIPLINARY COORDINATION, FOR ENGINEERING REVIEW.
14. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS, SECTIONS, AND ELEVATIONS FOR LOCATIONS AND/OR MOUNTING HEIGHTS OF LUMINARIES LOCATED AT CEILINGS AND/OR WALLS. VERIFY THAT CEILING-MOUNTED LUMINARIES ARE SUITABLE FOR THE FINISHED CEILING SYSTEM INDICATED AND PROVIDE ACCORDINGLY. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF WALL-MOUNTED LUMINARIES WITH CASEWORK, FURNITURE, AND ARCHITECTURAL ELEMENTS. WHERE ARCHITECTURAL REFLECTED CEILING PLANS INDICATE FIRE-RATED CEILING SYSTEMS, PROVIDE UL-LISTED LUMINAIRE ENCLOSURES (AS REQUIRED).
15. TYPE BX(AC) OR MC CABLE IS PROHIBITED FOR USE ON THIS PROJECT. FLEX CONDUIT IS ONLY ALLOW IN 3' MAXIMUM LENGTH FROM JUNCTION BOX TO LIGHT FIXTURES. MINIMUM CONDUIT SIZE SHALL BE 3/4".
16. PROPOSED CONDUIT ROUTINGS SHOWN ARE DIAGRAMMATIC AND DO NOT INTEND TO SHOW THE ACTUAL ROUTING CONDITIONS. THE CONTRACTOR SHALL COORDINATE EXACT CONDUIT ROUTING WITH ALL TRADES PRIOR TO COMMENCEMENT OF WORK.
17. PROVIDE A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE NEC AND SPECIFICATIONS. BOND SERVICE ENTRANCE ELECTRICAL EQUIPMENT TO BUILDING STEEL, GROUND RODS, METAL WATER MAINS, LIGHTNING PROTECTION SYSTEM GROUNDING ELECTRODES (WHERE PRESENT), AND TELECOMMUNICATIONS SYSTEM GROUNDING ELECTRODES (AS REQUIRED). EQUIPMENT GROUNDING SHALL BE OF THE WIRE TYPE.
18. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. ALL FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE INSTALLED WITHIN CONDUIT, UNLESS OTHERWISE INDICATED. ALL CONDUCTORS SHALL BE COPPER, UNLESS OTHERWISE INDICATED.
19. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH CIRCUIT. MULTI-WIRE BRANCH CIRCUITS SHALL BE PROHIBITED.
20. CONNECTIONS TO TRANSFORMERS AND MECHANICAL EQUIPMENT SHALL BE MADE WITH FMC OR LFMC, UNLESS OTHERWISE INDICATED.
21. WHERE PRACTICABLE, CONDUITS SHALL BE CONCEALED BELOW SLABS, WITHIN WALLS, AND ABOVE FINISHED CEILING SYSTEMS. WHERE CONDUITS ARE EMBEDDED WITHIN CONCRETE SLABS, COORDINATE CONDUIT SIZE LIMITATIONS AND SPACING REQUIREMENTS WITH THE STRUCTURAL DRAWINGS/ENGINEER PRIOR TO INSTALLATION.
22. SEAL ALL CONDUIT PENETRATIONS AT FIRE-RATED PARTITIONS. REFER TO DETAILS FOR FURTHER INFORMATION.
23. COORDINATE ALL CONDUIT PENETRATIONS WITH ARCHITECTURAL DRAWINGS, STRUCTURAL DRAWINGS, FIELD CONDITIONS, AND OTHER TRADES. PROVIDE SEALING FITTINGS TO PROHIBIT CONDENSATION AND/OR THE PASSAGE OF GASES OR VAPORS (AS REQUIRED). CONTRACTOR SHALL CONDUCT AN X-RAY OF EXISTING SLAB(PER FLOOR) PRIOR TO ANY CORING OR PENETRATIONS. X-RAY SHALL BE CONDUCTED FOR ALL FLOOR CORES AND PENETRATIONS.
24. INCREASE FEEDER AND BRANCH CIRCUIT CONDUCTOR SIZES AS REQUIRED IN ORDER TO MAINTAIN A MAXIMUM, CUMULATIVE VOLTAGE DROP OF 5% AT THE END LOAD. MAXIMUM VOLTAGE DROP SHALL BE DISTRIBUTED AS FOLLOWS: 3% FOR FEEDERS, 2% FOR BRANCH CIRCUITS. WHERE THE VOLTAGE DROP REQUIREMENTS OF THE LOCAL ENERGY CODE ARE MORE STRINGENT, THE REQUIREMENTS OF THE LOCAL ENERGY CODE SHALL TAKE PRECEDENCE. WHERE PHASE AND NEUTRAL CONDUCTOR SIZES ARE INCREASED FOR VOLTAGE DROP, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE INCREASED PROPORTIONATELY.
25. PROVIDE ALL REQUIRED DISCONNECT SWITCHES, STARTERS, AND COMBINATION STARTER/DISCONNECT SWITCHES. MAKE CONNECTIONS TO ALL ELECTRICALLY-DRIVEN DEVICES AND EQUIPMENT PROVIDED BY THE MECHANICAL, PLUMBING, AND FIRE PROTECTION CONTRACTORS. EXAMINE EQUIPMENT NAMEPLATE RATINGS PRIOR TO ROUGH-IN AND INSTALLATION. PROVIDE OVERCURRENT PROTECTION IN ACCORDANCE WITH EQUIPMENT NAMEPLATE RATINGS. PROVIDE ALL POWER SUPPLIES, CONTROL TRANSFORMERS, RELAYS, AND OTHER ACCESSORIES REQUIRED TO FACILITATE THE PROPER OPERATION OF MECHANICAL EQUIPMENT AS DESCRIBED WITHIN THE MECHANICAL ENGINEER'S SEQUENCE OF OPERATIONS.
26. ALL INTERIOR ELECTRICAL EQUIPMENT SHALL BE OF NEMA 1 CONSTRUCTION, UNLESS OTHERWISE INDICATED. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE OF NEMA 4X CONSTRUCTION, UNLESS OTHERWISE INDICATED. EQUIPMENT RATINGS SHALL CORRESPOND TO THEIR INSTALLED ENVIRONMENTS.
27. ALL NEW AND/OR EXISTING PANELBOARDS AND SWITCHBOARDS WITHIN THE SCOPE OF THIS PROJECT SHALL BE PROVIDED WITH NEW, TYPEWRITTEN DIRECTORIES. CIRCUIT DESCRIPTIONS SHALL CONTAIN ROOM NAMES AND ROOM NUMBERS BASED UPON INSTALLED ROOM SIGNAGE.
28. PROVIDE PHENOLIC, ENGRAVED IDENTIFICATION PLACARDS AT ALL SWITCHBOARDS, SWITCHGEAR, PANELBOARDS, TRANSFORMERS, DISCONNECT SWITCHES, ENCLOSED CIRCUIT BREAKERS, CABINETS, AND AUTOMATIC TRANSFER SWITCHES. REFER TO DETAILS FOR FURTHER INFORMATION.
29. PROVIDE PHENOLIC, ENGRAVED IDENTIFICATION PLACARDS AT EACH CIRCUIT BREAKER WITHIN A DISTRIBUTION PANEL, SWITCHBOARD, OR SWITCHGEAR.
30. PROVIDE TYPEWRITTEN OR ENGRAVED PANEL AND CIRCUIT IDENTIFICATION AT DEVICE COVER PLATES.
31. PROVIDE HANDWRITTEN PANEL AND CIRCUIT IDENTIFICATION ON THE EXTERIORS OF ALL JUNCTION BOXES, PULL BOXES, AND WIREWAYS.
32. CURRENT DRAWINGS ARE BASED ON SPECIFICATIONS AND REQUIREMENTS BASED ON TYCO SECURITY DOCUMENTS (ISSUED IN MAY 2019). IF ANY OTHER MANUFACTURER OR UPDATED SYSTEM IS TO BE PROVIDED THE INFORMATION ON THE CURRENT DOCUMENTS WILL NOT BE ACCURATE. THE ENGINEER RESERVES THE RIGHT TO REVIEW ANY REVISED SPECIFICATIONS AND ELECTRICAL REQUIREMENTS PRIOR TO BID TO ENSURE THE PROVISION NOTED ON THE DOCUMENTS ARE CORRECT OR IF THEY WILL NEED TO BE REVISED.

CODES AND STANDARDS

NFPA 70	NATIONAL ELECTRICAL CODE (2020)
NFPA 72	NATIONAL FIRE ALARM CODE (2016)
NFPA 75	STANDARD FOR THE PROTECTION OF ELECTRONIC COMPUTER / DATA PROCESSING EQUIPMENT (2013)
NFPA 90A	STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS (2015)
NFPA 90B	STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS (2015)
NFPA 92	RECOMMENDED PRACTICE FOR SMOKE CONTROL SYSTEMS (2012)
NFPA 101	LIFE SAFETY CODE (2015)
NFPA 110	STANDARD FOR EMERGENCY AND STAND-BY POWER SYSTEMS (2015)
NFPA 780	STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS (2014)
2015 (IECC)	INTERNATIONAL ENERGY CONSERVATION CODE
	LOCAL JURISDICATION CODES AND / OR OWNER DESIGN GUIDELINES
2018 (HAS)	HAS DESIGN STANDARDS MANUAL

COMMISSIONING

1. PRIOR TO FINAL INSPECTION, THE CONTRACTOR SHALL SUBMIT EVIDENCE TO THE REGISTERED DESIGN PROFESSIONAL (ELECTRICAL ENGINEER-OF-RECORD) OR REGISTERED DESIGN PROFESSIONAL'S REPRESENTATIVE THAT THE LIGHTING SYSTEMS HAVE BEEN TESTED TO ENSURE THAT THEY ARE SATISFY THE INTENT OF THESE CONTRACT DOCUMENTS AND THE MANUFACTURERS' WRITTEN INSTRUCTIONS.

SHEET INDEX

ELECTRICAL ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	IMC	INTERMEDIATE METAL CONDUIT
AC	ALTERNATING CURRENT	KCMIL	THOUSAND CIRCULAR MILS
A/C	AIR CONDITIONING	KVA	KILOVOLT - AMPERES
AFCI	ARC FAULT CIRCUIT INTERRUPTER	LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
AHU	AIR HANDLING UNIT	LTG	LIGHTING
AIC	AMPERE INTERRUPTING CAPACITY	LRA	LOCK ROTOR AMPS
AL	ALUMINUM	MC	METAL CLAD CABLE
ATS	AUTOMATIC TRANSFER SWITCH	MCB	MAIN CIRCUIT BREAKER
AWG	AMERICAN WIRE GAUGE	MCC	MOTOR CONTROL CENTER
C	CONDUIT	MCP	MOTOR CIRCUIT PROTECTION
CATV	CABLE TELEVISION	MLO	MAIN LUGS ONLY
CB	CRITICAL BRANCH	MS	MOTOR RATED SWITCH
C/B	CIRCUIT BREAKER	MTD	MOUNTED
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSED
CIR	CIRCUIT	NEC	NATIONAL ELECTRICAL CODE
CKT	CIRCUIT	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CU	COPPER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
DC	DIRECT CURRENT	NL	NIGHT LIGHT
DIA	DIAMETER	NO	NORMALLY OPEN OR NUMBER
EB	EQUIPMENT BRANCH	P	POLE
EC	ELECTRICAL CONTRACTOR	PB	PUSH BUTTON, PANIC BUTTON OR PULLBOX
ECB	ENCLOSED CIRCUIT BREAKER	PNL	PANEL
EF	EXHAUST FAN	PWR	POWER
ELEV	ELEVATOR	QTY	QUANTITY
EM	EMERGENCY	REQ	REQUIRED
EMT	ELECTRICAL METALLIC TUBING	RMC	RIGID METAL CONDUIT
EP	EMERGENCY POWER	RNC	RIGID NON-METALLIC CONDUIT
EPO	EMERGENCY POWER OFF (BUTTON OR SWITCH)	RTS	REMOTE TEST STATION
ER	EXISTING TO BE REMOVED	RTU	ROOF TOP UNIT
ETR	EXISTING TO BE RELOCATED	SP	SPARE
EWC	ELECTRIC WATER COOLER	ST	SHUNT-TRIP
EX	EXISTING TO REMAIN	SW	SWITCH
F	FUSE	SYM	SYMMETRICAL
FA	FIRE ALARM	TEL	TELEPHONE
FAA	FIRE ALARM ANNUNCIATOR PANEL	TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
FLA	FULL LOAD AMPERES	TMCB	THERMAL MAGNETIC CIRCUIT BREAKER
FMC	FLEXIBLE METAL CONDUIT	TYP	TYPICAL
G, GND	GROUND	UG	UNDERGROUND
GFCI, GFI	GROUND FAULT CIRCUIT INTERRUPTER	UL	UNDERWRITERS LABORATORY
GND	GROUND	V	VOLT
GRC	GALVANIZED RIGID METAL CONDUIT	VA	VOLT - AMPERE
HOA	HAND-OFF-AUTOMATIC SWITCH	W	WATT OR WIRE
HVAC	HEATING, VENTILATION, AIR CONDITIONING	WH	WATER HEATER
HZ	HERTZ	WP	WEATHERPROOF
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS	XFMR	TRANSFORMER
IG	ISOLATED GROUND		

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REGISTRATION

STATE OF TEXAS
JULIUS DARREN DAVIS
102926
LICENSED
PROFESSIONAL ENGINEER
11-16-2021

DRAWING HISTORY

№	DATE	DESCRIPTION
4	08-06-21	100% CD
5	09-09-21	FOR INFORMATION AND REFERENCE ONLY
6	10-20-21	ISSUE FOR BID/100%CD
7	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
ELECTRICAL LEGEND

SHEET NUMBER
E000

FILE NAME: C:\Users\jalexander\Documents\02.18018_HAS_Exit_Lanes_LOA_IAH_CENTRAL_R19_jalexander@voltairinc.com.rvt
DATE/STAMP 11/19/2021 1:58:23 PM

LUMINAIRE SCHEDULE

IMAGE	TYPE	DESCRIPTION	MANUFACTURER	LAMP TYPE
	A	LED 2x2 FLAT PANEL TROFFER. MINIMUM 5400 LUMENS DELIVERED.	METALUX PHILIPS	LED
	AE	LED 2x2 FLAT PANEL TROFFER. MINIMUM 5400 LUMENS DELIVERED. PROVIDE WITH 90 MINUTE BATTERY PACK.	METALUX PHILIPS	LED
EXIT	X	LED EXIT LIGHT, WITH THERMOPLASTIC HOUSING AND RED LETTERING. PROVIDE WITH 90 MINUTE INTEGRAL BATTERY	METALUX PHILIPS	LED

KEYNOTES ?

NUMBER	NOTES
1	CONNECT NEW LIGHT AND EXIT LIGHT FIXTURES TO CLOSEST EXISTING LIGHTING CIRCUIT NEAR EXIT LANE STRUCTURE. INTERCEPT NEAREST JUNCTION BOX AND EXTEND CIRCUIT(CONDUCTORS) TO SERVE PROPOSED LIGHTS. TYPICAL FOR ALL WHERE SHOWN.

LIGHTING NOTES

A. CONTRACTOR SHALL REFER TO FIXTURES SCHEDULE AND SPECIFICATIONS FOR EXACT LIGHTING REQUIREMENTS.

B. CONTRACTOR IS RESPONSIBLE FOR INSTALLING SWITCH CONDUCTORS WHERE MULTIPLE SWITCHES ARE SHOWN. PROVIDE NEUTRALS FOR ALL SWITCHES SHOWN.

C. COORDINATE THE INSTALLATION OF ALL LIGHT FIXTURES WITH HVAC AND EQUIPMENT CURRENTLY SHOWN TO BE INSTALLED IN AND ABOVE CEILING.

D. CONTRACTOR SHALL PROPERLY INSTALLED FIXTURES PER MANUFACTURERS RECOMMENDATION AND CONSTRUCTION DRAWINGS.

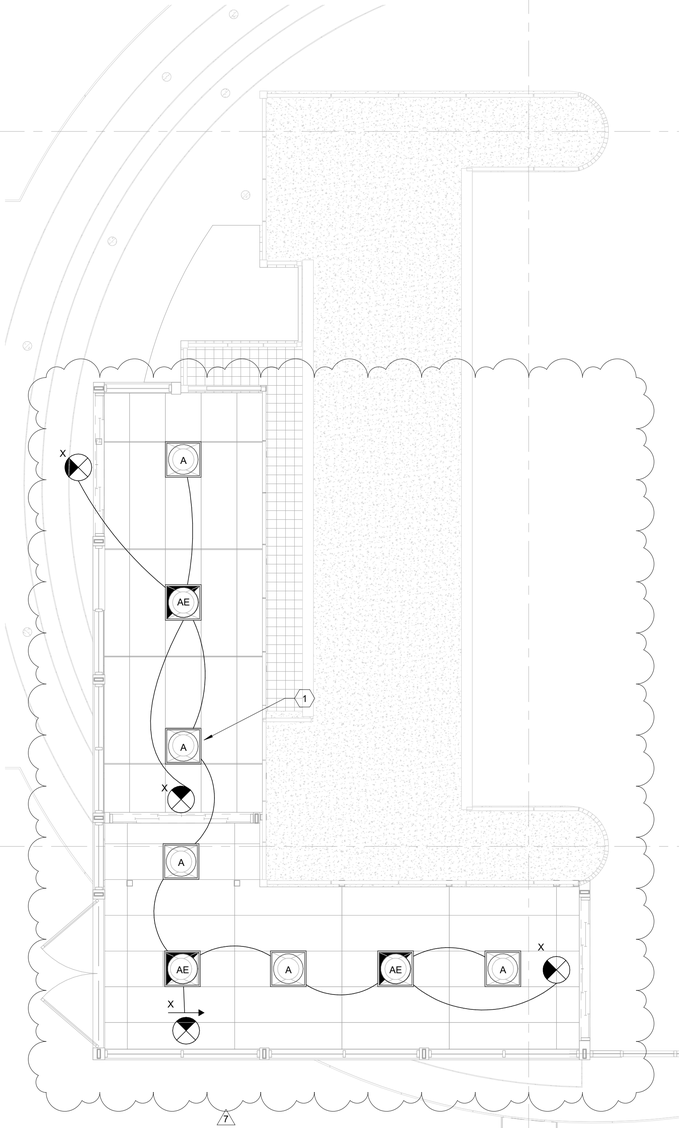
E. PROVIDE ALL MOUNTING ACCESSORIES AND EQUIPMENT REQUIRE FOR PROPER INSTALLATION.

F. LED LAMP COLOR SHALL MATCH COLOR TEMPERATURE OF EXISTING LIGHTING CURRENTLY INSTALLED. FIELD VERIFY EXISTING LIGHT TEMPERATURE/COLOR PRIOR TO ORDERING.

G. PULL UNSWITCHED CONDUCTOR(HOT) TO ALL EXIT AND EMERGENCY LIGHT FIXTURES.

H. CONTRACTOR TO VERIFY LEVEL REQUIREMENT WIHT APPROVED EXIT LANE SYSTEM VENDOR. LIGHTING CALCS ARE TO BE PROVIDED FOR REVIEW AND APPROVAL.

7



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DATE\STAMP 11/19/2021 1:58:26 PM

LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL C - LIGHTING 1/4" = 1'-0" (1)

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PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

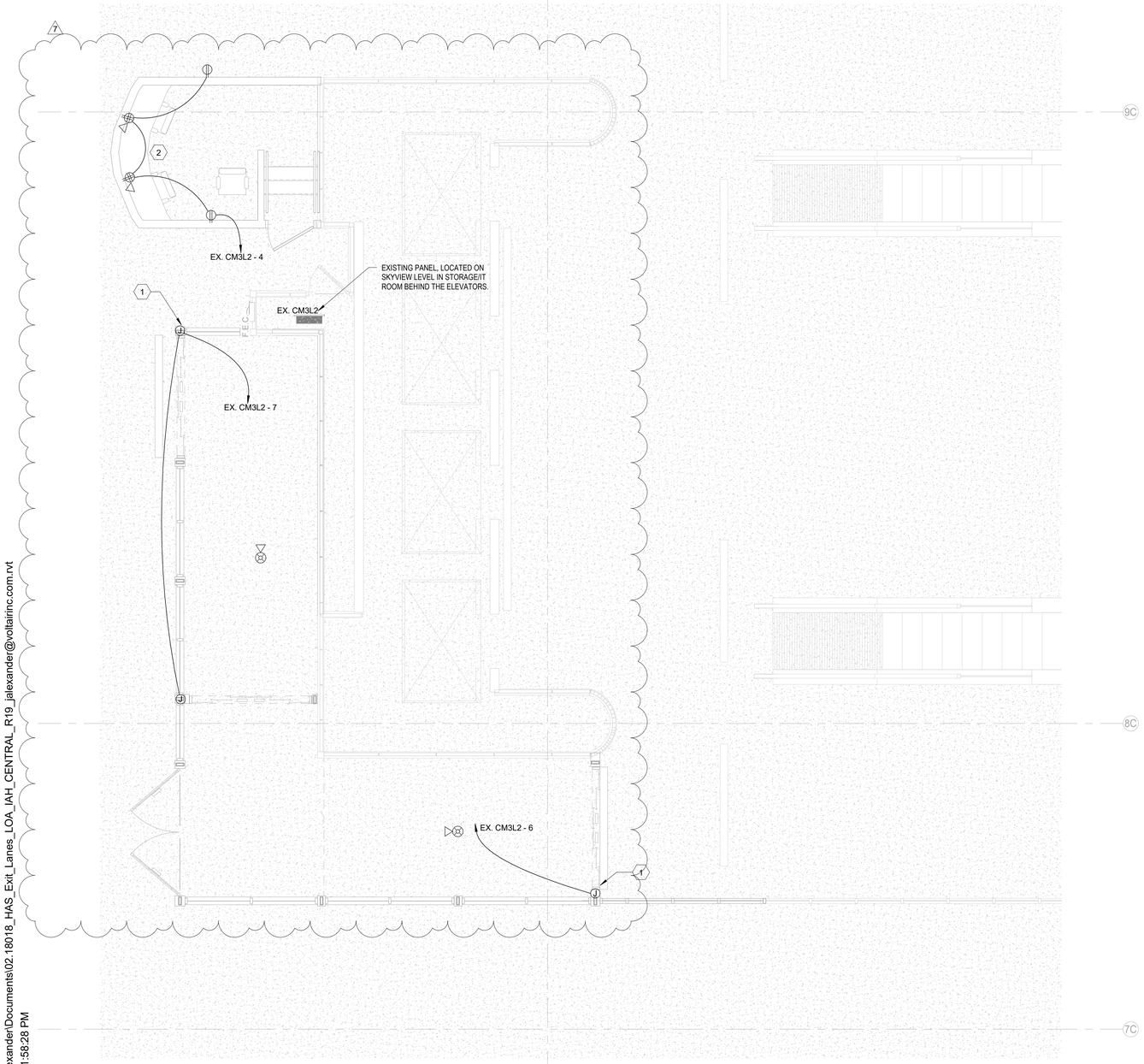
1004345

SHEET TITLE

FLOOR PLAN - TERMINAL C - LIGHTING

SHEET NUMBER

E303



LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL C - POWER 1/4" = 1'-0" (1)

KEYNOTES (?)

