Project No. 2023_079

MIDLOTHIAN ISD FRANK SEALE MIDDLE SCHOOL
INDOOR GOLF FACILITY

December 20, 2023

GENERAL

The following changes, additions or deletions for the above project shall be made to the contract documents; all other conditions shall remain the same. Note: the additions, deletions or changes listed in this Addendum may affect more than the specific instance(s) mentioned. Coordination may be necessary to fully revise cases of duplicates information. The addendum supersedes current conditions shown. Acknowledgements receipt of this addendum. This addendum forms a part of the contract documents and modifies them as follows.

NOTICE

Addendum No. 1 will be issued December 20, 2023 and will include additional bidder questions.

1. At the pre-bid site walk there was mention of removing the overhead wire/cables that span the existing space, are these to be removed?

   The overhead wire/aircraft cables will be removed and infill holes with CMU block crack/hole filler to match surface.

2. Will the wall padding called out at detail 2 on A-101 be existing wall padding reinstalled or will this be new wall padding, please advise?

   New wall padding will be installed to match the school color blue. Contact architect/owner for correct colors.

3. Trackman – Indoor only, indoor/outdoor was in specifications – address in addendum?

   Indoor only Trackman 4 will be in the drawings.

4. Someone mentioned something about special lighting for the Trackman, but in conversation with you guys-you stated it was part of the system package.

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irving tx 75039
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Trackman 4 (indoor only) will provide lighting for tee strike location.

5. What are the Sherwin Williams color codes for PT1, PT2 and PT3 on the finish schedule?

   Colors for PT1, PT2, and PT3 are to match existing wall colors and door and frame colors.

6. What color is being requested for the padding that will go on the walls?

   New wall padding will be installed to match the school color blue. Contact architect/owner for correct colors.

7. Note 3 on T-200 shows to update an existing P/A speaker to match the existing school. There are no specifications or details on what type of speaker this is. Please advise.

   A specification for the P/A speaker has been provided on sheet T-201 Technology Sheet Specifications.

DRAWINGS

G-001 – TITLE SHEET – REISSUED SHEET

1. Clouded Architectural, Mechanical, Electrical, and Technology revised sheets.

A-101 – FLOOR PLAN AND DEMOLITION FLOOR PLAN – REISSUED SHEET

1. Added note to use trackman 4 indoor only technology on floor plan.
2. Added note to use SYNLawn putt holes or approved equal.
3. Updated detail 3/S-00 Wall Partition to use Plywood.
4. Added note to demolition floor plan to remove aircraft cable above floor and patch holes in CMU block with block filler cement.
5. Added note flat screen TV by owner.

A-202 – INTERIOR ELEVATIONS – REISSUED SHEET

1. Added note to east interior elevation for existing fence padding and fence to remain. Also, added a note to use school color blue for ladder padding.
2. Added note to north interior elevation to paint entire column PT1 which is to match wall paint.

3. Added note to use the school color blue for column padding and to use plywood column wrap.
4. Added note to use the school color blue for wall padding.
5. Added note to CMU wall to use block filler cement on all hoes and cracks.

M-101 – MECHANICAL FLOOR PLAN – REISSUED SHEET

1. Seals added.
2. Revised mechanical HVLS fan specification.
3. Added Electrical Provisions specification.
4. Revised keyed note 1.
5. Updated Fan schedule.
6. Added switch locations to plans.

E-101 – ELECTRICAL FLOOR PLAN – REISSUED SHEET

1. Seals added.
2. Revised Symbol Schedule.
3. Added note to state all lighting is existing to remain.

E-102 – ELECTRICAL SHEET SPECIFICATION – REISSUED SHEET

1. Seals added.
2. Revised Specification Section 260533 Parts 2 & 3.

T-200 – TECHNOLOGY FLOOR PLAN – REISSUED SHEET

1. Seals added.
2. Added Intercom legend.
3. Revised responsibility matrix.
4. Revised technology keyed notes #3.
5. Added existing wall mounted cabinet approximate location.