NUMBER	NOTES
1	PROVIDE 120V POWER FOR DOOR MOTOR AND CONTROLS. VERIFY WITH MANUFACTURES DOCUMENTATION FOR PROPER INSTALLATION AND ROUTING OF CONCEALED CONDUIT. ADDITIONAL CIRCUIT(S) MAY BE REQUIRED PER DOOR MANUFACTURER. FINAL VERIFICATION WILL OCCUR DURING SUBMITTAL PROCESS. PROVIDE MOTOR RATED SWITCH TOGGLE SWITCH FOR MEANS OF DISCONNECT WHERE REQUIRED FOR DOOR MOTOR CONNECTION. VERIFY EXACT LOCATION AND REQUIREMENT WITH ELECTRICAL INSPECTOR PRIOR TO COMMENCEMENT OF WORK. ROUTE #12'S IN 1" CONDUIT FROM PANEL TO CLOSEST JUNCTION BOX LOCATION AT THE EXIT LANE HOUSING. CONDUIT SHALL BE ROUTED THROUGH EXISTING CHASE NEAR HPD DESK.
2	EXTEND EXISTING CIRCUITS, AND CONDUCTOR THAT SERVE THE PREVIOUS HPD WORKSTATIONS TO NEW PROPOSED LOCATION.

POWER NOTES

A. COORDINATE WITH ARCHITECTURAL ELEVATIONS AND TELECOMM DRAWINGS PRIOR TO ROUGH-IN OF ANY OUTLET DEVICES.

B. PROVIDE ADHESIVE LABELS FOR ALL RECEPTACLE OUTLETS SHOWN ON PLANS.

C. REFER TO TELECOMM (T-SERIES) DRAWINGS FOR EXACT LOCATIONS OF ALL BACKBONE/COMMUNICATION CONDUITS AND GROUNDBARS.

D. UPS AND BATTERY CABINET SHALL BE OWNER FURNISHED AND INSTALLED BY CONTRACTOR. COORDINATE WITH PROJECT MANAGER FOR EXACT REQUIREMENTS AND INSTALLATION DETAILS.

E. COORDINATE EXACT RECEPTACLE TYPE WITH OWNER PRIOR TO COMMENCEMENT OF WORK. IF L6-20P ARE REQUESTED FROM OWNER, CONTRACTOR SHALL PROVIDE PLUG ADAPTER TO CONVERT TWIST-LOCK DEVICE TO A STRAIGHT PLUG. BASIS OF DESIGN REFLECTS THE PROVISION OF L5-30P DUPLEX RECEPTACLES.

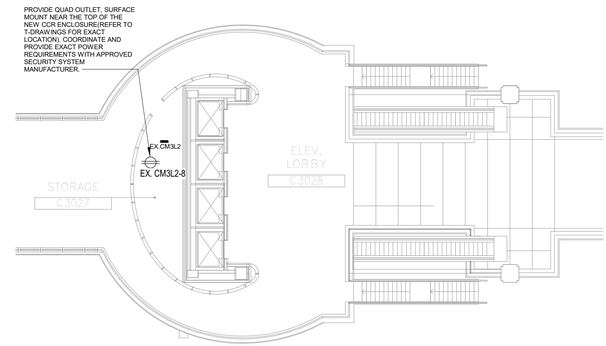
F. PROVIDE JUNCTION BOX AND OR HOUSINGS FOR ALL SURFACE MOUNTED RECEPTACLES.

G. ALL WALL PENETRATIONS SHALL BE SEALED WITH UL LISTED FIRE RATED CAULKING MATERIAL.

H. CONTRACTOR SHALL OBTAIN AND REVIEW TELECOMM (T-DRAWINGS) AND PROVIDE ALL POWER REQUIREMENTS PER NOTED LOCATION ON PLANS. PROVIDE ALL REQUIRED OUTLETS, BREAKERS, RACEWAYS, CONDUCTORS, ETC. FROM NEAREST UPS SUPPORTED ELECTRICAL PANELS.

I. ROUTE ALL FIRE ALARM DEVICES SHOWN TO THE EXISTING FIRE ALARM CONTROL PANEL SERVICE THE PROPOSE AREA OF WORK. FIELD VERIFY EXACT LOCATION PRIOR TO COMMENCEMENT OF WORK.

J. ANY FIRE ALARM DEVICES SHOWN ON ELECTRICAL DRAWINGS ARE SHOWN FOR BIDDING PURPOSES ONLY AND NOT FOR CONSTRUCTION OR INSTALLATION. THE FIRE ALARM CONTRACTOR SHALL MODIFY THE FIRE ALARM SYSTEM TO PROVIDE FULL COVERAGE OF THE PROJECT AREA IN ACCORDANCE WITH NFPA-72 AND ALL CITY, STATE, NATIONAL CODES AND STANDARDS, AND THE AUTHORITY HAVING LOCAL JURISDICTION. THE FIRE ALARM CONTRACTOR SHALL EXTEND THE EXISTING FIRE ALARM SYSTEM TO THE NEW SPACE. NEW DEVICES SHALL MATCH EXISTING FIRE ALARM SYSTEM DESIGN. TEXAS STATE FIRE MARSHALL FIRE ALARM PLANNING SUPERINTENDENT AND/OR NICET III CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR THE INSTALLATION OF THE FIRE ALARM SYSTEM TO THE AHJ FOR APPROVAL, INSTALLATION AND PROVIDE AN APPROVED COPY TO THE OWNER FOR RECORDS.



LEVEL 03 - SKYWAY - FLOOR PLAN - TERMINAL C -POWER 1/16" = 1'-0" (2)

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JULIUS DARREN DAVIS
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11-16-2021

DRAWING HISTORY

No.	DATE	DESCRIPTION
4	08-06-21	100% CD
5	09-09-21	FOR INFORMATION AND REFERENCE ONLY
6	10-20-21	ISSUE FOR BID/100%CD
7	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

1004345

SHEET TITLE

FLOOR PLAN - TERMINAL C - POWER

SHEET NUMBER

E403

GENERAL NOTES

1. CONTRACTOR IS REQUIRED TO COORDINATE ALL INSTALLATIONS IN EACH SPACE WITH OTHER TRADES. PROVIDE SHOP DRAWINGS AND LAYOUTS FOR EACH ELECTRICAL ROOM WITH PROPOSED CONDUIT ROUTES TO ALLEVIATE POTENTIAL CONFLICTS WITH MECHANICAL, PLUMBING AND TELECOMMUNICATIONS.
2. CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT AND ACCESSORIES REQUIRED FOR PROPER INSTALLATION OF ALL DEVICES TO BE INSTALLED.
3. CONTRACTOR SHALL PLACE A LAMINATED COPY OF THE LOAD CALCULATIONS ON THE BOTTOM INTERIOR BEZEL IN EACH PANEL. LOAD CALCULATIONS ARE LOCATED ON THE PANELBOARD SHEETS AT THE BOTTOM OF EACH PANEL SCHEDULE.
4. ALL CONDUITS SHALL BE LABELED WITH THE VOLTAGE AND CIRCUITS THAT ARE HOUSED WITHIN. REFER TO SPECIFICATIONS FOR EXACT REQUIREMENTS.
5. CONTRACTOR SHALL PROVIDE AND INSTALL GROUNDING AND BONDING COMPONENTS FOR ALL ELECTRICAL DEVICES PER 2018 HAS DESIGN SPECIFICATIONS.
6. CONTRACTOR SHALL CONDUCT A SITE VISIT TO FIELD VERIFY THE EXACT LOCATION OF THE EXISTING UPS SERVING EXISTING PANEL 'CM3L2'. VERIFY THE MANUFACTURER TYPE OF THE EXISTING UPS AND CONTACT THE UPS REP TO SCHEDULE MAINTENANCE ON EXISTING UPS TO VERIFY IF THE BATTERIES NEED TO BE REPLACED OR IF THE UPS DEVICE IS DEFECTIVE. BASIS OF WORK SHALL BE TO REPLACE NEW BATTERIES (IF NECESSARY) FOR THE UPS DEVICE. CONTRACTOR SHALL BE PROVIDED WITH $40,000 ALLOWANCE FOR REPLACEMENT OF UPS BATTERIES IF REPLACEMENT IS NEEDED. THIS AMOUNT SHALL BE INCLUDED IN THE BID AND ISSUED BACK TO THE OWNER AS A CREDIT IF NO MAINTENANCE AND/OR BATTERY REPLACEMENT IS REQUIRED. IN THE EVENT THE BATTERY REPLACEMENT COSTS EXCEEDS THE AMOUNT OF THE ALLOWANCE THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE DESIGN TEAM AND OWNER PRIOR TO ORDERING ANY DEVICE OR SCHEDULING ANY WORK TO BE PERFORMED. IT SHALL BE THE OWNERS DECISION TO PROCEED WITH ADDING ADDITIONAL FUNDS OR IF THE ALLOWANCE WILL NEED TO BE ISSUED BACK AS A CREDIT FOR DEFERRED MAINTENANCE AT A LATER DATE. CONTRACTOR SHALL INCLUDE COST OF MAINTENANCE VISIT IN BASE BID.

7

KEYED NOTES (#)

1. FIELD VERIFY AND COORDINATE EXACT ROUTING OF CONDUIT(S) PRIOR TO COMMENCEMENT OF WORK. CONDUIT SHALL BE LABELED AND MOUNTED PER H.A.S SPECIFICATIONS.
2. PROVIDE NEW 20A/1P BREAKERS IN EXISTING PANEL TO SERVE DEVICES AT EXIT LANE STRUCTURE. NEW BREAKERS SHALL HAVE THE SAME A.I.C. RATING AS THE BREAKERS THAT ARE CURRENTLY INSTALLED. REFER TO PANELBOARD SCHEDULE FOR EXACT QUANTITY OF BREAKERS.
3. CONTRACTOR SHALL CONDUCT AMPERAGE READINGS FOR THE EXISTING PANEL TO VERIFY AMPERAGES FOR EACH PHASE AND TOTAL LOADS. READINGS SHALL BE RECORDED AND PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCEMENT OF ANY ELECTRICAL INSTALLATIONS. CONTRACTOR SHALL INSTALL AMP METER TO RECORD THE REQUIRED INFORMATION FOR A MINIMUM OF TEN DAYS AND RECORD THE FINDINGS IN A DOCUMENTED REPORT.

LOAD ANALYSIS

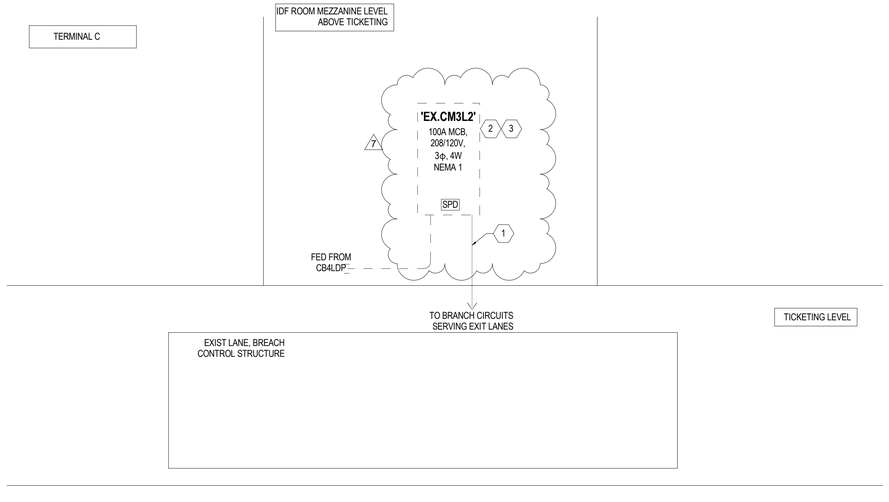
EXISTING MAX DEMAND LOAD = 8.5 KVA
NEW LOAD = 2.720 KVA

TOTAL LOAD ON PANEL = 11.220KVA (31A)

NEW PROPOSED LOAD DOES NOT EXCEED 100A CAPACITY

LEGEND

- NEW EQUIPMENT
- EXISTING EQUIPMENT TO REMAIN
- SPD — SURGE PROTECTION DEVICE



ELECTRICAL POWER RISER DIAGRAM

NOT TO SCALE

6

Branch Panel: EX. CM3L2

Location: ELECTRICAL CHASEWAY | **Volts:** 120/208 Wye | **A.I.C. Rating:**
Supply From: | **Phases:** 3 | **Mains Type:** MCB
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 100 A
Enclosure: Type 1 | **MCB Rating:** 100 A

Notes:
PROVIDE NEW BREAKERS WITH THE SAME A.I.C. RATINGS FOR ALL NEW BREKERS SHOWN TO BE INSTALLED.

Note	Ckt	Circuit Description	Wire Size	Trip (A)	Pole	A		B		C		Pole	Trip (A)	Wire Size	Circuit Description	Ckt	Note
	1	Ex. Load		20	1	360	520					1	20		Ex. Load	2	
	3	Ex. Load		20	1			600	1080			1	20		Receptacle	4	1
	5	Ex. Load		20	1					420	720	1	20		Receptacle	6	1
2	7	Receptacle		20	1	1440	1100					1	20		Receptacle	8	2
2	9	Receptacle		20	1			1100	0			1	20		Spare	10	
	11	Spare		20	1					0	0	2	30		Spare(Future L5-30R)	12	
	13	Spare		20	1	0	0					--	--		--	14	
	15															16	
	17															18	
	19	Existing Load		30	3	2200										20	
	21	--		--	--			2200								22	
	23	--		--	--					2200						24	
	25															26	
	27															28	
	29															30	
	31															32	
	33															34	
	35															36	
	37															38	
	39															40	
	41															42	
				Total Load		5620 VA		4980 VA		3340 VA							
				Total Amps		49 A		44 A		28 A							

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Receptacle	5440 VA	100.00%	5440 VA		
Spare	8500 VA	65.00%	5525 VA	Total Conn. Load:	13940 VA
				Total Est. Demand:	10965 VA
				Total Conn.:	39 A
				Total Est. Demand:	30 A

Notes:
1. UTILIZE EXISTING 20A/1P BREAKERS FOR PROPOSED LOADS.
2. PROVIDE AND INSTALL NEW 20A/1P BREAKERS FOR PROPOSED LOADS.

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IAH-TERMINAL - SECURITY EXIT LANE

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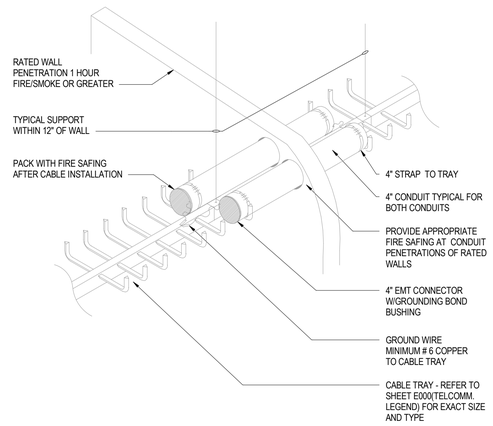
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
ELECTRICAL RISER DIAGRAMS

SHEET NUMBER
E601



6 WALL PENETRATION DETAIL C

EXISTING PANEL IN SKYVIEW IT ROOM B

7

DETAIL NOTES:

1. EXISTING DOWNLIGHTS SHALL BE REMOVED AND LOW-VOLTAGE DEVICES WILL BE RELOCATED PER OWNER/HAS DISCRETION. COORDINATE WITH HAS PM FOR EXACT LOCATION OF RELOCATED DEVICES.
2. REMOVE AND PATCH LOCATION OF EXISTING DOWNLIGHTS. UTILIZE EXISTING CIRCUIT SERVING DOWNLIGHTS TO SERVE NEW LED FLAT PANEL LIGHTS IN THE EXIT LANE ENCLOSURE.
3. REMOVE EXISTING FIRE ALARM DEVICES. REUSE EXISTING FIRE ALARM CONNECTIONS (EXTEND CABLING TO NEW LOCATIONS SHOWN) FOR NEW FA DEVICES TO BE INSTALLED.

EXISTING SOFFIT - TERMINAL C A

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SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E902

FIRE SPRINKLER LEGEND

SYM	ORF	TEMP	RESPONSE	K-FAC	FINISH	MODEL	REMARKS	PLATE	MFG.	IMAGE	NOTES
○	1/2"	135 DEG	QUICK	5.5	BRASS	VK462	CONCEALED	WHITE	VIKING		
⊠	1/2"	155 DEG	QUICK	5.62	BRASS	VK300	UPRIGHT	---	VIKING		
◁	3/4"	155 DEG	QUICK	5.5	BRASS	F3QR56	SIDEWALL DRY TYPE	---	RELIABLE		

NOTES:
1. SPRINKLER HEADS SHALL BE ORDINARY TEMPERATURE UNLESS OTHERWISE NOTED.
2. SPRINKLER GUARDS SHALL BE PROVIDED ON ALL SPRINKLER HEADS INSTALLED LOWER THAN 7'-0" ABOVE FINISH FLOOR AND / OR ARE SUBJECT TO DAMAGE.
3. PROVIDE RECESSED, CONCEALED AND SIDEWALL SPRINKLERS WITH ESCUTCHEON IN EXPOSED AREA'S.
4. COORDINATE COLOR SELECTIONS WITH ARCHITECT.

FIRE PROTECTION LEGEND

SYMBOL	DESCRIPTION
	NEW SPRINKLER PIPING - SCHEDULE 40 STEEL
	ELBOW, TURNED DOWN
	ELBOW, TURNED UP
	TEE, TURNED UP
	TEE, TURNED DOWN
	CAP
FC	FLUSHING CONNECTION
	ZONE CONTROL VALVE / FLOW SWITCH / DRAIN RISER
OR	CONTROL VALVE WITH TAMPER SWITCH
	CHECK VALVE
	FLOW SWITCH
	BACKFLOW PREVENTOR WITH TAMPER SWITCHES
FDV	STANDPIPE WITH FIRE DEPARTMENT VALVE
	ROOF MANIFOLD
FDC	FIRE DEPARTMENT CONNECTION
PIV	POST INDICATOR VALVE WITH TAMPER SWITCH
FVC	FIRE VALVE CABINET

RENOVATION LEGEND

SYMBOL	DESCRIPTION
	CONNECT TO EXISTING
	DEMOLISH TO POINT INDICATED
	NEW SPRINKLER PIPING - SCHEDULE 40 STEEL
	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE REMOVED
E	EXISTING RECESSED SPRINKLER TO REMAIN
E	EXISTING UPRIGHT SPRINKLER TO REMAIN
E	NEW SPRINKLER AT NEW LOCATION
	NEW RECESSED SPRINKLER
	NEW UPRIGHT SPRINKLER

CODE COMPLIANCE

1. TO THE BEST OF MY KNOWLEDGE, THESE PLANS AND SPECIFICATIONS ARE COMPLETE AND COMPLY WITH ALL LOCAL AND STATE CODES AND STATUES.

SCOPE OF WORK

1. PROVIDE FIRE PROTECTION TO THE NEW EXIT LANES AREA.

SPRINKLER CALCULATIONS

ESTIMATED NUMBER OF SPRINKLERS IN CURRENT DESIGN: 1586

GENERAL NOTES

1. FIRE PROTECTION SYSTEM TO COMPLY WITH NFPA 13,24, AND ALL STATE AND LOCAL CODES REFERENCED BY THE JURISDICTION.
2. FINAL INSPECTION AN APPROVAL BY LOCAL FIRE MARSHAL AND ARCHITECT/ENGINEER.
3. SPRINKLER SHOP DRAWINGS AND MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AND FIRE MARSHAL AND SHALL BE APPROVED PRIOR ANY INSTALLATION.
4. FIRE ROUTING SHOWN IS SCHEMATIC ONLY. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO PROVIDE ANY ADDITIONAL OFFSETS REQUIRED FOR PROPER INSTALLATION AND COORDINATION WITH OTHER TRADES.
5. PIPING IN AREAS WITH EXPOSED STRUCTURE SHALL BE INSTALLED AS HIGH AS POSSIBLE TO ALLOW THE OWNER MAXIMUM USE OF THE SPACE.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING DESCRIPTIONS AND HEIGHTS.
7. SPRINKLERS ARE TO BE COORDINATED WITH ALL DIFFUSERS, SPEAKERS, LIGHTING FIXTURES, AND CEILING SYSTEMS. SPACING OR SPRINKLERS SHALL BE IN ACCORDANCE WITH NFPA 13 AND THE LISTING OF THE SPRINKLER.
8. SPRINKLER LOCATIONS SHALL BE CENTERED IN THE TILE AS INDICATED ON THE DRAWINGS. PROVIDE ARMOVERS OR SWING JOINTS AS REQUIRED.
9. SPRINKLERS IN AREAS WITH EXPOSED STRUCTURE (OBSTRUCTED CONSTRUCTION) SHALL BE INSTALLED WITH DEFLECTOR 1" BELOW THE BOTTOM OF THE BEAM (MAXIMUM 22" BLOW ROOF DECK.) EXPOSED BAR JOISTS THAT HAVE SPRAY ON FIRE-PROOFING THAT MAKES THE JOIST SOLID SHALL BE TREATED LIKE A BEAM WITH SPRINKLERS 1" BELOW THE BOTTOM OF THE FIRE-PROOFING.
10. SLEEVE AND/OR FIRE STOP ALL PENETRATIONS THROUGH RATED WALLS, CEILINGS, AND FLOORS WITH UL LISTED ASSEMBLIES. FIRE STOP ASSEMBLIES SHALL BE EQUAL OR EXCEED THE RATING OF THE WALL, CEILING, OR FLOOR. SEE ARCHITECTURAL DRAWINGS FOR FINAL FINISHES.
11. PROVIDE ACCESS PANELS TO ALL VALVES ABOVE NON-ACCESSIBLE CEILINGS AND CHASES.
12. PROVIDE A PERMANENTLY ATTACHED NAME TAG ATTACHED TO THE RISER STATING THE REQUIRED DESIGN CRITERIA FOR EACH HYDRAULICALLY DESIGN SYSTEM.
13. PROVIDE SPRINKLERS UNDER ALL EXPOSED DUCTWORK OVER 48" WIDE AND SPACE HEADS AROUND ALL ABSTRUCTIONS IN ACCORDANCE WITH NFPA 13. HEADS UNDER DUCTS ARE NOT INDICATED ON DRAWINGS BUT ARE REQUIRED AND SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13. SPRINKLER LOCATIONS UNDER DUCTWORK AND AROUND OBSTRUCTIONS SHALL BE GOVERNED BY FINAL INSTALLED LOCATIONS. THESE SPRINKLERS ARE NOT INDICATED, BUT ARE REQUIRED.
14. PROVIDE SPRINKLER GUARD ON ALL HEADS IN ELECTRIC ROOM, TELEPHONE ROOMS, ELEVATOR ROOMS, ELEVATOR SHAFTS,, MECHANICAL ROOMS, AND ON ANY HEADS LESS THAN 7'-0" ABOVE THE FLOOR.
15. IF SYSTEM PRESSURE EXCEEDS 100 PSI, ALL HANGERS IN END HEADS IN PENDANT POSITION SHALL BE WITHIN 12" OF THE END OF LINE IN ACCORDANCE WITH NFPA 13.
16. COORDINATE PIPING WITH ALL ELECTRICAL EQUIPMENT (PANELS, TRANSFORMERS, ETC.) PRIOR TO ANY INSTALLATION. DO NOT ROUTE ANY PIPING OVER ANY ELECTRICAL PANELS UNDER ANY CIRCUMSTANCES. ANY PIPING RUN OVER ELECTRICAL SHALL BE REROUTED AT NO ADDITIONAL COST.
17. FLEX PIPING TO HEADS IS ALLOWABLE ALONG WITH TRADITIONAL HARD PIPE TO SPRINKLER HEADS.
18. ALL SPRINKLER HEADS IN NON-WHITE CEILINGS SHALL MATCH COLOR OF THE CEILING. COORDINATE COLOR WITH A/E. HEADS SHALL BE FACTORY PAINTED, NOT FIELD PAINTED. ANY FIELD PAINTED HEADS SHALL BE REMOVED AND REPLACED WITH A FACTORY-FINISHED HEAD.

SHEET INDEX

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DRAWING HISTORY

No.	DATE	DESCRIPTION
7	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
FIRE PROTECTION LEGEND

SHEET NUMBER
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FP000

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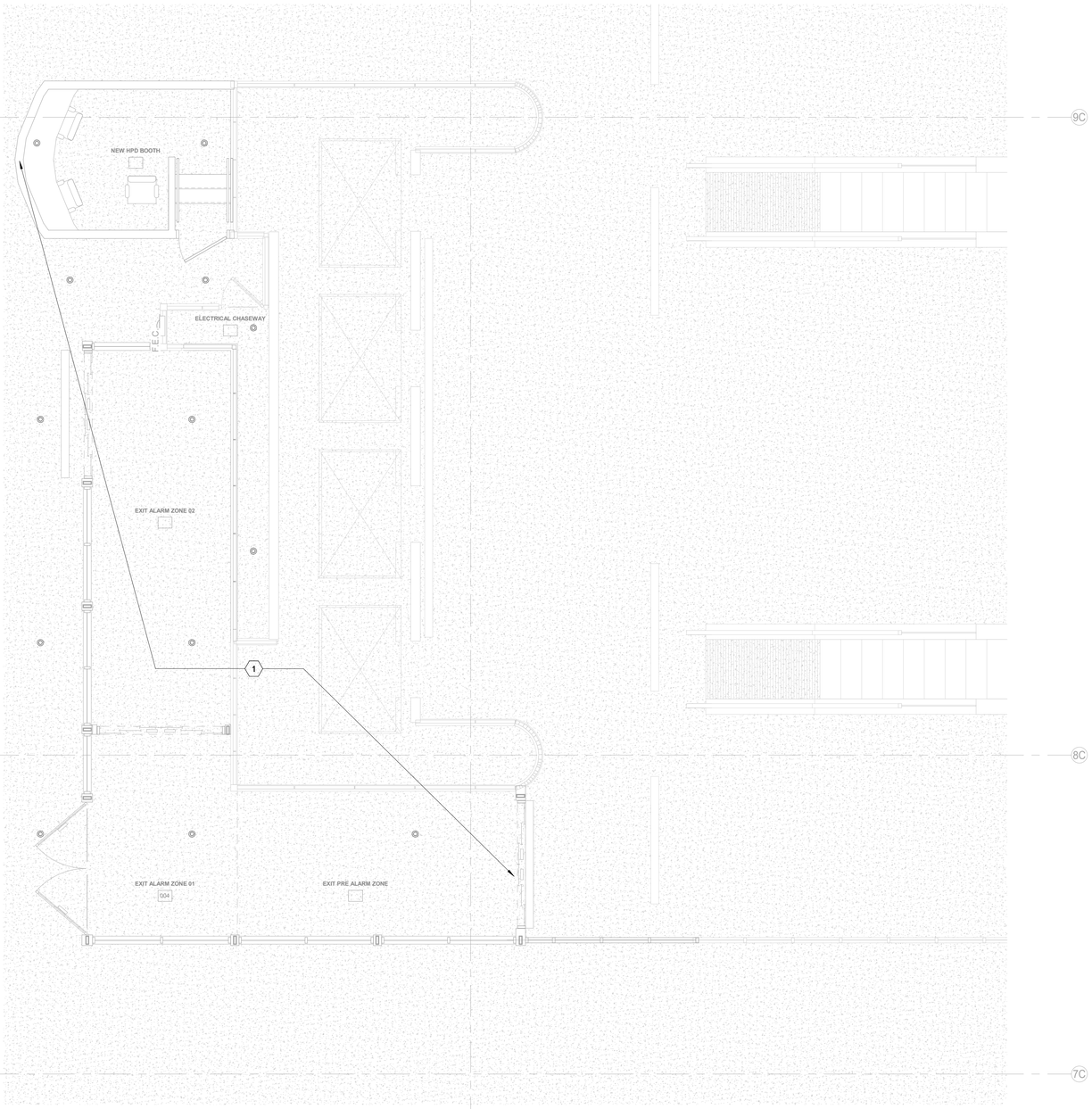

LEVEL 02 - TICKETING - FLOOR PLAN - TERMINAL C - FIRE PROTECTION 1/4" = 1'-0" (1)

KEYNOTES (?)

NUMBER	NOTES
1	PROVIDE NEW SPRINKLERS IN THIS AREA. TIE INTO THE EXISTING FIRE PROTECTION BRANCH PIPING IN THIS AREA. EXISTING SPRINKLERS IN THIS AREA TO BE REMOVED AND THE EXISTING PIPING TO BE EXTENDED TO THE NEW SPRINKLERS LOCATIONS.

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3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
FLOOR PLAN - TERMINAL C - FIRE PROTECTION

SHEET NUMBER
7
FP303

VOLT AIR
CONSULTING ENGINEERS
5353 West Alabama Suite 205
Houston, TX. 77056 Phone:832.371.6181
Texas Firm: F-14583 ProjectNo.:02.18027

FILE NAME: C:\Users\jalexander\Documents\02.18018_HAS_Exit_Lanes_LOA_IAH_CENTRAL_R19_jalexander@voltairinc.com.rvt
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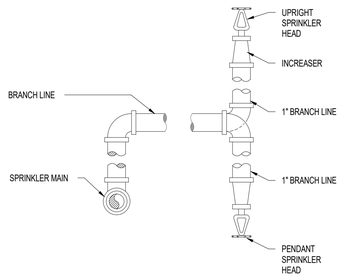


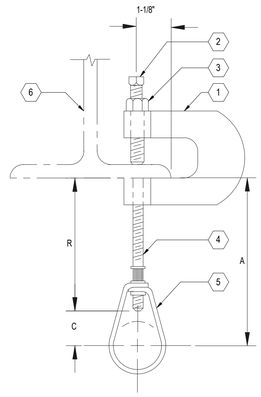
SPRINKLER INSTALLATION DETAIL E

COMPONENTS:

1. C-CLAMP
2. SET SCREW
3. LOCK NUT
4. HANGER ROD
5. ADJUSTABLE HANGER RING
6. STEEL BEAM OR BAR JOIST

DESIGN DATA FOR C-CLAMP HANGER

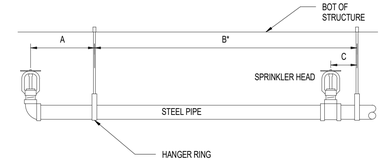
NOMINAL PIPE SIZE	MINIMUM A DIMENSION	HANGER TAKEOUT	ROD DIAMETER
	INCHES	INCHES	INCHES
1/2	3 1/2	-1 1/4	3/8
3/4	3 1/2	-1 1/4	3/8
1	3 1/2	-1 1/4	3/8
1 1/4	3 3/4	-1 1/2	3/8
1 1/2	4	-1 1/2	3/8
2	4 1/4	-1 3/4	3/8
2 1/2	5	-2 1/4	3/8
3	5 1/2	-2 1/2	3/8
4	6	-3	3/8
5	6 3/4	-3 3/4	1/2
6	7 3/4	-4 1/2	1/2
8	9 1/4	-6	1/2



STANDARD C-CLAMP PIPE HANGER C

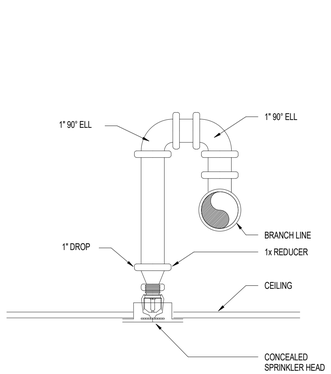
HANGER LOCATION DETAIL

PIPE SIZE	A	B*	C
1"	3'-0" MAX.	12'-0" MAX.	3" MIN.
1-1/2"	4'-0" MAX.	12'-0" MAX.	3" MIN.
2"-8"	5'-0" MAX.	15'-0" MAX.	3" MIN.

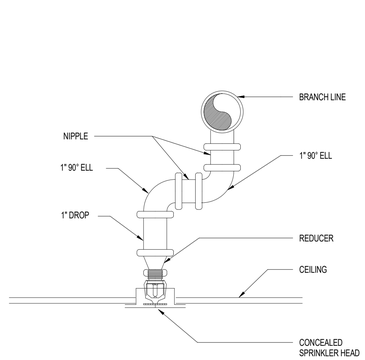


USE 3/8" DIAMETER ROD FOR PIPE DIAMETER SIZE 1" THROUGH 4"
USE 1/2" DIAMETER ROD FOR PIPE DIAMETER SIZE 5" THROUGH 8"

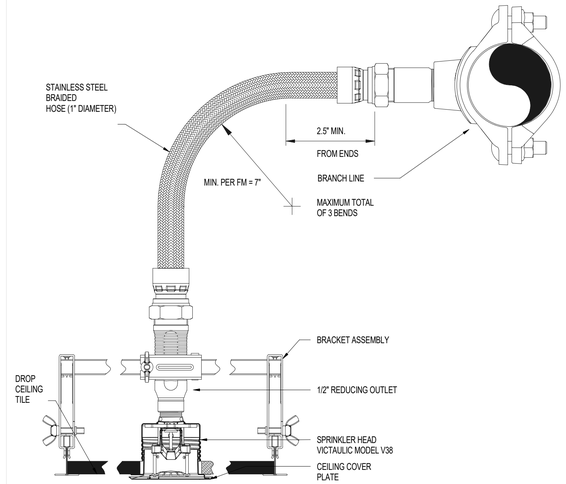
MAX HANGER SPACING FOR STEEL PIPE A



RETURN BEND - CONCEALED HEAD F



SWING JOINT - CONCEALED HEAD D



FLEXIBLE HOSE SPRINKLER ASSEMBLY B

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HAS TIP # 21-156 - IAH

STATE OF TEXAS
JUAN-JOSE BENITEZ
85646
LICENSED
PROFESSIONAL ENGINEER

DRAWING HISTORY

No.	DATE	DESCRIPTION
7	11-19-21	ADDENDUM #3

PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
FIRE PROTECTION DETAILS

SHEET NUMBER
7
FP901

SECURITY GENERAL NOTES

1. THE FOLLOWING GENERAL NOTES ARE APPLICABLE AS STATED BELOW, EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, ON THE DRAWINGS OR IN THE BID SPECIFICATION.
2. SINGLE LINE DIAGRAMS, SCHEMATICS, DETAILS AND CONDUIT PATHS SHOWN HEREIN ARE CONCEPTUAL AND ILLUSTRATE ONLY THE FUNCTIONAL RELATIONSHIPS BETWEEN COMPONENTS OF THE SYSTEM. ACCORDINGLY, FULL SHOP DRAWING DEVELOPMENT IS REQUIRED TO REALIZE THE SPECIFIED FUNCTIONS.
3. DEVICE LOCATIONS ON PLANS ARE CONCEPTUAL. LOCATE AS SITE CONDITIONS REQUIRE AND AS APPROVED BY THE OWNER.
4. REFER TO THE BID SPECIFICATION FOR ADDITIONAL REQUIREMENTS REGARDING THIS WORK.
5. INSTALL WALL MOUNTED CARD READERS, PUSH BUTTON SWITCHES, KEYPADS, KEY SWITCHES AND OTHER WALL MOUNTED FIELD DEVICES, AT 48 INCHES MAXIMUM ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED. MOUNTING HEIGHT SHALL COMPLY WITH TEXAS ACCESSIBILITY STANDARD (TAS).
6. PROVIDE PAINTING, PATCHING AND FINISHES, OF MATERIALS AND DEVICES, AS APPROVED BY THE OWNER.
7. DOOR DETAILS ILLUSTRATE FUNCTIONAL RELATIONSHIPS. ACTUAL ARCHITECTURAL CONDITIONS (SUCH AS DIRECTION OF SWING AND HAND OF DOOR) MAY VARY.
8. WORK AND MATERIALS TO CONFORM TO THE MOST CURRENT UNIFORM STANDARD SPECIFICATIONS, ASSOCIATED CODES REFERENCED BY THE (AHJ) AUTHORITY HAVING JURISDICTION, AND DETAILS FOR CONSTRUCTION, AS FURNISHED BY THE OWNER. WORK AND MATERIALS, NOT IN CONFORMANCE WITH PROJECT SPECIFICATIONS AND DETAILS, ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
9. FOR INFORMATION REGARDING FIRE RATINGS AND OCCUPANCY SEPARATIONS, REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS.
10. NEW CONDUIT CONNECTIONS TO INCLUDE INTEGRAL PROTECTIVE BUSHINGS OR CHASE NIPPLES.
11. NEW CONDUIT FOR FUTURE USE TO BE FILLED WITH 200 POUND STRENGTH PULL LINE. PROVIDE LABELING ON EACH END OF THE PULL LINE TO INDICATE LOCATION OF OTHER END.
12. NEW CONDUITS SHALL BE CONCEALED WHENEVER POSSIBLE. SURFACE MOUNTED CONDUITS ARE PERMISSIBLE ONLY WHERE APPROVED. USE ONLY CONCEALED CONDUITS WITHIN FINISHED SPACES. THE ABOVE STANDARDS ALSO APPLY TO EXTERIOR SPACES. SEEK APPROVAL FROM THE OWNER FOR EACH AREA WHERE SURFACE CONDUIT IS NECESSARY.
13. JUNCTION BOXES SHALL BE MINIMUM 4 INCH SQUARE DEEP STYLE, SIZED AS REQUIRED TO ACCOMMODATE CONDUITS UNLESS OTHERWISE NOTED. PROVIDE MOUNTING RING AS REQUIRED. PROVIDE A BLANK COVER PLATE FOR JUNCTION BOXES AND PULL BOXES WITH NO DEVICE.
14. EXPOSED BOXES AND PANELS, MOUNTED IN OR ON EXTERIOR WALLS, TO BE NEMA 4.
15. NEW CONDUIT TO BE 3/4 INCH EMT MINIMUM, UNLESS OTHERWISE NOTED. EXTERIOR CONDUIT TO BE RIGID.
16. USE 120VAC CIRCUITS UNLESS OTHERWISE NOTED. VERIFY CURRENT LOAD ON EXISTING CIRCUITS BEFORE CONNECTING NEW LOADS. COORDINATE WITH OWNER IF ADDITIONAL CIRCUITS ARE REQUIRED.
17. CONTRACTOR TO VERIFY CONDUIT AND PLENUM CABLE PATHS INDICATED ON THE DRAWINGS. CONTRACTOR MAY PROPOSE ALTERNATE ROUTING WHERE CONFLICTS ARE FOUND.
18. CONTRACTOR IS RESPONSIBLE FOR CEILING INTEGRITY, THIS INCLUDES ROUTING ABOVE CONCEALED SPLINE INTERLOCKING TILES.
19. WHEN APPLICABLE: CONTRACTOR TO OBTAIN RECERTIFICATION FOR FIRE RATED DOOR FRAME AND DOOR MODIFIED BY THIS PROJECT. (4)
20. ACCESS CONTROL LOW VOLTAGE WIRING TO BE PLENUM RATED.
21. DO NOT EXCEED 180° IN AGGREGATE CONDUIT BENDS AND/OR 100' CONDUIT WITHOUT PULLBOX.
22. PROVIDE GROUND BUSHING ON ALL CONDUIT END IN EQUIPMENT ROOM. BOND TO APPROVED BUILDING GROUND.
23. LABEL CONDUIT EVERY 50' WITH DEVICE ID & EQUIPMENT ROOM ID WITH PERMANENT INK CABLE MADE WITH LASER CABLE MAKER. SECURE TO CONDUIT WITH CLEAR TAPE.
24. ALL WALL AND FLOOR PENETRATIONS SHALL BE SEALED WITH APPROVED FIRE STOP.
25. LOCATE DEVICES AS SITE CONDITIONS REQUIRE.
26. FIELD VERIFY ALL DIMENSIONS.
27. REFER TO THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS REGARDING THIS WORK. CONTRACTOR TO PREPARE PROPOSAL FOR EACH DISCIPLINE. PROVIDE COORDINATION BETWEEN DISCIPLINES FOR CONSTRUCTION.
28. NOTIFY DESIGN CONSULTANT AND OWNER WHERE EXISTING CONDITIONS REQUIRE REPAIR PRIOR TO INSTALLATION.
29. COORDINATE ALL WORK WITH GENERAL CONTRACTOR.
30. ALL CABLE PULLS WITHIN EXISTING AND NEW CONDUITS TO BE MADE AT SAME TIME.
31. DEFINITION: BY DIVISION 8 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 8 CONTRACTOR.
32. DEFINITION: BY DIVISION 26 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 26 CONTRACTOR.
33. DEFINITION: BY DIVISION 27 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 27 CONTRACTOR.
34. DEFINITION: BY DIVISION 28 - EQUIPMENT PROVIDED AND INSTALLED BY DIVISION 28 CONTRACTOR.

BREACH CONTROL EXIT LANE NOTES (4)

1. THIS PROJECT SHALL FURNISH AND INSTALL FULLY FUNCTIONAL AND COMMISSIONED BREACH CONTROL EXIT LANE SYSTEM.
2. PROVIDE HARDWARE, SOFTWARE, INSTALLATION, AND PROGRAMMING OF FULLY FUNCTIONAL BREACH CONTROL EXIT LANE SYSTEM.
3. LOCATION OF EXIT LANE(S) IS SHOWN ON FLOOR PLAN.
4. CONTROL SYSTEM FOR EXIT LANE SYSTEM SHALL BE LOCATED IN BDF C3320.
5. COORDINATE WITH DIV. 8 CONTRACTOR FOR DOOR HARDWARE INTERFACE.
6. COORDINATE WITH DIV. 28 CONTRACTOR FOR INTERFACE WITH HAS SECURITY SYSTEM.
7. COORIDNATE WITH DIV. 26 CONTRACTOR FOR POWER REQUIREMENT.
8. PROVIDE SHOP DRAWING, AND PRODUCT DATA IN COMPLIANCE WITH DIV. 28 SPECIFICATION.
9. PROVIDE RECORD DRAWING, AND O&M IN COMPLIANCE WITH DIV. 28 SPECIFICATION.