T-201 – TECHNOLOGY SHEET SPEC – REISSUED SHEET

1. Seals added.
2. Revised Intercom System Specifications.

ATTACHMENTS

G-001, Title Sheet, Dated 12-20-2023

A-101, Floor Plan and Demolition Floor Plan, Dated 12-20-2023

A-102, Interior Elevations, Dated 12-20-2023

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M-101, Mechanical Floor Plan, Dated 12-20-2023

E-101, Electrical Floor Plan, Dated 12-20-2023

E-102, Electrical Floor Plan, Dated 12-20-2023

T-200, Technology Floor Plan, Dated 12-20-2023

T-201, Technology Sheet Spec, Dated 12-2023

12/7/2023 Pre-Bid Sign in Sheet

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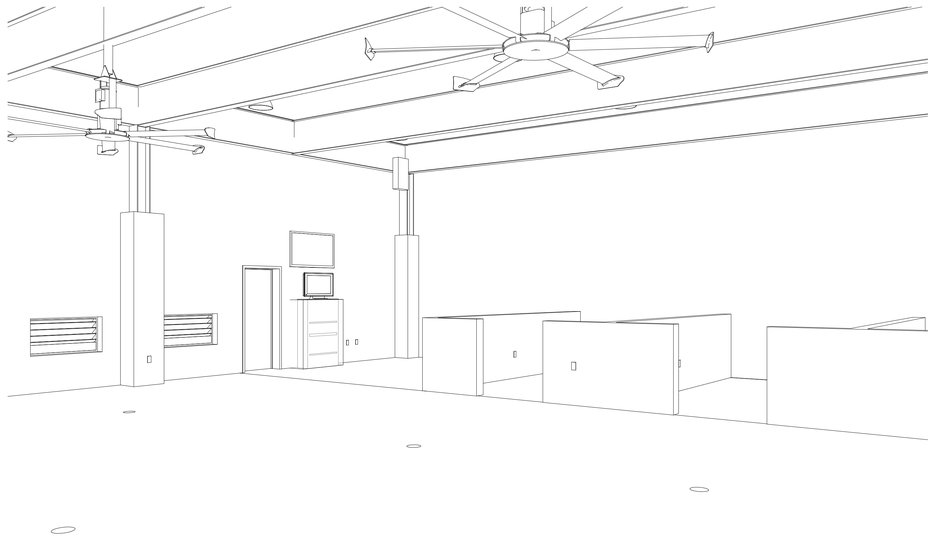
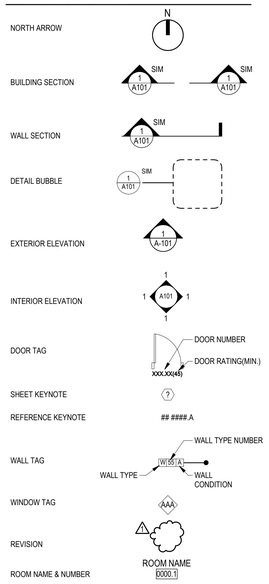


ABBREVIATIONS LIST

AS DESCRIBED THE US NATIONAL CAD STANDARDS MODULE 4 TERMS AND ABBREVIATIONS, INCLUDING THE FOLLOWING:

A/C	Air Conditioning/Conditioner
AB	Anchor Bolt
ABC	Aggregate Base Course
ACT	Acoustical Ceiling Tile
AFF	Above Finish Floor
ALT	Alternate
ALUM	Aluminum
BRG	Bearing
BM	Beam
BUR	Built up roof
CI	Cast Iron
CJ	Control Joint
CL	Center Line
CLG	Ceiling
CLR	Clear
CMU	Concrete Masonry Unit
CO	Clean Out
COL	Column
CONC	Concrete
CONT	Continue
CPT	Carpet
CT	Ceramic Tile
DF	Drinking Fountain
DIA	Diameter
DIM	Dimension
DS	Downspout
DWG	Drawing
ELEC	Electric
EJ	Expansion Joint
EL	Elevation
EQ	Equal
EXIST	Existing
EXT	Exterior
FD	Floor Drain
FDC	Fire Department Connection
FEC	Fire Extinguisher Cabinet
FIN FLR	Finished Floor
FIN GR	Finished Grade
FIN	Finish
FLR	Floor
GA	Gage
GAL	Galvanized
GLU LAM	Glue Laminated Wood
GYP	Gypsum
GYP BD	Gypsum Board
HB	Hose Bibb
HM	Hollow Metal
HORIZ	Horizontal
HVAC	Heating/Ventilating/Air Conditioning
ID	Inside Diameter
INFO	Information
INT	Interior
LAV	Lavatory
LLH	Long Leg Horizontal
LLG	Long Leg Vertical
LVR	Louver
MAX	Maximum
MECH	Mechanical
MFR	Manufacturer
MO	Masonry Opening
MIN	Minimum
MISC	Miscellaneous
MTL	Metal
NIC	Not In Contract
NTS	Not To Scale
OC	On Center
OD	Outside Diameter
OPP	Opposite
ORD	Overflow Roof Drain
PL	Property Line
PLAM	Plastic Laminate
PLMB	Plumbing
PLYWD	Plywood
PWR	Power
RD	Roof Drain
RO	Rough Opening
S/S	Stainless Steel
SCHED	Schedule
SF	Square Foot
SHT	Sheet
SIM	Similar
SPEC	Specifications
SQ	Square
SS	Sanitary Sewer
STD	Standard
STRUCT	Structural
SUSP	Suspended
T&G	Tongue and Groove
TEMP	Temporary
TMPD	Tempered
TOB	Top of Beam
TOC	Top of Curb/Concrete
TOJ	Top of Joist
TOM	Top of Masonry
TOS	Top of Steel
TOW	Top of Wall
TYP	Typical
UGNG	Underground
UNO	Unless Noted Otherwise
VCT	Vinyl Composition Tile
VERT	Vertical
WC	Water Closet
WD	Wood
WH	Water Heater
WWF	Welded Wire Fabric