EQUIPMENT SYMBOLS LIST

SYMBOL	DESCRIPTION
CR	CARD READER
CB	CALL BOX (VOIP) W/ CAMERA
360	HOUSTON AIRPORT SYSTEM 360 IP CAMERA (4)
180 180	HOUSTON AIRPORT SYSTEM DUAL 180 CAMERAS
FIX	HOUSTON AIRPORT SYSTEM FIXED CAMERA
PTZ	HOUSTON AIRPORT SYSTEM PTZ HD IP CAMERA
MD	EXIT LANE MOTION DETECTION CAMERA
W	EXIT LANE WATCHER CAMERA
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
DB	DURESS BUTTON (UNDER DESK/TABLE/COUNTER)
D	DOOR POSITION SWITCH (FLUSH MOUNT)
ML	ELECTROMAGNETIC LOCK
M	REX MOTION SENSOR
RCT	EXIT LANE REMOTE COMMAND TERMINAL (4)
CCR	EXIT LANE CENTRAL CONTROL RACK
AO	AUTO DOOR OPERATOR
	PHONE
	DATA
X	CATEGORY 6 DATA OUTLET WHERE X= QUANTITY OF CABLES
AV	EXIT LANE SPEAKER STROBES (4)

SHEET INDEX

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101220
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PROFESSIONAL ENGINEER
11/19/21

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1	08-06-21	100% CD
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PROJECT NAME
IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION
GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER
1004345

SHEET TITLE
INDEX, SYMBOLS & NOTES

SHEET NUMBER
TY000

TELECOM GENERAL NOTES

1. FOLLOW TELECOM STANDARDS AND PRACTICES. SEE DIVISION 27 SPECIFICATIONS AND T DRAWINGS
2. REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER (RCDD) SUPERVISOR SHALL REVIEW, APPROVE AND STAMP ALL SHOP DRAWINGS. COORDINATE DRAWINGS AND RECORD DRAWINGS.
3. ALL WALL PENETRATIONS SHALL BE SEALED WITH APPROVED FIRE STOPPING.
4. REFER TO THE ELECTRICAL FLOOR PLAN DRAWINGS FOR ADDITIONAL ROUGH-IN REQUIREMENTS. WHERE THERE ARE DRAWING DISCREPANCIES, THE CONTRACTOR SHALL INSTALL THE GREATER QUANTITY OF DEVICES.
5. REFER TO THE SITE PLAN ON AND RISER DIAGRAM FOR TELECOMMUNICATION BACKBONE CONDUITS/CABLES. FIELD COORDINATE EXACT ROUTING WITH OTHER TRADES.
6. ALL COMMUNICATIONS EQUIPMENT SHOWN SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE.
7. BOND ALL COMMUNICATIONS CABINETS, RELAY RACKS, CABLE TRAYS, AND OTHER METALLIC SUPPORTING DEVICES TO TELECOMMUNICATIONS GROUND BUSBAR INSIDE COMMUNICATIONS ROOM. BOND WITH A #6 GROUND CONDUCTOR.
8. ALL HORIZONTAL VOICE AND DATA CABLES SHALL BE DISTRIBUTED VIA MINIMUM 1" CONDUIT AND/OR CABLE TRAY. NO EXCEPTIONS.
9. SINGLE LINE DIAGRAMS, SCHEMATICS, DETAILS AND CONDUIT PATHS SHOWN HEREIN ARE CONCEPTUAL AND ILLUSTRATE ONLY THE FUNCTIONAL RELATIONSHIPS BETWEEN COMPONENTS OF THE SYSTEM. ACCORDINGLY, FULL SHOP DRAWING DEVELOPMENT IS REQUIRED TO REALIZE THE SPECIFIED FUNCTIONS.
10. DEVICE LOCATIONS ON PLANS ARE CONCEPTUAL. LOCATE AS SITE CONDITIONS REQUIRE AND AS APPROVED BY GC.
11. REFER TO THE BID SPECIFICATION FOR ADDITIONAL REQUIREMENTS REGARDING THIS WORK.
12. PAINTING, PATCHING AND FINISHES FOR DEVICES LOCATED IN EXISTING AREAS SHALL MATCH EXISTING FINISHES AS APPROVED BY GC.
13. FINISHES OF DEVICES IN NEW/REMODEL AREAS SHALL BE APPROVED BY GC.
14. WORK AND MATERIALS SHALL CONFORM TO THE MOST CURRENT UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AS FURNISHED BY GC. WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE SPECIFICATIONS AND DETAILS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
15. IN SOME INSTANCES THE IDF MAY BE OVER 90 METERS FROM THE IP DEVICE DUE TO LEGACY DESIGN STANDARDS WHEN THE BUILDING WAS CONSTRUCTED. IF TESTED CABLE DOES NOT PASS CERTIFICATION, CONTRACTOR MUST USE MIDSPAN EXTENDER INSTALLED INSIDE OF ENCLOSURE. REFERENCE DETAIL SHEETS FOR INSTALLATION DIAGRAM.

CCVS SYSTEM NOTES

1. ALL OUTDOOR CAMERAS, TERMINATION BOXES, AND PULLBOXES SHALL BE INSTALLED WITH WEATHER RESISTANT HARDWARE.
2. PROVIDE ALL INTEGRATION WITH ALARM ACCESS CONTROL SYSTEM COMPONENTS.
3. PROVIDE ALL COORDINATION WITH OTHER DISCIPLINES FOR INSTALLATION OF EQUIPMENT.
4. COORDINATE ALL SITE WORK WITH OWNER'S REP.
5. DRAWINGS INDICATE CAMERA 'HOME POSITIONS'. VERIFY FIELD OF VIEW WITH HOUSTON AIRPORT SYSTEM (HAS) REPRESENTATIVE AND DESIGN CONSULTANT DURING INSTALLATION. SUBSTITUTION OF LENS TYPE & SIZE TO ACCOMPLISH INTENDED FIELD OF VIEW SHALL BE AT NO ADDITIONAL COST.
6. CAMERAS MAY INCLUDE MULTIPLE TRANSMISSION METHODS. VERIFY EACH CAMERA PRIOR TO INSTALLATION.
7. FIELD VERIFY ALL CAMERA LOCATIONS PRIOR TO INSTALLATION. CAMERA MAY BE RELOCATED WITHIN 25' OF LOCATION SHOWN ON FLOOR PLANS WITHOUT ADDITIONAL COST.

CAMERA SERVER AND DIGITAL STORAGE NOTES

1. PROVIDE DIGITAL STORAGE FOR THIS PROJECT IN THE HAS ADMIN BUILDING AS REQUIRED.
2. THE EXISTING CAMERA SERVERS AND DIGITAL STORAGE ARE LOCATED AT THE HAS ADMINISTRATION BUILDING AND TERMINAL C. THEY ARE REDUNDANT.
3. PROVIDE HONEYWELL MAXPRO CAMERA LICENSING AS REQUIRED AT THE HAS ADMINISTRATION BUILDING AND TERMINAL C TO SUPPORT ALL HAS CAMERAS INSTALLED AS PART OF THIS PROJECT.

ACS SYSTEM NOTES

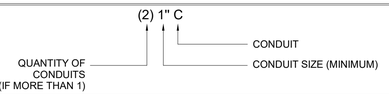
1. ALL OUTDOOR MOUNTED CARD READERS SHALL BE INSTALLED WITH WEATHER RESISTANT AND TAMPER PROOF HARDWARE.
2. CARD READER PEDESTALS SHALL BE SIZED FOR VOICE COMMUNICATIONS.
3. PROVIDE ALL INTEGRATION WITH CLOSED CIRCUIT VIDEO SURVEILLANCE COMPONENTS.
4. PROVIDE ALL COORDINATION WITH OTHER DISCIPLINES FOR INSTALLATION OF EQUIPMENT.
5. COORDINATE ALL SITE WORK WITH OWNERS REP.
6. PROVIDE ACCESS CONTROL LICENSES AS REQUIRED PART OF THIS PROJECT.
7. CARD READER iCLASS ELITE KEY SHALL BE REQUIRED, AND ONLY AUTHORIZED PURCHASER ARE AUTHORIZED TO PURCHASE. THE iCLASS ELITE PROGRAM INCLUDES A CREDENTIAL FORMAT AND CUSTOM AUTHENTICATION KEY.
8. PROVIDE ALL COORDINATION AND INTEGRATION WITH BREACH CONTROL EXIT LANE SYSTEM. 4

SECURITY CABLE DESIGNATION/TYPE *

DESIGNATION	DESCRIPTION	USAGE	PART #
A	1 PAIR 22AWG SHIELDED	ALARM MONITORING	BELDEN 5500FE
B	2 PAIR 20AWG SHIELDED	MOTION DETECTOR, BEAM DETECTORS	BELDEN 5441 FE
C	3 PAIR 22AWG SHIELDED	CARD READER	BELDEN 5542 FE
D	2/C 18AWG	CAMERA PWR, PUSH BUTTON, LOCK PWR	BELDEN 5300 UE
E	2 PAIR 22AWG SHIELDED	DATA, CCVS PTZ CONTROL	BELDEN 5541 FE
F	2/C 18AWG SHIELDED	HORN	BELDEN 5300 UE
G	COAXIAL W/2C POWER	VIDEO	
H	1 PAIR 20AWG TWISTED	INTERCOM	BELDEN 5400 FE
I	1 PAIR TWISTED SH 18AWG PLUS 2/C 18AWG	EMERGENCY PHONE	BELDEN 5302GE
J	ENHANCED CAT-5E BONDED-PAIR UTP	NETWORK AND CAMERA	BELDEN 7815A
K	ACCESS CONTROL COMPOSITE CABLE, 4C 18AWG,3PR 22 AWG, 4C 22 AWG	LOCK PWR, CR, DOOR CONTACT, REX, 1 SPARE YELLOW JACKET	WSECCOMP2835
L	CCTV COMPOSITE CABLE 2C 18AWG, UNSHIELDED, CABLE ETHERNET (PLENUM), R659 (PLENUM)	CAM PWR, UTP/IP VIDEO ANALOG VIDEO CONNECT K112	WSECOMP-2817

* THIS TABLE IS REFERENCED AND IS SHOWN AS AN EXAMPLE OF ACCEPTABLE CABLE DESIGNATIONS. CONTRACTOR SHALL UTILIZE CABLE DESIGNATION TABLE FOR SHOP DRAWING AND RECORD DRAWING SUBMITTALS.

CONDUIT DESIGNATION KEY



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IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH
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PROJECT NUMBER

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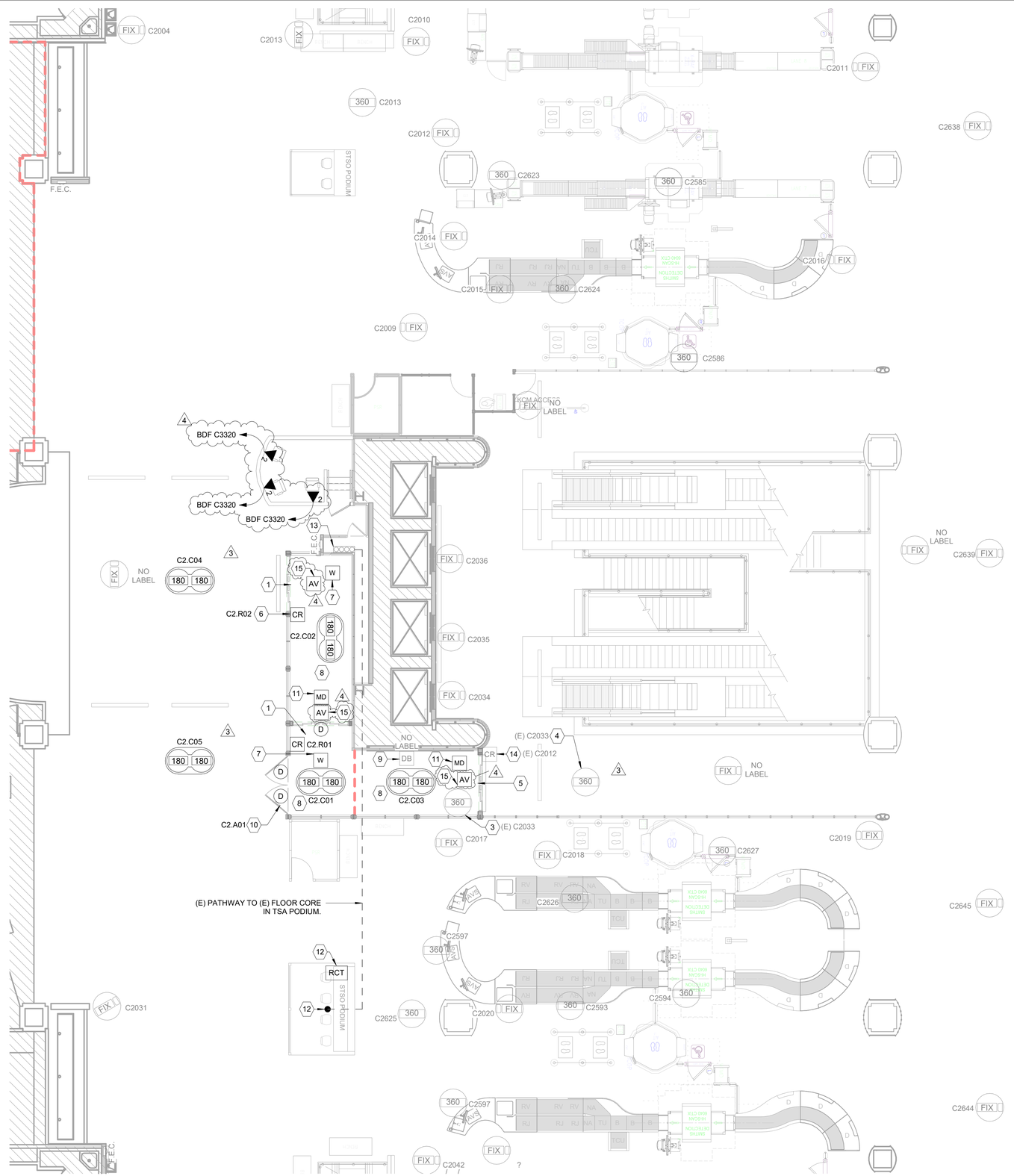
SHEET TITLE

NOTES

SHEET NUMBER

TY001



GENERAL NOTES:

1. ALL SECURITY DEVICES SHALL TERMINATE IN BDF C3320.
2. EXIT LANE CONTAINMENT DEVICES SHALL TERMINATE IN CCR AT BDF C3320.

KEY NOTES:

1. ADD (N) DOOR CONTACT, (N) CARD READER TO NEW DOOR. RE: 1/TY500 FOR DOOR DETAIL..
2. NOT USED.
3. (E) CAMERA TO BE RELOCATED, REMOVE ALL UNUSED CABLES.
4. RELOCATE (E) CAMERA TO THIS LOCATION.
5. ADD (N) DOOR CONTACT, REUSE AND RECONNECT (E) CARD READER C2012 TO NEW DOOR. RE: 1/TY500 FOR DOOR DETAIL.
6. ADD DOOR CONTACT, RE: 2/TY500 FOR DOOR DETAIL.
7. WATCHER CAMERA. PROVIDE QUANTITY AS REQUIRED BY SUPPLIER. TERMINATE IN CCR AT BDF C3320.
8. (E) SPEAKERS IN THE IMPACTED PROJECT AREA SHALL BE RELOCATED. COORDINATE SPEAKERS NEW LOCATIONS W/ HAS IT.
9. (E) DURESS BUTTON IN THE IMPACTED AREA SHALL BE RELOCATED. COORDINATE NEW LOCATIONS W/ TSA REP.
10. RE: 3/TY500 FOR DOOR DETAIL.
11. MOTION DETECTION CAMERA. PROVIDE QUANTITY AS REQUIRED BY SUPPLIER. TERMINATE IN CCR AT BDF C3320.
12. PROVIDE FOUR (4) DATA DROPS FOR RCT, COORDINATE W/ TSA REPRESENTATIVE FOR LOCATION ON RCT PRIOR TO INSTALLATION. EXTEND 4 DATA DROPS TO CCR IN BDF C3320. ROUTE CABLE USING (E) PATHWAY TO (E) FLOOR CORE INSIDE TSA PODIUM. THERE IS CAPACITY AVAILABLE PER SURVEY ON 9/20/2021.
13. (E) 5-4"C GOING TO BDF C3320. CAPACITY AVAILABLE FOR NEW EXIT LANE DATA CABLING.
14. REUSE EXISTING CARD READER (E) C2012. DISCONNECT FROM EXISTING DOOR HARDWARE AND RECONNECT TO THE NEW EXIT LANE DOOR HARDWARE, REPROGRAM CARD READER AS REQUIRED.
15. EXIT LANE SPEAKER STROBE. PROVIDE QUANTITY AS REQUIRED BY SUPPLIER. TERMINATE IN CCR AT BDF C3320.

SECURITY FLOOR PLAN - TERMINAL C CENTRAL, LEVEL 02 1/8" = 1'-0" (1)

PLAN NORTH

1 : 256 SCALE

0 2.56 5.12 12.8 25.6 m

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HAS TIP # 21-156 - IAH

REGISTRATION

STATE OF TEXAS
RAINI PAYNE
101220
LICENSED
PROFESSIONAL ENGINEER
11/19/21

DRAWING HISTORY

No.	DATE	DESCRIPTION
1	08-06-21	100% CD
2	09-09-21	FOR INFORMATION AND REFERENCE ONLY
3	10-20-21	ISSUE FOR BID/100%CD
4	11-19-21	ADDENDUM #3

PROJECT NAME

IAH-TERMINAL - SECURITY EXIT LANE

PROJECT LOCATION

GEORGE BUSH IAH
3500 NORTH
TERMINAL RD.
HOUSTON, TX 77032

PROJECT NUMBER

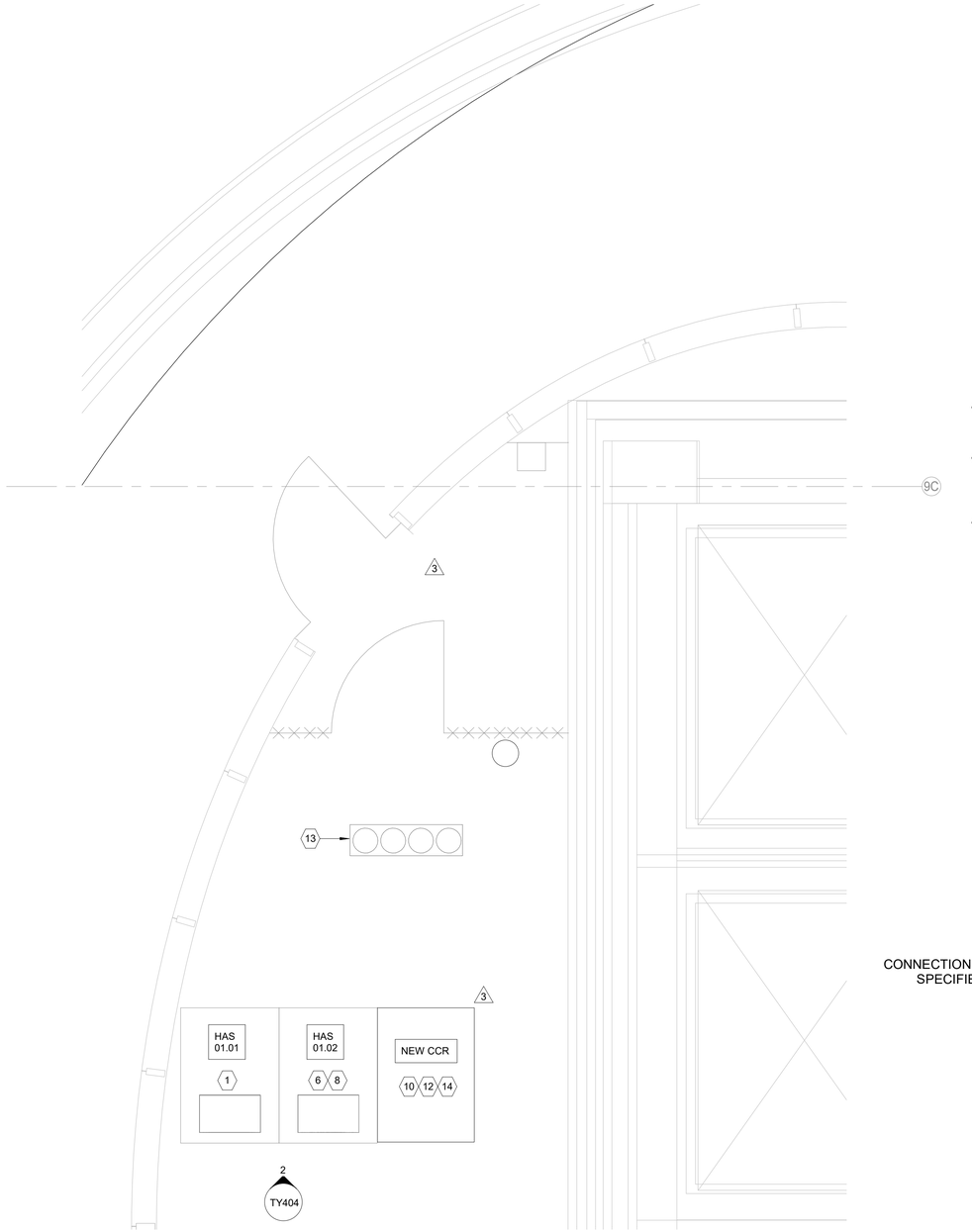
1004345

SHEET TITLE

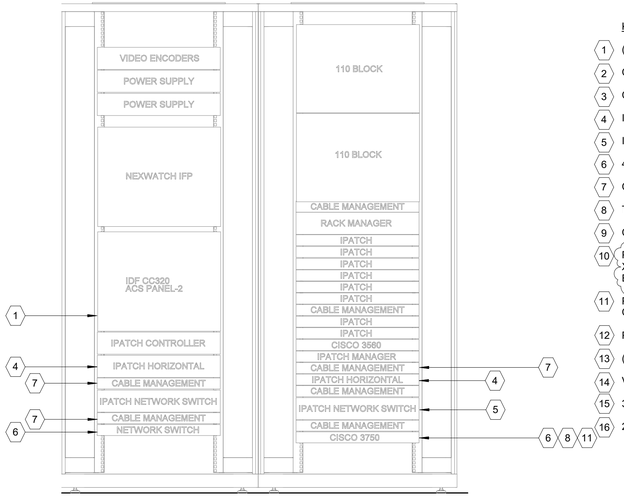
SECURITY FLOOR PLAN - TERMINAL C CENTRAL, LEVEL 02

SHEET NUMBER

TY202



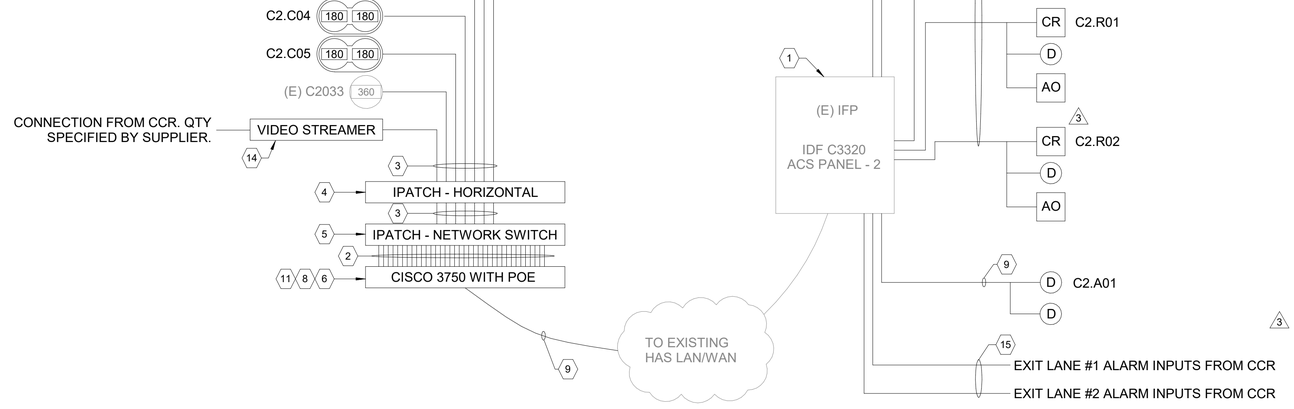
ENLARGED PLAN AT BDF C3320 1/2" = 1'-0" (1)



RACK ELEVATION AT BDF C3320 1" = 1'-0" (2)

KEY NOTES:

1. (E) IFP. PROVIDE READER, INPUT, OUTPUT MODULES AS REQUIRED FOR THIS PROJECT.
2. CAT6 PATCH CORD. ONE PER SWITCH PORT.
3. CAT6 PATCH CORD. ONE (1) PER CAMERA (TYP).
4. IPATCH HORIZONTAL, SYSTIMAX 360 48 PORT PATCH PANEL (EXISTING).
5. IPATCH NETWORK SWITCH, SYSTIMAX 360 48 PORT PATCH PANEL (EXISTING).
6. 48 PORT NETWORK SWITCH (EXISTING) (TC-C3320-9308-1).
7. CABLE MANAGEMENT.
8. TERMINATE CAMERAS IN THIS NETWORK SWITCH. COORDINATE PORTS ASSIGNMENT AND IP ADDRESSES W/ HAS IT.
9. COMPOSITE ACCESS CONTROL CABLE, ONE (1) PER DOOR.
10. PROVIDE CENTRAL CONTROL RACK (CCR) W/ BREACH CONTROL EXIT EQUIPMENT. SHOWN RACK DIMENSION IS 30" X 42". PROVIDE SHOP DRAWING SHOWING DIMENSION OF RACK AND ALL EXIT LANE EQUIPMENT (FRONT ELEVATION).
11. PROVIDE EIGHT (8) CAT 6 CABLES BETWEEN (E) HAS NETWORK SWITCH AND CCR FOR NETWORK CONNECTIVITY. COORDINATE WITH HAS IT FOR NETWORK PORTS AVAILABILITY.
12. PROVIDE 120VAC 20A POWER CIRCUIT FOR CCR (BY DIV 26, ELECTRICAL).
13. (E) 5-4"C GOING TO CHASE CLOSET BELOW. CAPACITY AVAILABLE FOR NEW EXIT LANE CABLING.
14. VIDEO STREAMER (ANALOG TO ETHERNET). QTY AS REQUIRED FOR THIS PROJECT.
15. 3 PR 22 AWG.
16. 2 PR 22 AWG.



BDF C3320 ONE-LINE DIAGRAM 12" = 1'-0" (3)

PLAN NORTH

1 : 256 SCALE

0 2.56 5.12 12.8 25.6 m

FILE NAME: C:\Users\dwidjaja\Documents\2018.010 - HAS EXIT LANE MODIFICATIONS - IAH_dwidjaja7HCZ_rvt
DATESTAMP 11/16/2021 4:57:25 PM

CLIENT

HOUSTON AIRPORTS

HAS AVIATION DEPT.
16930 JOHN F.
KENNEDY BLVD.
HOUSTON TX 77032

ARCHITECT

PGAL

PGAL
3131 BRIARPARK DR.
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
www.pgal.com

DEPARTMENT OF AVIATION
RECOMMENDED:
HOUSTON AIRPORT SYSTEM
DIRECTOR OR DESIGN REPRESENTATIVE
HAS TIP # 21-156 - IAH

REGISTRATION

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ENLARGED PLAN AT BDF C3320

SHEET NUMBER

TY404

SECTION 26 51 13
INTERIOR LIGHTING FIXTURES, LAMPS AND BALLASTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnish and install light fixtures associated with building, including:
   1. Interior luminaires and accessories.
   2. Lamps.
   3. Ballasts.

1.2 SUBMITTALS

A. Include product data for fixtures, including photometric data, reflectance, lens, lamps, ballasts, poles and lighting control.

B. Furnish samples upon request.

C. Provide operation and maintenance manual.

1.3 RELATED SECTIONS

A. Section 26 05 13 Medium Voltage Cables

B. Section 26 05 19 Low-Voltage Electrical Power Conductors and Cables

C. Section 26 05 23 Control Voltage Electrical Power Cables

D. Section 26 09 23 Lighting Control Devices

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Lighting Fixtures
   1. Manufacturers of individual lighting fixtures shall be as scheduled on Drawings, and indicate quality and design features required.
   2. Products of other manufacturers will be considered upon submittal of proper data.

B. Drivers
   1. Advance.
   2. Eldo
   3. Samsung
   4. Universal

C. LED LAMPS
   1. Samsung

2. Philips
3. Nichia
4. Cree

2.2 GENERAL

A. Provide lighting fixtures of the size, type and rating indicated, complete with lamps, lampholders, reflectors, ballasts, starters, wiring and accessories.

B. Where fixtures are recessed mounted in ceiling system, provide trim and accessories required for installation in the ceiling system installed.

C. It is the intent of the drawings and specifications to indicate the type of fixture for each intended use. It is generally intended that rooms of similar usage and configuration will have similar fixture types. Where fixture type is not indicated, it is the duty of the Contractor to request clarification prior to proceeding with the work.

~~D. All fixtures shall meet or exceed the latest Chicago Plenum Rating requirements.~~

~~E. Contractor shall be provided with a $15,000 allowance for any lighting or power associated modifications.~~

2.3 INTERIOR LUMINAIRES AND ACCESSORIES

A. Recessed LED Luminaires: Prewired type, provide trim type required for ceiling system installed.

2.4 LED LUMUNIARES AND DRIVERS

A. All Luminaires

1. Comply with IES LM-79-08 Approved Method for measuring lumen maintenance of LED light sources.
2. All LED's on the first floor shall have 3500K color temperature. All fixtures on the second floor and hangers shall have 4100 K.
3. LED fixtures shall meet or exceed the minimum delivered lumen level specified on fixture schedule.
4. Comply with IES LM-80-08 Approved Method for electrical and photometric measurement of SSL product.
5. Comply with In-Situ testing for more reliable results.
6. LED's shall be Restriction of Hazardous Substances Directive (RoHS) compliant.
7. LED arrays shall be sealed, high performance, long life type; minimum 70% rated output at 50,000 hours.
8. LED luminaires shall deliver a minimum of 100 lumens per watt.
9. Drivers shall be solid state and accept 120 through 277 VAC at 60 Hz input.

10. The LED light source shall be fully dimmable with use of compatible dimmers switch designated for low voltage loads.
11. Luminaires shall have internal thermal protection.
12. Luminaires shall not draw power in the off state. Luminaires with integral occupancy, motion, photo-controls, or individually addressable luminaires with external control and intelligence are exempt from this requirement. The power draw for such luminaires shall not exceed 0.5 watts when in the off state.
13. Indoor luminaires shall have a minimum CRI of 80.
14. LED package(s)/module(s)/array(s) used in qualified luminaires shall deliver a minimum 70% of initial lumens, when installed in-situ, for a minimum of 50,000 hours.
15. Luminaires shall be fully accessible from below ceiling plane for changing drivers, power supplies and arrays.
16. LED drivers shall be provided with minimum 5-year manufacturer warranty of full replacement of board and driver. Indirect fixtures shall be provided with a minimum 10-year manufacturer warranty.
17. All LED fixtures shall be provided with lenses unless noted otherwise.

B. Downlights

1. All downlights shall be provided with 0-10V driver.
2. Drivers shall dim light down to 1%.
3. Downlights shall have wet location UL listing.
4. LED drivers and modules shall be fully accessible from below ceiling. Where installed in hard ceilings, LED hardware shall be fully accessible from below for maintenance purposes.
5. Downlight housings shall not exceed height of 8-1/4”.

C. Power Supplies and Drivers

1. Power Factor 0.90 or higher
2. Maximum driver case temperature not to exceed driver manufacturer recommended operation.
3. Solid-state control components to be integral or external per each specified luminaire. Remote control gear to be enclosed in Class 1, Class 2, or NEMA 3R enclosures as required.

D. Controller and Control System

1. System electronics driver / controller to use coordinated communication protocols: DMX512, 0-10V, DALI, or proprietary as required.
2. The Contractor to ensure that external control equipment is compatible with LED control requirements

3. Provide connector types and wiring as appropriate for un-interrupted communication between devices, considering distance maximums, field obstructions, and accessibility.

2.5 EMERGENCY LIGHITNG

A. Emergency lighting shall consist of normal lighting fixtures with battery-inverter system backup, or emergency lighting fixture with individual battery backup, or sealed beam emergency lighting units in accordance with the fixture schedule.

1. Emergency Battery-backed LED emergency lighting fixtures shall consist of a normal LED fixture with some or all of the LEDs connected to a battery and charger. The battery shall be nickel cadmium and sized for a minimum of 90 minutes of fixture operation. The charger shall be solid-state and provide overload, short circuit, brownout and low battery voltage protection. The battery and charger shall include self-diagnostic and self-exercising circuitry to exercise and test itself for 5 minutes every month and for 30 minutes every 6 months. The fixture shall include a test/monitor module with LED status indicating lights mounted so as to be visible to the public. The fixture shall not contain an audible alarm.
2. Sealed beam emergency lighting units shall consist of sealed beam LED lamps connected to an internally mounted battery and charger. The battery shall be nickel cadmium and sized for a minimum of 90 minutes of battery operation. The charger shall be solid-state and provide overload, short circuit, brownout and low battery voltage protection. The unit shall be suitable for wall or ceiling mounting as required. It shall include self-diagnostic and self-exercising circuitry to exercise and test itself for 5 minutes every month and for 30 minutes every 6 months. The unit shall include a test/monitor module with LED status indicating lights mounted so as to be visible to the public. The unit shall not contain an audible alarm.

B. EXIT SIGNS

1. Exit signs shall be of LED type. Fluorescent, electro luminescent light panel, or self-powered luminous signs shall not be used. Chloride, Dual-Lite, Emergi-Lite, Lithonia, Prescolite, or Sure-Lites.
2. LED’s shall be wired in parallel to prevent multi-lamp failure, and shall be concealed within the sign by a clear panel and red optical diffuser. Power consumption shall not exceed 3 watts per face.
3. Exit signs shall have white die cast aluminum or polycarbonate housings with universal mounting brackets; brushed aluminum stencil faces with red letters and multidirectional knockout arrows.
4. Exit signs shall be provided with emergency battery packs and battery chargers when required. Batteries shall be maintenance-free nickel cadmium, and shall be mounted within the signs.

2.6 EMERGENCY LIGHTING INVERTER

6. Basis of design shall be Manufacturer shall be Thomas & Betts Emergi-Lite Nexus Mini Inverter, Myers Illuminator LV, or approved equal.
7. Unit shall have the following requirements:
    - Minimum of .8 power factor at full load
    - 65K AIC rating
    - Advance Self- Diagnostic
    - UL 924 listed
    - Minimum 90 minute standard runtime.
    - Standard input and output circuit breakers
    - Micro-processor controlled
    - Automatic even and alarm log
    - LCD display
    - Maintenance free standard batteries
    - Low Voltage Battery Disconnect
    - Harmonic distortion <10% with a power factor or 0.5 lag/lead
    - Input power walk-in: limiting inrush current to less than 125%, 10 times for 1 line cycle.
    - Input Frequency 60Hz, with 277V 1-phase 2-Wire+10%-15%
8. Inverter housing shall be NEMA Type 1 steel cabinets with powder coating for corrosion and scratch resistance.
9. Batteries shall have a standard 10 year warranty, with 24 hour standard recharge time when fully discharged.
10. In the event that the device cannot installed above ceiling on wall unit shall be relocated to be mounted on wall of the nearest electrical or data room. Units shall be mounted above 6-1/2’ in room away from cabling and conduit from panels or telecommunication devices.

PART 3 - **EXECUTION**

3.1 INSTALLATION

A. Support surface-mounted luminaires to ceiling using bolts, screws, or approved clips.
B. Install recessed luminaires with proper frames in accordance with manufacturer's recommendations.
C. Locate recessed luminaires as indicated on reflected ceiling plan.
D. Support pendant or bracket fixtures as indicated and as recommended by manufacturer for job conditions encountered.
E. Provide two supplemental 12 gauge slack hanger wires from opposite corners of troffers installed in grid ceiling to the structure above.
F. Wall mount exit fixtures where shown above doors. Coordinate fixture location with actual door arrangement as indicated. Connect exit fixtures to unswitched power source as indicated.
G. Connect fixtures designated as night lights to unswitched circuit and burn continuously.
H. Install lamps in luminaires and lampholders.
I. Connect all exit lights to unswitched emergency circuit.

J. Refer to architectural reflected ceiling plans to ensure the correct ceiling types (gypsum, ACT, or open to structure). Provide flange kit, grid clips, etc. for proper installation as shown per location on architectural plans.

K. Flex conduit is only allow for installation with a maximum length of 6’ from the junction box.

3.2 FIELD QUALITY CONTROL

A. Coordinate receipt and installation of all fixtures with regard to the overall schedule of the project.

B. Align luminaires and clean lenses, diffusers, and downlight trims at completion of work. Clean paint splatters, fingerprints, dirt and debris from installed luminaires.

C. Demonstrate proper operation of all luminaires and controls.

D. Refer to Section 16050 regarding lamp replacement prior to final acceptance.

E. Contract shall conduct field inspection to verify that all fixtures are functioning properly prior to the final punch by the A/E firms.

END OF SECTION

SECTION 08 42 29.23 – SLIDING AUTOMATIC ENTRANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following types of automatic entrances:
   1. Interior, 6-panel telescoping sliding automatic entrances.
   2. Doors shall have access control.

B. Related Sections:
   1. Division 7 Sections for caulking to the extent not specified in this section.
   2. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished and installed separately in Division 8 Section.
   3. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
   4. Division 26 Sections for electrical connections provided separately, including conduit and wiring, for power to sliding automatic entrances.
   5. Division 28 Section “Electronic Safety and Security” for systems not specified in this section.

1.3 REFERENCES

A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

B. Underwriters Laboratories (UL):
   1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

C. American National Standards Institute (ANSI) / Builders’ Hardware Manufacturers Association (BHMA):
   1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
   2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products
   3. ANSI Z97.1: Standard for Safety Glazing Materials Used In Buildings - Safety Performance Specifications And Methods Of Test.

D. Consumer Product Safety Commission (CPSC):
   1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials

E. American Society for Testing and Materials (ASTM):

1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

F. American Association of Automatic Door Manufacturers (AAADM).

G. National Fire Protection Association (NFPA):
1. NFPA 101 – Life Safety Code.
2. NFPA 70 – National Electric Code.

H. International Code Council (ICC):
1. IBC: International Building Code.

I. International Organization for Standardization (ISO):
1. ISO 9001 - Quality Management Systems

J. National Association of Architectural Metal Manufacturers (NAAMM):
1. Metal Finishes Manual for Architectural and Metal Products.

K. American Architectural Manufacturers Association (AAMA):
1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
3. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

1.4 DEFINITIONS

A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.

B. Safety Device: Device that prevents a door from opening or closing, as appropriate.

C. Knowing act: Consciously initiating the opening of a power operated door using acceptable methods including wall mounted switches such as push plates and controlled access devices such as keypads, card readers and key switches.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide automatic entrance door assemblies capable of withstanding loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).

C. Opening-Force Requirements for Egress Doors: Force shall be adjustable; but, not more than 50 lbf (222 N) required to manually set swinging egress door panel(s) in motion.

D. Closing-Force Requirements: Not more than 30 lbf (133 N) required to prevent door from closing.

1.6 SUBMITTALS

A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.

B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work.

C. Color Samples for selection of factory-applied color finishes.

D. Closeout Submittals:
1. Owner’s Manual.
2. Warranties.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative, with certificate issued by AAADM, who is trained for installation and maintenance of units required for this Project.

B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001.

C. Manufacturer shall have in place a national service dispatch center providing 24 hours a day, 7 days a week, emergency call back service.

D. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
1. ANSI/BHMA A156.10
2. NFPA 101
3. UL 325 listed
4. IBC
5. BOCA

E. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.

F. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

H. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrances serving as a required means of egress.

1.8 PROJECT CONDITIONS

A. Field Measurements: General Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.

C. Other trades: General Contractor shall advise of any inadequate conditions or equipment.

1.9 COORDINATION

A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrances to comply with indicated requirements.

B. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies, and remote monitoring systems, and security access control system. See Division 28 Section “Electronic Safety and Security” for systems not provided under this section

C. System Integration: Integrate sliding automatic entrances with other systems as required for a complete working installation.
   1. Provide electrical interface control capability for activation of sliding automatic entrances by security access system on doors with electric locking.
   2. Provide electrical interface to allow for remote monitoring of automatic entrance door panel status.
   3. Provide electrical interface to allow automatic entrance controls, mode of operation, to be changed by Owner’s access control system. Provide supplemental relays required to control mode of operation.

1.10 WARRANTY

A. Automatic Entrances shall be free of defects in material and workmanship for a period of one (1) year from the date of substantial completion.

B. During the warranty period the Owner shall engage a factory-trained technician to perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Owner.

C. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.

PART 2 - PRODUCTS

2.1 AUTOMATIC ENTRANCES

A. Basis of Design:
   1. Manufacturer: Stanley Access Technologies; DuraFit™ Series sliding automatic entrances.

a. Contact: Stanley Access Technologies, 31 May Water Lane, Fulshear TX 77441; Attn: Matthew Linehan; Phone: 713.569.6363, Email: Matthew.Linehan@sbdinc.com.

B. Substitutions: See Division 1, Section 01 25 00 Substitution Procedures.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
1. Headers, stiles, rails, and frames: 6063-T6.
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
3. Sheet and Plate: ASTM B 209.

B. Sealants and Joint Fillers: Performed under Division 7 Section "Joint Sealants".

2.3 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

A. General: Provide manufacturer's standard automatic entrance door assemblies including doors, sidelights, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.

B. Sliding Automatic Entrances:
1. Configuration: Four sliding panels and two full sidelights; bi-parting, telescoping.
2. Traffic Pattern: Two-way.
3. Emergency Breakaway Capability: Sliding panels and sidelights such that each 3-panel half breaks out as a single swinging panel.
4. Mounting: Between jambs.

2.4 COMPONENTS

A. Framing and Transom Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.
1. Nominal Size: 1 3/4 inch by 6 inch (44 mm by 152 mm).
2. Concealed Fastening: Framing shall incorporate a concealed fastening pocket, and continuous flush insert cover, extending full length of each framing member.
3. Vertical Mullions in Transoms: Refer to Drawings

B. Stile and Rail Sliding Panels and Sidelights: Manufacturer's standard 1 1/2 inch (38 mm) thick glazed doors with extruded-aluminum tubular stile and rail members. Incorporate concealed mechanical fasteners at corners, minimum two fasteners per corner.
1. Glazing Stops and Gaskets: Stops shall be integrally extruded into stiles and rails.
2. Stile Design: Narrow stile; 1-inch (25 mm) nominal width; with 2 3/8-inch (60 mm) lock stiles. Stiles shall have interlocking design to secure panels, over full panel height, with doors in closed position.
3. Bottom Rail Design: Minimum 10 inch (254 mm) nominal height.
4. Muntin Bars: None.

C. Glazing:

1. Provide safety glass complying with ANSI Z97.1 and CPSC 16 CFR 1201 for Category II materials.
2. Entrances: 1 1/4 inch (32 mm) hermetically sealed insulated glazing units.
3. Transoms: 1/4 inch (6 mm) clear, fully tempered.

D. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
1. Mounting: Concealed, flush with framing.
2. Capacity: Capable of supporting up to 72 lb (33 kg) per panel, up to six panels, over spans up to 9 feet (2.7 m) without intermediate supports.

E. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 3/16 inch (4.7 mm); consisting of high-density polymer load wheels with precision steel lubricated ball-bearings, operating on an extruded aluminum roller track. Minimum two load wheels and two anti-rise load wheels for each active leaf. Minimum load wheel diameter shall be 1 1/4 inch (32 mm).

F. Thresholds: No threshold.

G. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.

H. Signage: Provide signage in accordance with ANSI/BHMA A156.10.

2.5 DOOR OPERATORS

A. General: Provide door operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, operation under normal traffic load for type of occupancy indicated.

B. Electromechanical Operators: Self-contained overhead unit powered by a minimum of 1/4 horsepower, permanent-magnet DC motor with gear reduction drive, microprocessor controller; and encoder.
1. Operation: Power opening and power closing.
2. Features:
   a. Adjustable opening and closing speeds.
   b. Adjustable open check and close check speeds.
   c. Adjustable hold-open time between 0 and 30 seconds.
   d. Obstruction recycles.
   e. On/Off switch to control electric power to operator.
   f. Energy conservation switch that reduces door-opening width.
   g. Closed loop speed control with active braking and acceleration.
   h. Adjustable obstruction recycles time delay.
   i. Self-adjusting stop position.
   j. Self-adjusting closing compression force.
   k. Onboard sensor power supply.
   l. Onboard sensor monitoring.
   m. Optional Switch to open/Switch to close operation.

n. Fire alarm interface, configurable to safely open or close the entrance on signal from fire alarm system.

3. Mounting: Concealed.
4. Drive System: Synchronous belt type.

C. Electrical service to door operators shall be provided under Division 26 Electrical. Minimum service to be 120 VAC, 5 amps.

2.6 ELECTRICAL CONTROLS

A. Electrical Control System: Electrical control system shall include a microprocessor controller and a high-resolution position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed.
1. The high-resolution encoder shall have a resolution of not less than 1024 counts per revolution. Systems utilizing external magnets and magnetic switches are not acceptable.
2. Electrical control system shall include a 24 VDC auxiliary output rated at 1 amp.

B. Performance Data: The microprocessor shall collect, and store performance data as follows:
1. Counter: A non-resettable counter to track operating cycles.
2. Event Reporting: Unit shall include non-volatile event and error recording including number of occurrences of events and errors, and cycle count of most recent events and errors.
3. LED Display: Display presenting the current operating state of the controller.

C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
1. Automatic Reset Upon Power Up.
2. Main Fuse Protection.
3. Electronic Surge Protection.
4. Internal Power Supply Protection.
5. Resetable sensor supply fuse protection.
6. Motor Protection, over-current protection.

D. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.

E. Obstruction Recycle: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. I f an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.

F. Programmable Controller: Microprocessor controller shall be field programmable.
1. The following parameters may be adjusted:
a. Operating speeds and forces as required to meet specified ANSI/BHMA standard.
b. Adjustable and variable features specified.
c. Reduced opening position.

2. Manual programming shall be available through local interface which has a two-digit display with a selection control including three push buttons.

2.7 ACTIVATION AND SAFETY DEVICES

A. Combined Activation and Safety Sensors: Combined activation and safety sensors shall, in a single housing, detect motion and presence in accordance with ANSI/BHMA A156.10. Motion shall be detected using K-band microwave technology, presence by active infrared reflection technology.
1. Mounting Height: Up to 11.5 feet (3.5 m) above finish floor
2. Temperature Range: Between -31°F and 131°F (-35°C to 55°C) in all environmental conditions
3. Relays: Form C, 50V at 0.3A for both activation and safety. Hold time of less than 0.5 seconds.
4. Detection Pattern: When detection is made in the activation zone, and the entrance opens, the safety zone shall extend through the threshold on each side; creating an X-pattern. When activation and safety zones are cleared, and the entrance closes the sensor will ignore the X-pattern safety zones.
5. Combined motion and presence sensors shall be equal to or better than X-Zone Sensor by Optex.

B. Presence Sensor Monitoring: Sliding automatic entrances control system shall include a means to verify the functionality of all active presence sensors in accordance with ANSI/BHMA A156.10. A detected fault shall cause automatic operation to cease until the fault is corrected.

2.8 ACTIVATION DEVICES BY OTHERS

A. Card Readers: Provided under Division 28 Section “Electronic Safety and Security.”

2.9 HARDWARE

A. General: Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.

B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.
1. Emergency breakaway feature shall include at least one adjustable detent device mounted in the top of each breakaway panel to control panel breakaway force.
2. Limit Arms: Limit arms shall be provided to control swing of panels on break-out; swing shall not exceed 90 degrees. Limit arms shall be spring loaded to prevent shock and include adjustable friction damping.

C. Deadlocks: Manufacturer's standard deadbolt operated by exterior cylinder and interior thumb turn; with minimum 1 inch (25 mm) long throw bolt; ANSI/BHMA A156.5, Grade 1.
1. Cylinders: As specified in Division 8 Section "Door Hardware.".

D. Access Control Locking System: Provide access control locking hardware on sliding automatic entrances as follows:

1. System shall include:
   a. A fail-secure electric solenoid locking device with a self-contained solid-state electronic control factory mounted inside the header.
   b. Vertical rod exit devices incorporated into the sliding door panels that prevent breakout until rod is released.
2. When set for secure operation, the automatic sliding entrance(s) shall electrically latch in the closed position preventing door panels from sliding manually, returning the system to its locked status.
3. During a power interruption:
   a. The solenoid lock shall be engaged, preventing the doors from sliding manually.
   b. Means of egress shall be accomplished by exit device. Exit device shall be concealed vertical rod tamper proof exit device with surface mounted interior release hardware that shall prohibit manual breakout of door(s) from exterior.

E. Alarm Contacts: Sliding automatic entrances shall include factory installed integrated alarm contacts which shall provide a closed-circuit dry contact for remote monitoring of sliding panel security. Alarm contacts shall be configured to signal forced entry, normal sliding, and emergency breakout conditions.

F. Control Switch: Provide manufacturer's standard header mounted rotary key switch and door position switch to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
1. One-way traffic
2. Open/Closed/Automatic

G. Power Switch: Sliding automatic entrances shall be equipped with a two position On/Off rocker switch to control power to the door.

H. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

I. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.

2.10 FABRICATION

A. General: Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.
1. Form aluminum shapes before finishing.
2. Use concealed fasteners to greatest extent possible.
   a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
   b. Reinforce members as required to receive fastener threads.

B. Framing: Provide automatic entrances as prefabricated assemblies.
1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.

2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
3. Form profiles that are sharp, straight, and free of defects or deformations.
4. Prepare components to receive concealed fasteners and anchor and connection devices.
5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.

C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

D. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.

E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.

F. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.

2.11 ALUMINUM FINISHES

A. General: Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.

B. Class II, Clear Anodic Finish: AA-M12C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:
1. AAMA 607.1
2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrances. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.

B. Entrances: Install automatic entrances plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.

C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.

D. Glazing: Glaze sliding automatic entrance door panels in accordance with, the Glass Association of North America (GANA) Glazing Manual, published recommendations of glass product manufacturer, and sliding automatic entrance manufacturer's instructions.

E. Sealants: Comply with requirements specified in Division7 Section "Joint Sealants".

3.3 FIELD QUALITY CONTROL

A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

3.4 ADJUSTING

A. Adjust door operators, controls, and hardware for smooth and safe operation, for tight closure, and complying with requirements in ANSI/BHMA A156.10.

3.5 CLEANING AND PROTECTION

A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section "Glazing", for cleaning and maintaining glass.

END OF SECTION 08 42 29.23

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cylinders for doors fabricated with locking hardware.

B. Related Divisions:

1. Division 08 – aluminum framed storefront entrances.
2. Division 21 – fire and life safety systems
3. Division 28 – security access systems

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Windows.
2. Cabinets, including open wall shelving and locks.
3. Signs, except where scheduled.
4. Toilet accessories, including grab bars.
5. Installation.
6. Rough hardware.
7. Conduit, junction boxes & wiring.
8. Folding partitions, except cylinders where detailed. Sliding aluminum doors, except cylinders where detailed.
9. Access doors and panels, except cylinders where detailed.
10. Corner Guards.
11. Welded steel gates and supports
12. Access Control

1.2 REFERENCES:

A. Use date of standard in effect as of Bid date.

1. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
    a) ICC/ANSI A117.1 - 1998 – Specifications for making buildings and facilities usable by physically handicapped people.
    b) ANSI A156.18 Materials and Finishes
2. ADA – Americans with Disabilities Act of 1990 BHMA – Builders Hardware Manufacturers Association
3. DHI – Door and Hardware Institute
4. NFPA – National Fire Protection Association
    a) NFPA 80 – Fire Doors and Windows
    b) NFPA 105 – Smoke and Draft Control Door Assemblies
    c) NFPA 252 – Fire Tests of Door Assemblies
5. UL – Underwriters Laboratories
    a) UL10C – Positive Pressure Fire Tests of Door Assemblies.
    b) UL 305 – Panic Hardware

6. WHI – Warnock Hersey Incorporated
7. Local applicable codes
8. SDI – Steel Door Institute
9. WI – Woodwork Institute
10. AWI – Architectural Woodwork Institute
11. NAAMM – National Association of Architectural Metal Manufacturers

B. Abbreviations

1. Manufacturers**:** see table at 2.1.A of this section
2. Finishes**:** see 2.7 of this section.

1.3 SUBMITTALS & SUBSTITUTIONS

A. SUBMITTALS**:** Submit six copies of schedule per Section 01330. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Minimum 10pt font size. Include following information**:**

1. Type, style, function, size, quantity and finish of hardware items.
2. Use BHMA Finish codes per ANSI A156.18.
3. Name, part number and manufacturer of each item.
4. Fastenings and other pertinent information.
5. Location of hardware set coordinated with floor plans and door schedule.
6. Explanation of abbreviations, symbols, and codes contained in schedule.
7. Mounting locations for hardware.
8. Door and frame sizes, materials and degrees of swing.
9. List of manufacturers used and their nearest representative with address and phone number.
10. Catalog cuts.
11. Point-to-point wiring diagrams.
12. Manufacturer's technical data and installation instructions for electronic hardware.

B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.

C. Deviations**:** Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.

D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.

E. Substitutions per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.

F. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, riser and point-to-point wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE**:**

A. Qualifications**:**

1. Hardware supplier**:** direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during

course of work for project hardware consultation to Owner, Architect and Contractor.

a) Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.

B. Hardware**:** Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors**:** Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Fire-Rated Openings**:** NFPA 80 compliant. Hardware UL10C Standard 7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.

E. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions and code requirements.

1.5 DELIVERY, STORAGE AND HANDLING**:**

A. Delivery**:** coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores**:** secured delivery direct to Owner's representative.

B. Acceptance at Site**:** Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage**:** Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.6 PROJECT CONDITIONS AND COORDINATION**:**

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.

B. Coordination**:** Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information**:**

1. Location of embedded and attached items to concrete.
2. Location of wall-mounted hardware, including wall stops.
3. Location of finish floor materials and floor-mounted hardware.
4. At masonry construction, coordinate with the anchoring and hollow metal supplier prior to frame installation by placing a strip of insulation, wood, or foam, on the back of the hollow metal frame behind the rabbet section for continuous hinges, as well as at rim panic hardware strike locations, silencers, coordinators, and door closer arm locations. When the frame is grouted in place, the backing will allow drilling and tapping without dulling or breaking the installer's bits.

5. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
6. Coordinate: flush top rails of doors at outswinging exteriors, and throughout where adhesive-mounted seals occur.
7. Manufacturers' templates to door and frame fabricators.

C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

D. Environmental considerations**:** segregate unused recyclable paper and paper product packaging, uninstalled metals, and plastics, and have these sent to a recycling center.

1.7 WARRANTY**:**

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties**:**

1.	Mortise Locksets**:**	Three years
2.	Hinges**:**	One year
3.	Other Hardware:	Two years

1.8 COMMISSIONING**:**

A. Conduct these tests prior to request for certificate of substantial completion**:**

1. With installer present, test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
2. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
3. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.

PART 2 - PRODUCTS

2.1 MANUFACTURERS**:**

A. Manufacturers and their abbreviations used in this schedule**:**

BES	BEST
IVE	H. B. Ives
SCE	Schlage Electronics
SCH	Schlage
ZER	Zero International

2.2 LOCKSETS, LATCHSETS, DEADBOLTS**:**

A. Mortise Locksets and Latchsets**:** as scheduled.

1. Chassis**:** cold-rolled steel, handing field-changeable without disassembly.
2. Universal lock case – 10 functions in one case.
3. Floating mounting tabs automatically adjusts to fit a beveled door edge.

4. Latchbolts**:** 0.75 inch throw stainless steel anti-friction type.
5. Lever Trim**:** through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
   a) Spindles**:** security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
   b) Inside lever applied by screwless shank mounting – no exposed trim mount screws.
   c) Levers rotate up or down for ease of use.
6. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.
7. Thumbturns**:** accessible design not requiring pinching or twisting motions to operate.
8. Deadbolts**:** stainless steel 1-inch throw.
9. Strikes**:** 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
10. Scheduled Lock Series and Design**:** BEST 45H.
11. Certifications**:**
    a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
    b) ANSI/ASTM F476-84 Grade 31 UL Listed.
12. Accepted Mortise Lock substitutions: Schlage L9000

2.3 POWER SUPPLIES/ TRANSFERS

A. Power supplies to be tested and certified to meet UL294.
B. Universal 120-240 VAC input, low voltage DC output, regulated and filtered.
C. Power supplies to have 2A, 4A, 6A output, 12/24 VDC field selectable with jumper.
D. Provide emergency release terminals, where required, that allow the release of all devices upon activation of the fire alarm system complete with fire alarm input for initiating "no delay" exiting mode.
E. Power supplies for Von Duprin and Falcon/ Monarch electric latch retraction shall be 4A, and include a high inrush module as required for electric latch retraction.
F. Power supplies shall be flat mounting design with polarized locking connections for additional option boards as specified.
G. Power supplies shall be of the same manufacture as electrified exit devices and or locking devices. Substitutions will not be considered or approved.
H. Provide a means to transfer power from the door frame to door style. Devices shall be reversible and allow a full 180 degree door swing. When door is closed transfer unit shall be concealed.
I. Provide Von Duprin EPT power transfers with swiveling stainless steel tube at all electrified locks and exit devices. Von Duprin EPT shall be used at all exits that require a high amp inrush to retract latch. Power transfer hinges or coiled spring power transfers will not be acceptable.
J. Provide Allegion Connect connectors as scheduled, at all electrified door hardware in type and lengths required to connect to power supply.

2.4 OTHER HARDWARE

A. Door Stops**:** Provide stops to protect walls, casework or other hardware.
B. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.
C. Fasteners**:** Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws**:** full-thread. Sleeve nuts**:** full length to prevent door compression.
D. Through-bolts**:** Verify with Architect. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

1. Exception**:** surface-mounted overhead stops, holders, and friction stays.
2. CONFIRM: Through-bolts typically required with FRP Doors & Frames. Consult FRP Door & Frame Manufacturer for proper Mounting of all Hardware.

2.5 FINISH**:**

A. Generally**:** BHMA 626 Satin Chromium Steel **OR** BHMA 630 Satin Stainless Steel.

1. Areas using BHMA 626: furnish push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise scheduled.

B. Door closers**:** factory powder coated to match other hardware, unless otherwise noted.
C. Finish designators used in appended hardware schedule**:**

ANSI	US	Description	Base Metal
626	US26D	Satin Chromium Plated Over Nickel	Brass, Bronze
628	US28	Satin Aluminum, Clear Anodized	Aluminum
630	US32D	Satin Stainless Steel	Stain. Steel 300 Ser
652	US26D	Satin Chromium Plated Over Nickel	Steel
689	US28	Aluminum Painted	Any
AL	US28	Aluminum Mill Finish	Aluminum
BLK		Black	Any
BRN		Dark Brown	Any

D. Seal color to be as selected by Architect.

2.6 KEYING REQUIREMENTS**:**

A. Key System**:** Match Owners existing BEST SFIC Patented Key System. Initiate and conduct meeting(s) with Owner to determine system structure and keybow styles, furnish Owner’s written approval of the system; do not order keys or cylinders without written confirmation of actual requirements from the Owner. GC to confirm Owner will order and supply permanent cylinders/cores. Owner/Contractor will install permanent cylinders/cores.

B. FOR ESTIMATE:

C. Keys

1. Construction keying**:** furnish keyed-alike temporary cores plus 10 operating keys. Temporary cores and keys remain property of hardware supplier.

D. Interchangeable Cores**:** 7-pin solid brass construction.
E. Permanent cores**:** furnish factory-keyed.

1. Locksets and cylinders same manufacturer.

F. Permanent keys and cores**:** Match existing keyway, use secured shipment direct from point of origination to Owner.

1. 3 keys per change combination, 5 master keys per group, 5 grand-master keys, 3 control keys.

G. VKC stamping plus “DO NOT DUPLICATE”.
H. Bitting List**:** use secured shipment direct from point of origination to Owner upon completion.

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS**:**

A. Can read and understand manufacturers’ templates, suppliers’ hardware schedule and printed installation instructions. Can readily distinguish drywall screws from manufacturers’ furnished fasteners. Available to meet with manufacturers’ representatives and related trades to discuss installation of hardware.

3.2 PREPARATION**:**

A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation. Installation denotes acceptance of wall/frame condition.
B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.

1. Notify Architect of code conflicts in writing before ordering material.
2. Locate latching hardware between 34 inches to 44 inches above the finished floor, per California Building Code, Section 1008.1.9.2 and 1133B.2.5.2.
3. Locate panic hardware between 36 inches to 44 inches above the finished floor.
4. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

3.3 ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods**:** repair or replace to Owner’s satisfaction.
2. Adjust doors to fully latch with no more than 1 pound of pressure.
3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
4. Adjust door closers per 1.9 this section.

B. Final inspection**:** Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following**:**

1. Has re-adjusted hardware.
2. Has evaluated maintenance procedures and recommend changes or additions, and instructed Owner's personnel.
3. Has identified items that have deteriorated or failed.
4. Has submitted written report identifying problems.

3.4 DEMONSTRATION**:**

A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.5 PROTECTION/CLEANING**:**

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.
B. Clean adjacent wall, frame and door surfaces soiled from installation / reinstallation process.

3.6 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

~~HARDWARE GROUP NO. 01 - BIPARTING ALUMINUM SLIDER PAIR~~
~~SL 9' 1" X 7' 0" X 1 3/4" X UNK X UNK~~
~~FOR USE ON MARK #(S):~~
~~101~~

~~EACH TO HAVE:~~

~~QTY~~		~~DESCRIPTION~~	~~CATALOG NUMBER~~	~~FINISH~~	~~MFR~~
~~1~~	~~EA~~	~~DOOR CONTACT~~	~~Sentrol 1078W or Department of Aviation approved equivalent substitute.~~	~~628~~	~~SCE~~
~~1~~	~~EA~~	~~PERMANENT CORE~~	~~Per HAS Standards~~		~~BES~~
~~1~~	~~EA~~	~~BYPASS PAIR~~	~~ALL MATERIAL BY DOOR MANUFACTURER INCLUDING MS HOOKBOLT WITH CYLINDERS BOTH SIDES FLUSH PULLS STAINLESS STEEL ROLLERS~~		~~B/O~~

~~ALL HARDWARE BY DOOR MANUFACTURER. GC TO COORDINATE DOOR POSITION CONTACT BY DIVISION 28 / SECURITY CONTRACTOR.~~

HARDWARE GROUP NO. 1

For use on Door #(s):HOU 101

EACH PR DOOR TO HAVE:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	PIVOT SET	7222 SET		626	IVE
4	EA	INTERMEDIATE PIVOT	7222 INT		626	IVE
2	EA	MAGNETIC LOCK	M490P 12/24 VDC		628	SCE
2	EA	DOOR PULL, 1" ROUND	PR 8103EZHD 10" N		630-316	IVE
2	EA	SURFACE CLOSER	4050A SCUSH TBSRT X MTG PLATE, BRKT & SPCR AS REQ		689	LCN
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER			
1	SET	ASTRAGAL	MEETING STILE SEAL BY DOOR MANUFACTURER			
2	EA	CREDENTIAL READER	BY SECURITY CONTRACTOR			
2	EA	DOOR CONTACT	BY SECURITY CONTRACTOR			
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR			

DOOR NORMALLY CLOSED AND LOCKED MAGNETICALLY. INGRESS/EGRESS VIA CARD READER ON BOTH SIDES. UPON LOSS OF POWER OR FIRE ALARM ACTIVATION, DOOR IS RELEASED AND FREE INGRESS/EGRESS. DOOR STATUS MONITORED.

HARDWARE GROUP NO. 1A - ALT for HOU 101

For use on Door #(s): HOU 101

EACH PR DOOR TO HAVE:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	PIVOT SET	7222 SET		626	IVE
4	EA	INTERMEDIATE PIVOT	7222 INT		626	IVE
1	EA	POWER TRANSFER	EPT10		689	VON
1	SET	AUTO FLUSH BOLT	FB31P X EXT AS REQ		630	IVE
1	EA	DUST PROOF STRIKE	DP2		626	IVE
1	EA	EU MORTISE LOCK	L9095HDEU 12/24 VDC X MATCH EXISTING LEVER/TRIM		626	SCH
2	EA	PERMANENT CORE	MATCH EXISTING SYSTEM		626	BES
1	EA	COORDINATOR	COR X FL		628	IVE
2	EA	SURFACE CLOSER	4050A SCUSH TBSRT X MTG PLATE, BRKT & SPCR AS REQ		689	LCN
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER			
1	SET	ASTRAGAL	MEETING STILE SEAL BY DOOR MANUFACTURER			
2	EA	CREDENTIAL READER	BY SECURITY CONTRACTOR			
2	EA	DOOR CONTACT	BY SECURITY CONTRACTOR			
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR			

DOOR NORMALLY CLOSED AND LOCKED ON BOTH SIDES. INGRESS/EGRESS VIA CARD READER ON EACH SIDE OR MANUAL KEY OVERRIDE. DOOR TO REMAIN LOCKED UPON LOSS OF POWER OR FIRE ALARM ACTIVATION. FAIL-SECURE. DOOR STATUS MONITORED. DOOR MUST HAVE MIN. 5" STILE TO ACCOMMODATE SPECIFIED HARDWARE.