TYPICAL SYMBOLS LEGEND



CONTACT INFORMATION

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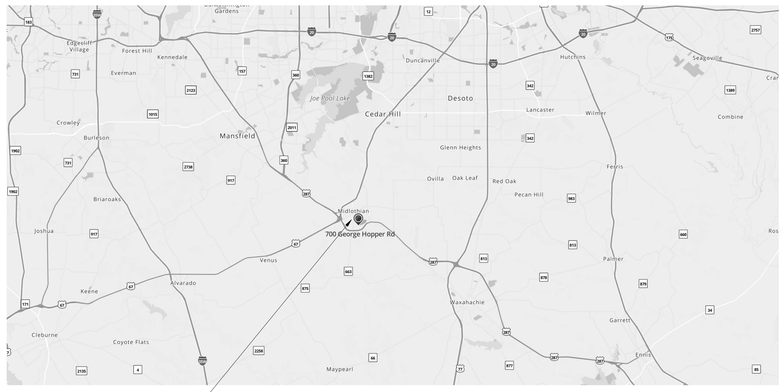
VACINITY MAP



PROJECT LOCATION
700 George Hopper Rd.
Midlothian, TX 75065

SHEET INDEX

GENERAL

SHEET #	DESCRIPTION	REV. DELTA #	REV. DATE
1 G-001	TITLE SHEET	1	12.20.2023

ARCHITECTURAL

SHEET #	DESCRIPTION	REV. DELTA #	REV. DATE
AS101	ARCHITECTURAL SITE PLAN		
AS102	ENLARGED SITE PLAN		
1 A-101	FLOOR PLAN AND DEMOLITION FLOOR PLAN	1	12.20.2023
A-102	REFLECTIVE CEILING PLAN AND FINISH FLOOR PLAN		
1 A-202	INTERIOR ELEVATIONS	1	12.20.2023
A-402	SPECIFICATIONS		

ELECTRICAL

SHEET #	DESCRIPTION	REV. DELTA #	REV. DATE
1 E-101	ELECTRICAL FLOOR PLAN	1	12.20.2023
E-102	ELECTRICAL SHEET SPECS	1	12.20.2023

MECHANICAL

SHEET #	DESCRIPTION	REV. DELTA #	REV. DATE
1 M-101	MECHANICAL FLOOR PLAN	1	12.20.2023

TECHNOLOGY

SHEET #	DESCRIPTION	REV. DELTA #	REV. DATE
T-200	TECHNOLOGY FLOOR PLAN	1	12.20.2023
1 T-201	TECHNOLOGY SHEET SPECIFICATION	1	12.20.2023

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REGISTERED ARCHITECT
BRYANT C. HARGRAVE
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STATE OF TEXAS

12-20-2023

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OWP PROJECT NO.
2022-079

DATE OF ISSUE
02.27.2024

REVISIONS

DELTA	DESCRIPTION	DATE
1	ADDENDUM	12.20.2023

PROJECT TEAM
Ed Studio

DRAWN BY
EA

PROJECT PHASE
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SHEET CONTENTS
TITLE SHEET

SHEET NO.
G-001

AGENCY NO.