HARDWARE GROUP NO. 2

For use on Door #(s):
IAH 113

EACH PR DOOR TO HAVE:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	PIVOT SET	7222 SET		626	IVE
4	EA	INTERMEDIATE PIVOT	7222 INT		626	IVE
1	SET	AUTO FLUSH BOLT	FB31P X EXT AS REQ		630	IVE
1	EA	DUST PROOF STRIKE	DP2		626	IVE
1	EA	INSTITUTION LOCK	L9082HD X MATCH EXISTING LEVER/TRIM		626	SCH
2	EA	PERMANENT CORE	MATCH EXISTING SYSTEM		626	BES
1	EA	COORDINATOR	COR X FL		628	IVE
2	EA	SURFACE CLOSER	4050A SCUSH TBSRT X MTG PLATE, BRKT & SPCR AS REQ		689	LCN
1	SET	SEAL	PERIMETER SEAL BY FRAME MANUFACTURER			
1	SET	ASTRAGAL	MEETING STILE SEAL BY DOOR MANUFACTURER			
2	EA	DOOR CONTACT	BY SECURITY CONTRACTOR			

DOOR LOCKED ON BOTH SIDES. MANUAL KEY OVERRIDE ONLY. DOOR STATUS MONITORED. DOOR MUST HAVE MIN. 5" STILE TO ACCOMMODATE SPECIFIED HARDWARE.

HARDWARE GROUP NO. 3

For use on Door #(s):
IAH 112, 114, 116 and
HOU 102,103,104,105,106,107

REFER TO SPEC SECTION 084229.23

END OF SECTION

SECTION 09 66 23 - RESINOUS MATRIX TERRAZZO FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Thin-set epoxy-resin terrazzo flooring.

B. Related Section:

1. Division 07 Section "Joint Sealants" for sealants installed with terrazzo.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include terrazzo installation requirements. Include plans, elevations, sections, component details, and attachments to other work. Show layout of the following:

1. Divider strips.
2. Control-joint strips.
3. Accessory strips.
4. Abrasive strips.
5. Terrazzo patterns.

C. Samples for Verification: For each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected. Label each terrazzo sample to identify manufacturer's matrix color and marble-chip, aggregate types, sizes, and proportions. Prepare samples of same thickness and from same material to be used for the Work in size indicated below:

1. Terrazzo: 12-inch- (300-mm-) square Samples.
2. Accessories: 6-inch- (150-mm-) long Samples of each exposed strip item required.

D. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.

E. Qualification Data: For qualified Installer.

F. Material Certificates: For each type of terrazzo material or product, from manufacturer.

G. Maintenance Data: For terrazzo to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who is acceptable to terrazzo manufacturer to install manufacturer's products.

1. Engage an installer who is certified in writing by terrazzo manufacturer as qualified to install manufacturer's products.
2. Engage an installer who is a contractor member of NTMA.

B. Source Limitations: Obtain primary terrazzo materials from one source from a single manufacturer. Provide secondary materials including patching and fill material, joint sealant, and repair materials of type and from source recommended by manufacturer of primary materials.

C. NTMA Standards: Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.

D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockups for terrazzo including accessories.

a. Size: Minimum 100 sq. ft. (9 sq. m) of typical poured-in-place flooring and base condition for each color and pattern in locations directed by Architect.

2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to terrazzo including, but not limited to, the following:

a. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
b. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
c. Review special terrazzo designs and patterns.
d. Review dust-control procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in supplier's original wrappings and containers, labeled with source's or manufacturer's name, material or product brand name, and lot number if any.

B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting terrazzo installation.

B. Field Measurements: Verify actual dimensions of construction contiguous with precast terrazzo by field measurements before fabrication.

C. Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during terrazzo installation.

D. Close spaces to traffic during terrazzo application and for not less than 24 hours after application unless manufacturer recommends a longer period.

E. Control and collect dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

1. Provide dustproof partitions and temporary enclosures to limit dust migration and to isolate areas from noise.

PART 2 - PRODUCTS

2.1 EPOXY-RESIN TERRAZZO

A. Products: Subject to compliance with requirements, provide one of the following:

1. Crossfield Products Corp., Dex-O-Tex Division; Cheminert Terrazzo.
2. General Polymers Corporation; Terrazzo 1100.
3. Key Resin Company; Key Epoxy Terrazzo.
4. Master Terrazzo Technologies LLC; Morricite.
5. Polymerica Incorporated; MasterPiece ETS.
6. Quadrant Chemical Corporation; Quadset Epoxy Terrazzo.
7. TEC Specialty Construction Brands, Inc.; Tuff-Lite Epoxy Terrazzo.
8. Terrazzo & Marble Supply Companies; Terroxy Resin Systems.

B. Materials:

1. Crack Isolation Membrane: Manufacturer's flexible epoxy membrane for substrate crack preparation, reflective crack reduction and waterproofing membrane.

    a. Reinforcement: Fiberglass scrim.

2. Primer: Manufacturer's product recommended for substrate and use indicated.
3. Epoxy-Resin Matrix: Manufacturer's standard recommended for use indicated and in color required for mix indicated.

    a. Physical Properties without Marble Chips, Aggregates:

        1) Hardness: 60 to 85 per ASTM D 2240, Shore D.
        2) Minimum Tensile Strength: 3000 psi (20.7 MPa) per ASTM D 638 for a 2-inch (51-mm) specimen made using a "C" die per ASTM D 412.
        3) Minimum Compressive Strength: 10,000 psi (6.9 MPa) per ASTM D 695, Specimen B cylinder.
        4) Chemical Resistance: No deleterious effects by contaminants listed below after seven-day immersion at room temperature per ASTM D 1308.

            a) Distilled water.
            b) Mineral water.
            c) Isopropanol.
            d) Ethanol.
            e) 0.025 percent detergent solution.
            f) 1.0 percent soap solution.
            g) 10 percent sodium hydroxide.
            h) 10 percent hydrochloric acid.
            i) 30 percent sulfuric acid.
            j) 5 percent acetic acid.

    b. Physical Properties with Marble Chips, Aggregates: For resin blended with Georgia white marble, ground, grouted, and cured per requirements in NTMA's "Terrazzo Specifications and Design Guide," comply with the following:

        1) Flammability: Self-extinguishing, maximum extent of burning 0.25 inch (6.35 mm) per ASTM D 635.
        2) Thermal Coefficient of Linear Expansion: 0.0025 inch/inch per deg F (0.0025 mm/mm per 0.5556 deg C) for temperature range of minus 12 to plus 140 deg F (minus 24 to plus 60 deg C) per ASTM D 696.

4. Marble Chips, Aggregates: Complying with NTMA gradation standards for mix indicated and containing no deleterious or foreign matter.

    a. Abrasion and Impact Resistance: Less than 40 percent loss per ASTM C 131.
    b. 24-Hour Absorption Rate: Less than 0.75 percent.
    c. Dust Content: Less than 1.0 percent by weight.
    d. Recycled Content: Provide products with average recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content is not less than 20 percent.

5. Finishing Grout: Resin based.

C. Terrazzo: Comply with NTMA's "Terrazzo Specifications and Design Guide" and manufacturer's written instructions for matrix and marble-chip proportions and mixing.

1. Formulated Mix Color and Pattern: to match adjacent color and pattern of matrix, chips, and aggregates in existing adjacent terrazzo flooring.

2.2 STRIP MATERIALS

A. Thin-Set Divider Strips: L-type angle or T-type, 1/4 inch (6.4 mm) deep.

1. Material: White-zinc alloy.
2. Top Width: 1/8 inch (3.2 mm), 1/4 inch (6.4 mm) and as indicated on drawings.

B. Heavy-Top Divider Strips: L-type angle in depth required for topping thickness indicated.

1. Bottom-Section Material: Matching top-section material.
2. Top-Section Material: White-zinc alloy .
3. Top-Section Width: 1/8 inch (3.2 mm), 1/4 inch (6.4 mm) and as indicated on the drawings.
4. Provide ¼” wide divider strip between epoxy resin terrazzo and perimeter of all concession shell spaces.

C. Control-Joint Strips: Separate, double L-type angles, positioned back to back, that match material, thickness, and color of divider strips and in depth required for topping thickness indicated.
1. Provide ¼” wide control joint unless otherwise noted.

D. Accessory Strips: Match divider strip width, material, and color unless otherwise indicated. Use the following types of accessory strips as required to provide a complete installation:

1. Base-bead strips for exposed top edge of terrazzo base.
2. Edge-bead strips for exposed edges of terrazzo.
3. Nosings for terrazzo stair treads and landings.

E. Abrasive Strips: Silicon carbide or aluminum oxide, or combination of both, in epoxy-resin binder and set in channel.

1. Width: 1/2 inch (12.7 mm).
2. Depth: As required by terrazzo thickness.
3. Length: 4 inches (100 mm) less than stair width.
4. Color: As selected by Architect from manufacturer's full range.

2.3 MISCELLANEOUS ACCESSORIES

A. Strip Adhesive: Epoxy-resin adhesive recommended by adhesive manufacturer for this use and acceptable to terrazzo manufacturer.

1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Anchoring Devices:

1. Strips: Provide mechanical anchoring devices for strip materials as required for secure attachment to substrate.

C. Patching and Fill Material: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.

D. Joint Compound: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.

E. Cleaner: Chemically neutral cleaner with pH factor between 7 and 10 that is biodegradable, phosphate free, and recommended by sealer manufacturer for use on terrazzo type indicated.

F. Sealer: Slip- and stain-resistant penetrating-type sealer that is chemically neutral with pH factor between 7 and 10; does not affect color or physical properties of terrazzo; is recommended by sealer manufacturer; and complies with NTMA's "Terrazzo Specifications and Design Guide" for terrazzo type indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Provide written list of deficiencies to the Construction Manager for correction immediately upon inspection.

C. Proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.

3.2 PREPARATION

A. Clean substrates of substances, including oil, grease, and curing compounds, that might impair terrazzo bond. Provide clean, dry, and neutral substrate for terrazzo application.

B. Concrete Slabs:

1. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with terrazzo.

a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
b. Repair damaged and deteriorated concrete according to terrazzo manufacturer's written recommendations.
c. Use patching and fill material to fill holes and depressions in substrates according to terrazzo manufacturer's written instructions.

2. Verify that concrete substrates are visibly dry and free of moisture.
3. Moisture Testing:

a. Test for moisture by anhydrous calcium chloride method according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
b. Test for moisture by relative humidity probe and digital meter method according to ASTM F 2170. Proceed with installation only after substrates have a maximum relative-humidity-measurement reading of 70 to 75 percent in 24 hours.
c. Test for moisture content by method recommended in writing by terrazzo manufacturer. Proceed with installation only after substrates pass testing.

C. Protect other work from dust generated by grinding operations. Control dust to prevent air pollution and comply with environmental protection regulations.

1. Erect and maintain temporary enclosures and other suitable methods to limit dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.

D. Installation of terrazzo indicates acceptance of surfaces and conditions.

3.3 EPOXY-RESIN TERRAZZO INSTALLATION

A. General:

1. Comply with NTMA's written recommendations for terrazzo and accessory installation.
2. Place, rough grind, grout, cure grout, fine grind, and finish terrazzo according to manufacturer's written instructions and NTMA's "Terrazzo Specifications and Design Guide."
3. Installation Tolerance: Limit variation in terrazzo surface from level to 1/4 inch in 10 feet (6 mm in 3 m); noncumulative.
4. Ensure that matrix components and fluids from grinding operations do not stain terrazzo by reacting with divider and control-joint strips.
5. Delay fine grinding until heavy trade work is complete and construction traffic through area is restricted.

B. Thickness: 3/8 inch (9.5 mm) nominal.

C. Flexible Reinforcing Membrane:

1. Prepare and prefill substrate cracks with membrane material.
2. Install membrane to produce full substrate coverage in areas to receive terrazzo.

3. Reinforce membrane with fiberglass scrim.
4. Prepare membrane according to manufacturer's written instructions before applying substrate primer.

D. Primer: Apply to terrazzo substrates according to manufacturer's written instructions.

E. Strip Materials:

1. Divider and Control-Joint Strips:

a. Locate divider strips in locations indicated.
b. Install control-joint strips back to back directly above concrete-slab control joints in locations indicated.
c. Install control-joint strips with 1/4-inch (6.4-mm) gap between strips, and install sealant in gap.
d. Install strips in adhesive setting bed without voids below strips, or mechanically anchor strips as required to attach strips to substrate, as recommended by strip manufacturer.

2. Accessory Strips: Install accessory strips as required to provide a complete installation in locations indicated.
3. Abrasive Strips: Install with surface of abrasive strip positioned 1/32 inch (0.8 mm) higher than terrazzo surface.

F. Fine Grinding: Grind with stones 120 grit or finer until all grout is removed from surface. Repeat rough grinding, grout coat, and fine grinding if large voids exist after initial fine grinding. Produce surface with a minimum of 70 percent aggregate exposure.

G. Repair: Remove and replace terrazzo areas that evidence lack of bond with substrate. Cut out terrazzo areas in panels defined by strips and replace to match adjacent terrazzo, or repair panels according to NTMA's written recommendations, as approved by Architect.

3.4 CLEANING AND PROTECTION

A. Cleaning:

1. Remove grinding dust from installation and adjacent areas.
2. Wash surfaces with cleaner according to NTMA's written recommendations and manufacturer's written instructions; rinse surfaces with water and allow to dry thoroughly.

B. Sealing:

1. Seal surfaces according to NTMA's written recommendations.
2. Apply sealer according to sealer manufacturer's written instructions.

C. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure that terrazzo is without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 66 23

SECTION 10 14 04 – WAYFINDING SIGNAGE

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies terminal interior identification, informational, regulatory and directional signs as indicated in the project sign type drawings. Provide all documentation, engineering, materials and labor as necessary for the fabrication and installation of the specified sign program.

1.2 APPLICABLE STANDARDS AND PUBLICATIONS - Unless otherwise noted, utilize the most recent publications of the referenced standards and publications.

A. International Building Code, With Houston Amendments

B. ATBCB Design Guidelines for Signage in relation to the Americans With Disabilities Act

C. Uniform Sign Code

D. American National Standards Institute (ANSI)

E. American Society for Testing & Materials (ASTM)

F. 49 U.S.C Section 5323, SAFETEA-LU Section 3023 – Buy America

G. All other applicable local, state and federal codes and standards.

1.3 CONTRACTOR QUALIFICATIONS

A. It is required that the sign contractor currently and regularly manufactures and installs sign programs similar to that specified in this project with a minimum of five years of experience.

1.4 QUALITY ASSURANCE

A. The sign contractor is responsible for the quality of all materials and workmanship required for execution of the work specified in this section, whether executed by their own firm or firms subcontracting of supplying on their behalf. Sign contractor is responsible for providing their subcontractors with all pertinent project documents, information and coordination.

1.5 SUBMITTAL REQUIREMENTS

A. Shop Drawings – Provide shop drawings indicating the manufacture and installation details of all sign types including but not limited to sign structures, footings, mounting, attachments, typography, layouts, lighting, colors and finishes. Where applicable, provide stamped structural

engineered drawings and calculations, by a Texas licensed engineer, for all structural sign elements.

B. Samples – Provide – 8” x 10” samples of each color and material finish in quantities called for in this specification, until final approval is received.

C. Typography – Provide plots of complete character sets of each specified font at 3” cap height.

D. Manufacturer’s Data – Provide manufacturer’s specifications, data, installation details, maintenance instructions and other information for complete products specified within this section.

1.6 PERMITS

A. It is required that the selected sign fabricator obtain all necessary permits for the fabrication and installation of this sign program from Houston Airport System (HAS).

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide graphics elements as completed units produced to the greatest extent possible by a single manufacturer, including necessary and incidental mounting accessories, fittings and connectors.

1. Contractor Responsibility - The sign contractor, by commencing work on this section, assumes overall responsibility in assuring that materials, components, assemblies and installations as shown or required as a part of the work within this section or other related sections complies with the requirements of the contract documents and as a part of the warranty of the work. The contractor shall further warrant, that all components specified or incidentally required are compatible with each other and adjoining installation conditions, that there are no conditions which will cause materials or assemblies to perform to their full life expectancy, that materials are compatible to adjoining substrates, finishes, materials and work by other trades, and that the individual parts and overall systems are effectively integrated and correct.
2. Interpretations of Contract Drawings - Do not scale drawings for dimensions. Use only written dimensions provided on drawings, unless they are discrepancies found. Contractor is responsible for verifying all dimensions and conditions shown on drawings. The Designer is to be notified of any discrepancy in drawings or conditions requiring changes or that prevent a proper installation of the graphics elements.
3. Site Conditions - Most of this sign project scope involves removing and changing out of graphics of existing sign elements in the terminal. Contractor to coordinate with existing conditions and documents. Field inspection and measurements must be done by the contractor for all elements in this project to insure the scope is clear and the approach taken to retrofit these signs will assure customer service will not be adversely affected during the installation of these elements.

2.2 STANDARDS

A. Typography

1. Refer to Graphics Standards Sheet in Sign Type Drawings.
2. Pedestrian Wayfinding Fonts
   a. ClearviewText Medium – All standard wayfinding word messages
   b. ClearviewOne Book Condensed – All supplemental wayfinding word messages (i.e. via, to, etc.)
3. Letter Spacing
   a. Utilize letterspacing as indicated in sign type drawings. Provide full size samples of layouts for sign types specified in submittal section of this specification.

B. Colors (Note: PMS = Pantone Matching System; all paint, film and digitally printed colors to be perfectly matched to PMS colors as listed here)

1. Branded Terminal/Parking Garage Wayfinding Identification and Symbol Backgrounds:
   a. IAH Terminal C = PMS 300C
   b. HOU Terminal A = PMS 433C
2. Global Watermark Accent Graphics:
   a. IAH Terminal C = PMS 294C
   b. HOU Terminal A = PMS 430C
3. Wayfinding Sign Face Backgrounds = PMS 433C
4. Divider Line/Supplemental Background Graphics = PMS 432C
5. Wayfinding Message Text/Universal Symbol Artwork = White
6. Exposed/Decorative Mounting Hardware = match MAP paint #413425SP
7. Safety Red = PMS 186C
8. Warning Yellow = PMS 116C

C. Finishes

1. Standard paint finishes to be satin sheen (Matthews Acrylic Polyurethane or Owner Owner approved equal)

2.3 SIGN TYPES

A. Refer to sign type drawings located on drawing sheets AG202 and AG700 for IAH Exit Lane Wayfinding and sheets AG202 and AG700 for HOU Exit Lane Wayfinding for specifications and information on individual sign types.

2.4 MATERIALS

A. Aluminum

1. Sheet and Plate - Utilize domestically sourced 6061 alloy, ASTM B221 unless otherwise notified, or other alloy is required to fulfill performance requirements. Utilize sizes, alloys, tempers and gauges as necessary to fulfill performance requirements, and to provide proper characteristics for fabrication, assembly and finishing as called for in the contract documents.
2. Extrusions and Tubing - Utilize domestically sourced 6061 alloy, ASTM B221 unless otherwise notified, or other alloy is required to fulfill performance requirements. Utilize sizes, alloys, tempers and gauges as necessary to fulfill performance requirements, and to

provide proper characteristics for fabrication, assembly and finishing as called for in the contract documents. Minimum wall thickness is .125 inch unless otherwise specified.

3. Where attaching aluminum components to steel, provide coating or other barrier between metals to prevent galvanic oxidization.

B. Steel

1. Structural Tubing - Utilize domestically sourced sizes, alloys, tempers and gauges as necessary to fulfill performance requirements and to provide proper characteristics for fabrication, assembly and finishing as called for in the contract documents.
2. Sheet and Plate - Utilize domestically sourced sizes, alloys, tempers and gauges as necessary to fulfill performance requirements, and to provide proper characteristics for fabrication, assembly and finishing as called for in the contract documents.
3. Structural Assemblies - Fabricate and assemble in shop to the greatest extent possible, following AISC specifications.
4. Connections - Weld or bolt shop connections as called for in project documents or shop drawings. Bolt field connections unless welded connections are specifically called for in design or engineering specifications.
5. Welded Construction - Comply with AWS code for procedures, appearance, quality of welds and methods used in correcting welded work. Utilize only certified welders.
6. Galvanized Steel – Hot dipped galvanized after components have been cut to size.

C. Paint

1. Acrylic Polyurethane (Low VOC) - Multi-component catalytic opaque coating material consisting of pigmented base and activator. Follow manufacturer's specifications for ingredient ratios, surface preparation, priming, application methods, drying and handling of finishes.
2. Paint finish shall be smooth and consistent, free of surface imperfections, orange peel texture, scratches, gouges, drips, bubbles, uneven coating application, overspray or other surface imperfections.
3. Utilize Matthews Satin MAP or Owner Owner approved equal.
4. Surface coatings are to be compatible with adhesives and other materials utilized to apply graphics or other elements to their surface, with no discoloration or other deterioration.
5. Provide MAP graffiti resistant satin clear coat on all sign surfaces.

D. Fasteners

1. Unless otherwise specified, utilize stainless steel fasteners for mechanical connections. Upon installation, paint finish any exposed fasteners to match surrounding finish.

E. Foam Tape

1. Double sided acrylic adhesive closed cell urethane foam tape, 3M Series A20, #4016 or equal. Preparation of sign and mounting surface and installation techniques to be in accordance with manufacturer’s specifications.

F. Silicone Sealant

1. Clear silicone based commercial grade adhesive as manufactured by General Electric. Preparation of sign and mounting surface and installation techniques to be in accordance with manufacturer's specifications.

G. Vinyl Graphics

1. Utilize 3M vinyl products suitable for applicable installation surfaces.
2. Subject to compliance with requirements, provide 3M Diamond Grade DG3 Series 4090 white reflective sheeting or Owner approved equal with digitally printed image. Colors and images vary, refer to sign type layouts. The digital print shall be protected by 3M ElectroCut film series 1170 clear UV protection film or Owner approved equal with a PMMA top film.
3. Digital Image - The printing resolution shall be a minimum of 540 dots per inch (DPI). All numbers, letters, symbols and borders or backgrounds on signs shall be digitally printed (directly or through reverse image) before the sheeting is adhered to the panels, unless otherwise approved by engineer.
4. Digital Printing Process - The inkjet printer must be capable of printing with a resolution of 540 dots per inch on a media of 48 inches wide, at a minimum. Seamless digital printing must be performed using an environmentally friendly, flexible, UV incandescent, curable ink. The overlaminate must be applied with the use of a laminator capable of heating to 170 degrees Fahrenheit with a nip pressure of 90 pounds per square inch. All digitally printing shall be done in a workmanlike manner and as recommended by the manufacturer of the reflective sheeting as needed for exterior signage.
5. Warranty - Image durability, special or custom colors that are used in the manufacturing of digitally printed graphics, which are not defined by ASTM D4965, must be warranted for a period of 8 years and shall not excessively fade, discolor, crack, peel, blister or lose reflectivity such that the signs become visually unsuitable for their intended purpose.

H. Painted Graphics

1. Utilize correct paint products designed to adhere to the variety of installation surfaces occurring on this project.

I. Acrylic

1. Acrylic Sheet: ASTM D 4802, category as standard with manufacturer for each sign, Type UVF (UV filtering).

PART 3 - EXECUTION

3.1 FABRICATION

A. Design, fabricate and install components to allow for expansion and contraction within a minimum of a 100-degree F temperature range, without causing excessive opening, buckling or overstressing of joints, adhesives, welds and fasteners.

B. Form work to specified sizes, shapes and profiles, with true curves, lines and angles. Provide necessary brackets, lugs and mounting points as required for assembly. Use concealed fasteners wherever possible.

C. Shop fabricate as much as is practical, minimizing field fabrication. Fasten joints flush to conceal attachments, or weld, grind smooth and finish joints where possible.

D. Shop and field assembled joints are to be true and tight, with minimal use of filling compounds. Finish hollow sign elements with matching material on all faces, tops, bottoms and ends, so that elements have the appearance of solid material.

E. Signs shall have a consistent, smooth surface, with even texture, straight edges and flat panel surfaces. Panel surfaces are to be flat and true with a maximum surface tolerance is 1/8 inch for 10 feet in length. Lines, joints and miters are to be smooth and sharp, with profiles accurate and ornament true to pattern.

F. Extruded members are to be free of extrusion marks.

G. Pre-drill holes for bolts and screws. Exposed ends and edges of panels are to be milled smooth with slightly eased edges.

H. All painted surfaces are to have proper surface preparation and priming prior to application of finish coatings. Finish is to be even with no light application allowing substrate or primer to show.

I. All moveable parts, including hardware are to be assembled and finished to allow for smooth operation without binding, deformation or distortion of adjoining members. All contact surfaces are to fit tight without forcing or warping components.

J. Shop Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fish-mouths.

3.2 INSTALLATION

A. Protect products against damage during field handling and installation. Protect adjacent existing materials, finishes and landscaping as necessary to prevent damage. Touch up exposed hardware to match color and finish of surrounding surface after installation.

B. Coordinate timing of installation work with HAS operations and project management to insure execution of work does not interfere with the smooth, normal operation of this facility.

C. Mount signs in proper alignment, level and plumb in accordance with the contract documents. Where not otherwise specified, signs shall be installed where best suited to provide a consistent appearance throughout the project.

D. Contractor shall own and be responsible for all signs that are damaged. lost or stolen while materials are on the job site, and until the final acceptance of the job by the owner.

E. Correct or remove signs or installation work deemed by the owner as unsafe immediately upon notification.

F. Upon completing installation, clean all sign surfaces and adjacent building surfaces affected by sign installation prior to calling for inspection. Replace any damaged landscaping materials to match condition prior to installation.

G. For all sign elements related to gate number changes, make sign face changes to reflect new gate numbering, then provide easily removable cover so that current gate numbers can be easily changed to new gate numbers on the date of the change.

H. Remove temporary protective coverings and strippable films as signs are installed.

END OF SECTION

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes portable, hand-carried fire extinguishers.

B. Related Sections:

1. Division 10 Section "Fire Extinguisher Cabinets."

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.

B. Product Schedule: For fire extinguishers. Coordinate final fire extinguisher schedule with fire protection cabinet schedule to ensure proper fit and function. Use same designations indicated on Drawings.

C. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

D. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1. Provide fire extinguishers approved, listed, and labeled by FMG.

C. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to fire extinguishers including, but not limited to, the following:

a. Schedules and coordination requirements.

1.5 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure of hydrostatic test according to NFPA 10.
b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet indicated.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Cosmic 6E as manufactured by J.L. Industries, Inc. or comparable product by one of the following:

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
g. Larsen's Manufacturing Company.
h. Moon-American.
i. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
j. Potter Roemer LLC.
k. Pyro-Chem; Tyco Safety Products.

2. Valves: Manufacturer's standard.
3. Handles and Levers: Manufacturer's standard.
4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.

B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 3-A-40-BC, 6-lb (2.7-kg) nominal capacity, with mono ammonium phosphate-based dry chemical in enameled-steel container.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Provide a written list of deficiencies to the Construction Manager for correction immediately upon inspection.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 104416

SECTION 210500
COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Mechanical sleeve seals.
3. Sleeves.
4. Escutcheons.
5. Grout.
6. Fire-suppression equipment and piping demolition.
7. Equipment installation requirements common to equipment sections.
8. Painting and finishing.
9. Concrete bases.
10. Supports and anchorages.

1.3 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

F. The following are industry abbreviations for plastic materials:

1. CPVC: Chlorinated polyvinyl chloride plastic.

G. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.
2. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Mechanical sleeve seals.
2. Escutcheons.

B. Welding certificates.

1.5 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for Fire-Suppression Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.7 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for fire-suppression installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Coordinate requirements for access panels and doors for fire-suppression items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 08 Section "Access Doors and Frames."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 21 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

A. Refer to individual Division 21 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

D. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

E. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

F. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

G. Solvent Cements for Joining CPVC Plastic Piping: ASTM F 493.

2.4 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Manufacturers:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Metraflex Co.
d. Pipeline Seal and Insulator, Inc

2. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Carbon steel or Stainless steel. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating or Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.5 SLEEVES

A. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

B. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with set screws.

D. PVC Pipe: ASTM D 1785, Schedule 40.

E. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.6 PIPING ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Cast-Brass Type: With set screw.

1. Finish: Polished chrome-plated.

C. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

1. Finish: Polished chrome-plated.

D. One-Piece, Stamped-Steel Type: With set screw and chrome-plated finish.

E. Split-Plate, Stamped-Steel Type: With concealed hinge, set screw, and chrome-plated finish.

2.7 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 FIRE-SUPPRESSION DEMOLITION

A. Refer to Division 01 Section "Cutting and Patching" and Division 02 Section "Selective Structure Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove fire-suppression systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Equipment to Be Removed: Disconnect and cap services and remove equipment.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 21 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used

to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. New Piping:

    a. Bare Piping at Wall Ceiling and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.

M. Permanent sleeves are not required for holes formed by removable PE sleeves.

N. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

    a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.
3. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

    a. PVC or Steel Pipe Sleeves.

b. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level. Refer to Division 07 Section "Sheet Metal Flashing and Trim" for flashing.

1) Seal space outside of sleeve fittings with grout.

4. Except for underground wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint. Refer to Division 07 Section "Joint Sealants" for materials and installation.

O. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches in diameter.
2. Install cast-iron "wall pipes" for sleeves 6 inches and larger in diameter.
3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

P. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

Q. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 07 Section "Penetration Firestopping" for materials.

R. Verify final equipment locations for roughing-in.

S. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.3 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 21 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.

E. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

F. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

G. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

H. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
2. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.

3.4 PAINTING

A. Painting of fire-suppression systems, equipment, and components is specified in Division 09 Sections "Interior Painting" and "Exterior Painting."

B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.5 CONCRETE BASES

A. Concrete Bases: Shall be coordinated with Division 03

3.6 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Division 05 Section "Metal Fabrications" for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor fire-suppression materials and equipment.

C. Field Welding: Comply with AWS D1.1.

3.7 GROUTING

A. Mix and install grout for fire-suppression equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

END OF SECTION 21 05 00

SECTION 211313
WET-PIPE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Pipes, fittings, and specialties.
2. Fire-protection valves.
3. Fire-department connections.
4. Sprinklers.

B. Related Sections:

1. Division 21 Section "Fire-Suppression Standpipes" for standpipe piping.
2. Division 21 Section "Dry-Pipe Sprinkler Systems" for dry-pipe sprinkler piping.
3. Division 21 Section for fire pumps, pressure-maintenance pumps, and fire-pump controllers.

1.3 DEFINITIONS

A. Standard-Pressure Sprinkler Piping: Wet-pipe sprinkler system piping designed to operate at working pressure of 175 psig maximum.

1.4 SYSTEM DESCRIPTIONS

A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply through alarm valve. Water discharges immediately from sprinklers when they are opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose connections are included if indicated.

1.5 PERFORMANCE REQUIREMENTS

A. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.

B. Sprinkler system shall be approved by authorities having jurisdiction.

1. Margin of Safety for Available Water Flow and Pressure: 10 P.S.I.
2. Sprinkler Occupancy Hazard Classifications refer to drawings.

1.6 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For wet-pipe sprinkler systems. Include plans, elevations, sections, details, and attachments to other work.

C. Hydraulic Calculations.

1.7 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer's responsibilities include fabricating, and installing sprinkler systems and providing working plans per NFPA 13. Base calculations on results of fire-hydrant flow test.

B. Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. NFPA Standards: Sprinkler system equipment, specialties, accessories, installation, and testing shall comply with the following:

1. NFPA 13, "Installation of Sprinkler Systems."
2. NFPA 13R, "Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height."
3. NFPA 24, "Installation of Private Fire Service Mains and Their Appurtenances."

1.8 PROJECT CONDITIONS

A. Interruption of Existing Sprinkler Service: Do not interrupt sprinkler service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary sprinkler service according to requirements indicated:

1. Notify Architect and Construction Manager no fewer than two days in advance of proposed interruption of sprinkler service.
2. Do not proceed with interruption of sprinkler service without Architect's and Construction Manager's written permission.

1.9 COORDINATION

A. Coordinate layout and installation of sprinklers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, and partition assemblies.

PART 2 - PRODUCTS

2.1 STEEL PIPE AND FITTINGS

A. Standard Weight, Black-Steel Pipe: ASTM A 53/A 53M or ASTM A 135.

B. Piping Schedule shall be: All piping with threaded fittings shall be schedule 40 and all piping with grooved fittings shall be schedule 10.

C. Galvanized- and Black-Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M, standard-weight, seamless steel pipe with threaded ends.

D. Galvanized and Uncoated, Steel Couplings: ASTM A 865, threaded.

E. Galvanized and Uncoated, Gray-Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern.

F. Grooved-Joint, Steel-Pipe Appurtenances:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Tyco Fire & Building Products LP.
   b. Victaulic Company.
   c. Anvil Star Piping Inc.

2. Pressure Rating: 175 psig unless otherwise noted.
3. Galvanized and Uncoated, Grooved-End Fittings for Steel Piping: ASTM A 47/A 47M, malleable-iron casting or ASTM A 536, ductile-iron casting; with dimensions matching steel pipe.
4. Grooved-End-Pipe Couplings for Steel Piping: AWWA C606 and UL 213, rigid pattern, unless otherwise indicated, for steel-pipe dimensions. Include ferrous housing sections, EPDM-rubber gasket, and bolts and nuts.

2.2 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free.

1. Class 125, Cast-Iron Flanges and Class 150, Bronze Flat-Face Flanges: Full-face gaskets.
2. Class 250, Cast-Iron Flanges and Class 300, Steel Raised-Face Flanges: Ring-type gaskets.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

D. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

E. Solvent Cements for Joining CPVC Piping and Tubing: ASTM F 493, solvent cement recommended by pipe and fitting manufacturer, and made for joining CPVC sprinkler pipe and fittings. Include cleaner or primer recommended by pipe and fitting manufacturer.

1. Use solvent cement that has a VOC content of 490 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use adhesive primer that has a VOC content of 650 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

F. Plastic, Pipe-Flange Gasket, and Bolts and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.3 LISTED FIRE-PROTECTION VALVES

A. General Requirements:

1. Valves shall be UL listed or FM approved.
2. Minimum Pressure Rating for Standard-Pressure Piping: 175 psig.
3. Minimum Pressure Rating for High-Pressure Piping: 300 psig.

B. Ball Valves:

1. Standard: UL 1091 except with ball instead of disc.
2. Valves NPS 1-1/2 and Smaller: Bronze body with threaded ends.
3. Valves NPS 2 and NPS 2-1/2: Bronze body with threaded ends or ductile-iron body with grooved ends.
4. Valves NPS 3: Ductile-iron body with grooved ends.

C. Check Valves:

1. Standard: UL 312.
2. Pressure Rating: 300 psig.
3. Type: Swing check.
4. Body Material: Cast iron.
5. End Connections: Flanged or grooved.

D. Iron Butterfly Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Anvil International, Inc.
    b. Kennedy Valve; a division of McWane, Inc.
    c. Milwaukee Valve Company.
    d. NIBCO INC.
    e. Tyco Fire & Building Products LP.
    f. Victaulic Company.

2. Standard: UL 1091.
3. Pressure Rating: 175 psig.
4. Body Material: Cast or ductile iron.
5. Style: Lug or wafer.
6. End Connections: Grooved.

2.4 FIRE-DEPARTMENT CONNECTIONS

A. Fire-Department Connection:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Fire-End & Croker Corporation.
    b. Tyco Fire & Building Products LP
    c. Potter Roemer
    d. Elkhart Brass

2. Standard: UL 405.
3. Type: As indicated on drawings.
4. Pressure Rating: 175 psig minimum.
5. Body Material: Corrosion-resistant metal.
6. Inlets: Threads according to NFPA 1963 and matching local fire-department sizes and threads. Include extension pipe nipples, lugged swivel connections, and check devices or clappers.
7. Caps: Lugged type, with gasket and chain.

2.5 SPRINKLERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:

1. Reliable Automatic Sprinkler Co., Inc.
2. Tyco Fire & Building Products LP.
3. Victaulic Company.
4. Viking Corporation.

B. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating for Residential Sprinklers: 175 psig maximum.
3. Pressure Rating for Automatic Sprinklers: 175 psig minimum.
4. Pressure Rating for High-Pressure Automatic Sprinklers: 300 psig.
5. Refer to drawings for sprinkler types and applicable locations.

2.6 GROUT

A. Standard: ASTM C 1107, Grade B, posthardening and volume adjusting, dry, hydraulic-cement grout.

B. Characteristics: Nonshrink, and recommended for interior and exterior applications.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 PREPARATION

A. Perform fire-hydrant flow test according to NFPA 13 and NFPA 291. Use results for system design calculations required in "Quality Assurance" Article.

B. Report test results promptly and in writing.

3.2 SERVICE-ENTRANCE PIPING

A. Connect sprinkler piping to water-service piping for service entrance to building.

B. Install shutoff valve, backflow preventer, pressure gage, drain, and other accessories indicated at connection to water-service piping.

3.3 PIPING INSTALLATION

A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated, as far as practical.

1. Deviations from approved working plans for piping require written approval from authorities having jurisdiction. File written approval with Architect before deviating from approved working plans.

B. Piping Standard: Comply with requirements for installation of sprinkler piping in NFPA 13.

C. Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

D. Install unions adjacent to each valve in pipes NPS 2 and smaller.

E. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

F. Install "Inspector's Test Connections" in sprinkler system piping, complete with shutoff valve, and sized and located according to NFPA 13.

G. Install sprinkler piping with drains for complete system drainage.

H. Install sprinkler control valves, test assemblies, and drain risers adjacent to standpipes when sprinkler piping is connected to standpipes.

I. Install automatic (ball drip) drain valve at each check valve for fire-department connection, to drain piping between fire-department connection and check valve. Install drain piping to and spill over floor drain or to outside building.

J. Install alarm devices in piping systems.

K. Install hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13. **Powder driven inserts are not allowed.**

L. Install pressure gages on riser or feed main, at each sprinkler test connection, and at top of each standpipe. Include pressure gages with connection not less than NPS 1/4 and with soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and install where they will not be subject to freezing.

M. Pressurize and check preaction sprinkler system piping and air-pressure maintenance devices.

N. Fill sprinkler system piping with water.

3.4 JOINT CONSTRUCTION

A. Install couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.

B. Install unions adjacent to each valve in pipes NPS 2 and smaller.

C. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

D. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

E. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

F. Flanged Joints: Select appropriate gasket material in size, type, and thickness suitable for water service. Join flanges with gasket and bolts according to ASME B31.9.

G. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

H. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators according to "Quality Assurance" Article.

1. Shop weld pipe joints where welded piping is indicated. Do not use welded joints for galvanized-steel pipe.

I. Steel-Piping, Roll-Grooved Joints: Roll rounded-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe grooved joints.

J. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

K. Plastic-Piping, Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements. Apply primer.
2. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.

3.5 VALVE AND SPECIALTIES INSTALLATION

A. Install listed fire-protection valves, trim and drain valves, specialty valves and trim, controls, and specialties according to NFPA 13 and authorities having jurisdiction.

B. Install listed fire-protection shutoff valves supervised open, located to control sources of water supply except from fire-department connections. Install permanent identification signs indicating portion of system controlled by each valve.

C. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water-supply sources.

D. Specialty Valves:

1. General Requirements: Install in vertical position for proper direction of flow, in main supply to system.
2. Alarm Valves: Include bypass check valve and retarding chamber drain-line connection.

3.6 SPRINKLER INSTALLATION

A. Install sprinklers in suspended ceilings in center of acoustical ceiling panels. Sprinklers may be centered in tile either by hard pipe or with flexible connectors. Connectors shall be **UL** 2443 listed, Flex Heads Industries or equal.

B. Sprinkler Head Location: Sprinkler heads shall be installed no closer than 4 inches to any Ceiling grid or wall.

C. Install dry-type sprinklers with water supply from heated space. Do not install pendent or sidewall, wet-type sprinklers in areas subject to freezing.

3.7 ESCUTCHEON INSTALLATION

A. Install escutcheons for penetrations of walls, ceilings, and floors.

B. Escutcheons for Piping:

1. Piping with Fitting or Sleeve Protruding from Wall: deep pattern.
2. Bare Piping at Wall and Floor Penetrations in Finished Spaces: cast brass with polished chrome-plated finish.
3. Bare Piping at Ceiling Penetrations in Finished Spaces cast brass with polished chrome-plated finish.

3.8 SLEEVE INSTALLATION

A. General Requirements: Install sleeves for pipes and tubes passing through penetrations in floors, partitions, roofs, and walls.

B. Sleeves are not required for core-drilled holes.

C. Permanent sleeves are not required for holes formed by removable PE sleeves.

D. Cut sleeves to length for mounting flush with both surfaces unless otherwise indicated.

E. Install sleeves in new partitions, slabs, and walls as they are built.

F. For interior wall penetrations, seal annular space between sleeve and pipe or pipe insulation using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."

G. For exterior wall penetrations above grade, seal annular space between sleeve and pipe using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."

H. For exterior wall penetrations below grade, seal annular space between sleeve and pipe using sleeve seals.

I. Seal space outside of sleeves in concrete slabs and walls with grout.

J. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation unless otherwise indicated.

K. Install sleeve materials according to the following applications:

1. Sleeves for Piping Passing through Concrete Floor Slabs: Molded PVC.
2. Sleeves for Piping Passing through Concrete Floor Slabs of Mechanical Equipment Areas or Other Wet Areas: Stack sleeve fittings.

    a. Extend sleeves 2 inches above finished floor level.
    b. For pipes penetrating floors with membrane waterproofing, extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level. Comply with requirements for flashing in Division 07 Section "Sheet Metal Flashing and Trim."

3. Sleeves for Piping Passing through Gypsum-Board Partitions:

    a. PVC-pipe sleeves for pipes smaller than NPS 6.
    b. Galvanized-steel-sheet sleeves for pipes NPS 6 and larger.
    c. Exception: Sleeves are not required for water-supply tubes and waste pipes for individual plumbing fixtures if escutcheons will cover openings.

4. Sleeves for Piping Passing through Concrete Roof Slabs: Molded PVC.
5. Sleeves for Piping Passing through Exterior Concrete Walls:

    a. Galvanized-steel-pipe sleeves for pipes smaller than NPS 6.
    b. Cast-iron wall pipe sleeves for pipes NPS 6 and larger.
    c. Install sleeves that are large enough to provide 1-inch annular clear space between sleeve and pipe or pipe insulation when sleeve seals are used.
    d. All exterior sleeves shall be sealed water tight.

6. Sleeves for Piping Passing through Interior Concrete Walls:

    a. PVC-pipe sleeves for pipes smaller than NPS 6.
    b. Galvanized-steel-sheet sleeves for pipes NPS 6 and larger.

L. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestop materials and installations in Division 07 Section "Penetration Firestopping."

3.9 IDENTIFICATION

A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

B. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.10 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
3. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
4. Energize circuits to electrical equipment and devices.
5. Start and run excess-pressure pumps.
6. Coordinate with fire-alarm tests. Operate as required.
7. Coordinate with fire-pump tests. Operate as required.
8. Verify that equipment hose threads are same as local fire-department equipment.

C. Sprinkler piping system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 21 13 13