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12/20/2023 10:28:44 AM orcutt | winslow / 2022-079 / INDOOR GOLF FACILITY - FRANK SEALE MIDDLE SCHOOL / SCHEMATIC DESIGN / A-101- FLOOR PLAN AND DEMOLITION FLOOR PLAN / EA
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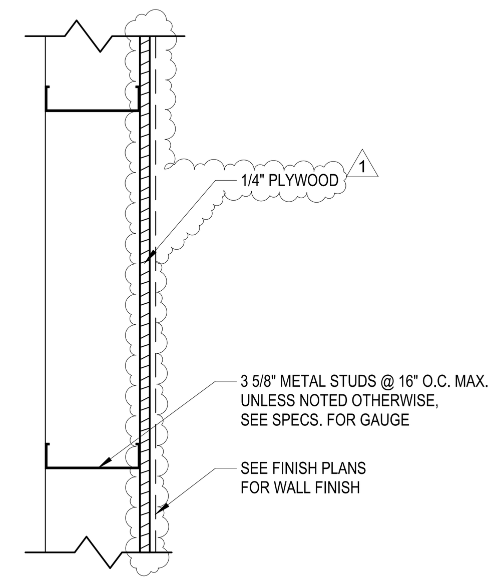
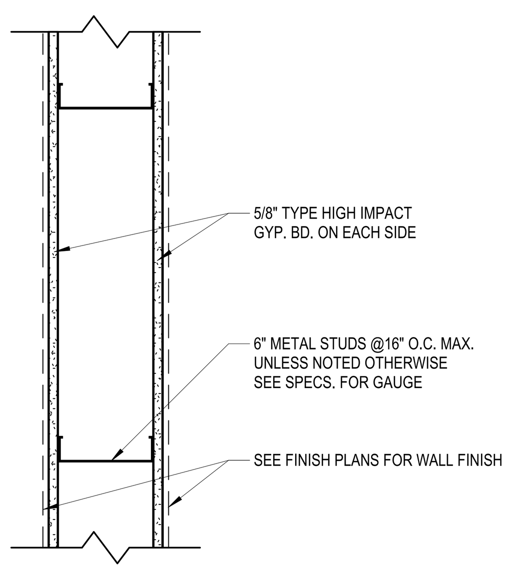
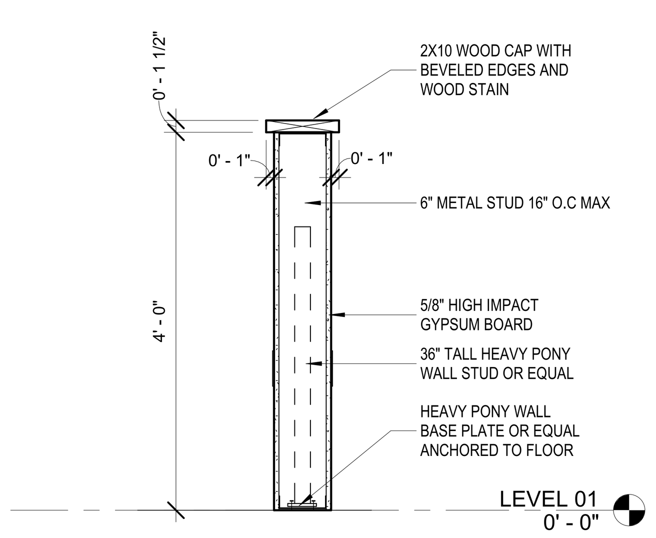


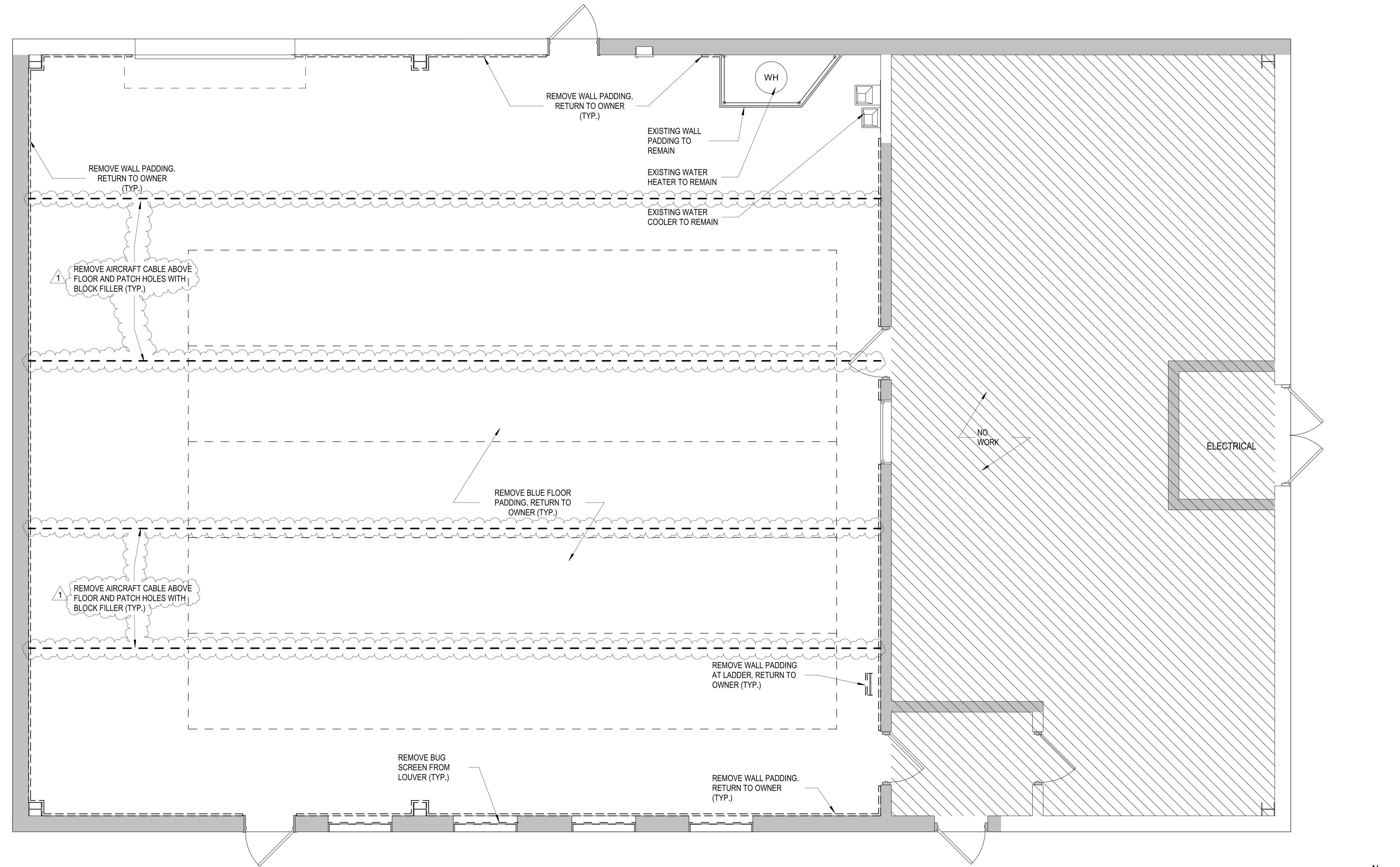
3 S-00 WALL PARTITION
1 1/2" = 1'-0"



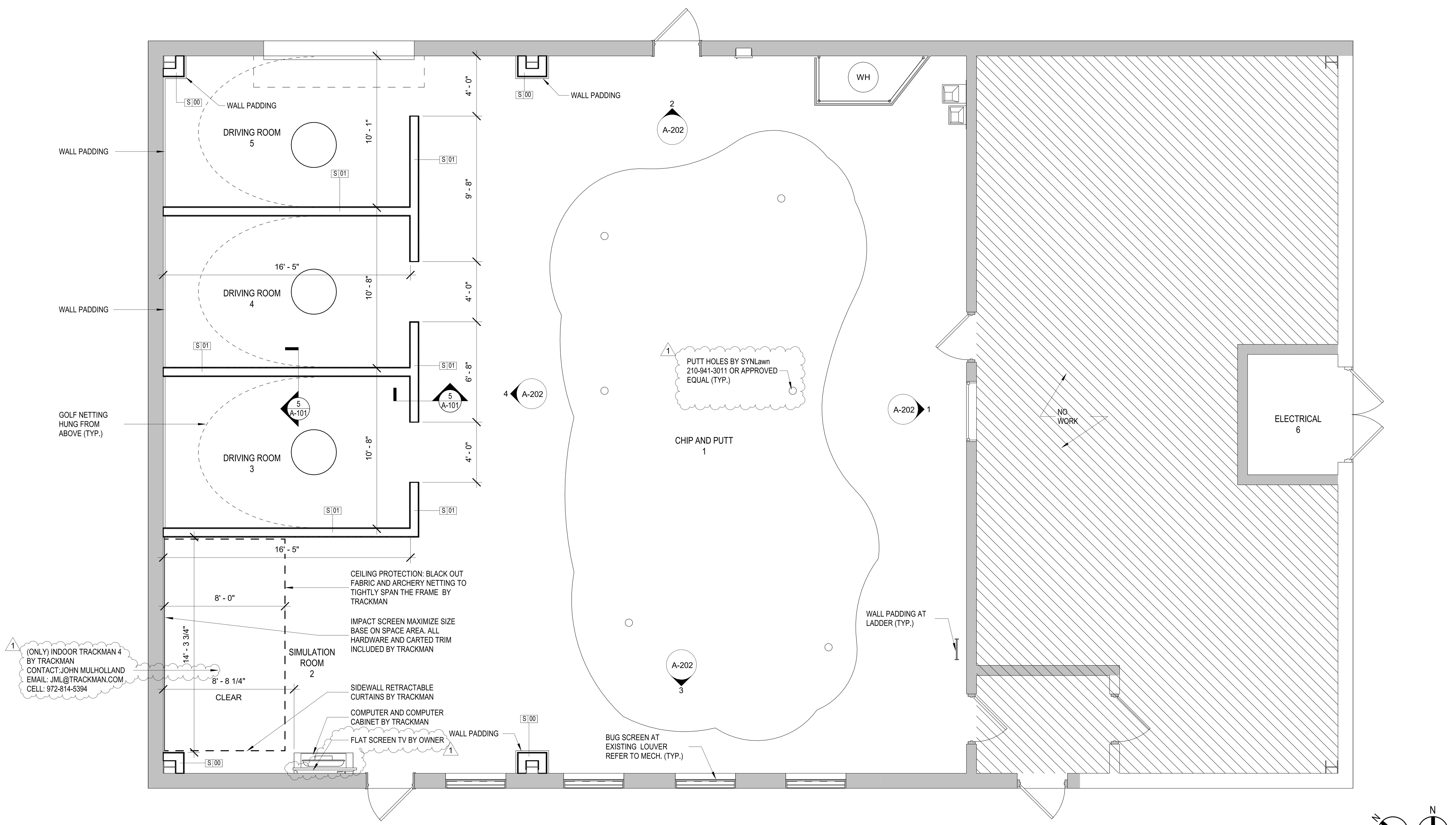
4 S-01 WALL PARTITION
1 1/2" = 1'-0"



5 WALL SECTION
3/4" = 1'-0" REF 2 / A-101



1 DEMOLITION FLOOR PLAN
1/4" = 1'-0" REF 5 / A-101



2 FLOOR PLAN
1/4" = 1'-0" REF 5 / A-101

GENERAL SHEET NOTES

A. Keynotes and legends are typical for all floor plan sheets, and may not apply to each sheet.

B. Dimensions are to face of masonry, metal studs and centerline of columns unless noted otherwise.

C. See enlarged floor plans and details for specific locations.

D. Field verify all dimensions prior to fabrication of any cabinetry, frames, structural items, etc.

E. All guardrails and handrails shall be fabricated and installed in accordance with applicable codes, regulations, and AHJ.

F. Verify and coordinate all requirements for owner furnished items, prior to performance of any work that is to accommodate and interface with such items.

G. All angles are increments of 45 degrees unless noted otherwise.

H. Provide "Fry" reveal FDM 625-75 or equal at all gypsum board to masonry or concrete transitions.

I. All frame walls to be Type S-01 and all furring walls to be S-00 unless noted otherwise.

DEMOLITION NOTES

A. Coordinate demolition with new construction. All demolition and repair necessary to accomplish new construction shall be included. Contractor shall remove all existing improvements whether or not specifically indicated on the drawings to facilitate the completion of all required work. Contractors shall visit the site and verify all quantities and items required to be removed.

B. Where gypsum board is to remain, patch, tape and float portion of wall to match adjacent new finish.

C. Contractor to coordinate demolition so all wiring, conduit, equipment, etc. to remain is not damaged. Certain items may be temporarily removed and replaced later during course of restoration. General Contractor will be required to incorporate this work into their schedule. The systems may include, but are not limited to the following: EMS/controls, electrical power and lighting, data, audiovisual, security, intercom, CATV, etc. Contractor to tag and loop wire to remain back to control panels, typical.

D. Any plumbing to be demolished shall have piping terminated above finished ceiling, below finished floor, and behind finished walls. All drain/waste/vent piping to be capped and sealed at all openings per requirements of AHJ.

E. Remove floor and wall covering typical throughout areas of demolition (UNO) and any other areas as affected by demolition/new construction. Parge, float and/or prepare floor and wall surfaces to receive new finishes.

F. Contractor shall coordinate any shutdown required during demolition with Owner.

G. Contractor to maintain or repair fire and smoke ratings of existing floor, roof and wall assemblies throughout.

WALL & PARTITION GENERAL NOTES

A. All penetrations at smoke and fire rated assemblies shall be protected, sealed, and dampered, using only UL or ICC-ES approved methods, materials and installation, as required to maintain the assembly's rating and smoke resistance. All materials and installation details shall conform to the UL listings for "through penetration fire stop systems" where applicable. The Contractor shall submit shop drawing details, furnished by the manufacturer of the fire stop material, that show complete conformance to the UL Listing, and such drawings shall be available to the Fire or Building Inspectors on-site. The drawings shall be specific for each penetration type.

B. All backing support for wall mounted items shall be 16 gauge min. metal strapping, UNO.

C. Brace interior non-bearing walls to structure per Architectural Drawings.

D. All light gauge metal framing shall be installed in strict accordance with ASTM 754 "Standard Specifications for Installation of Steel Framing Members".

FLOOR PLAN LEGEND

EXISTING WALLS

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STATE OF TEXAS
12-20-2023

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OWP PROJECT NO.
2022-079

DATE OF ISSUE
02.27.2024

REVISIONS

DELTA	DESCRIPTION	DATE
1	ADDENDUM	12.20.2023

PROJECT TEAM
Ed Studio

DRAWN BY
EA

PROJECT PHASE
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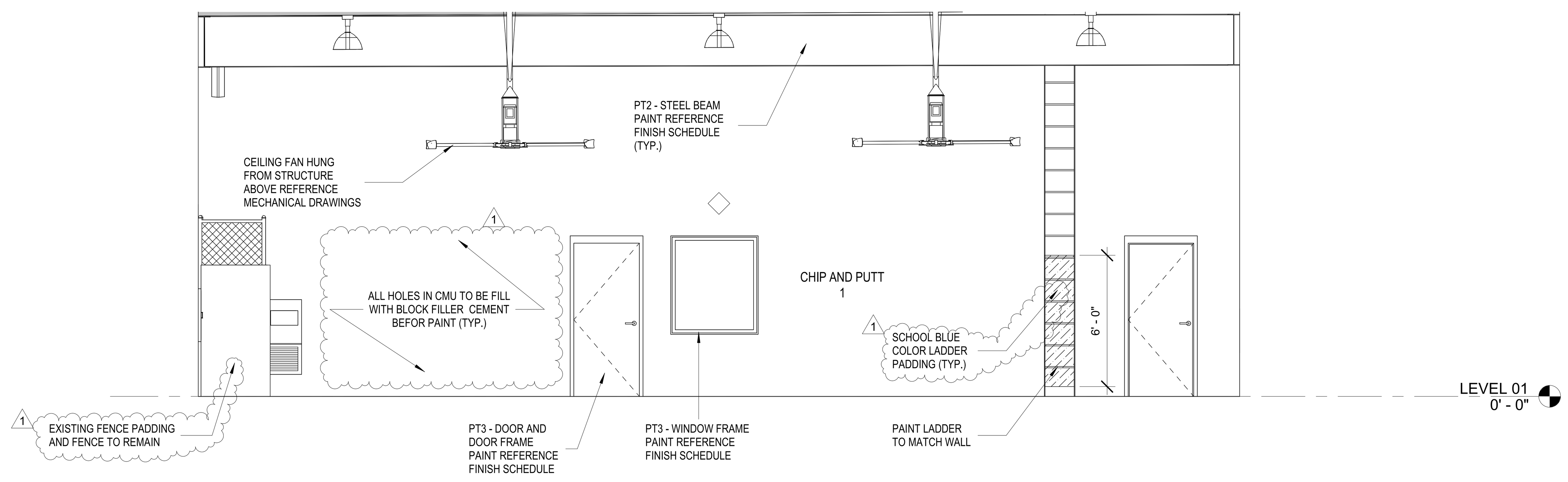
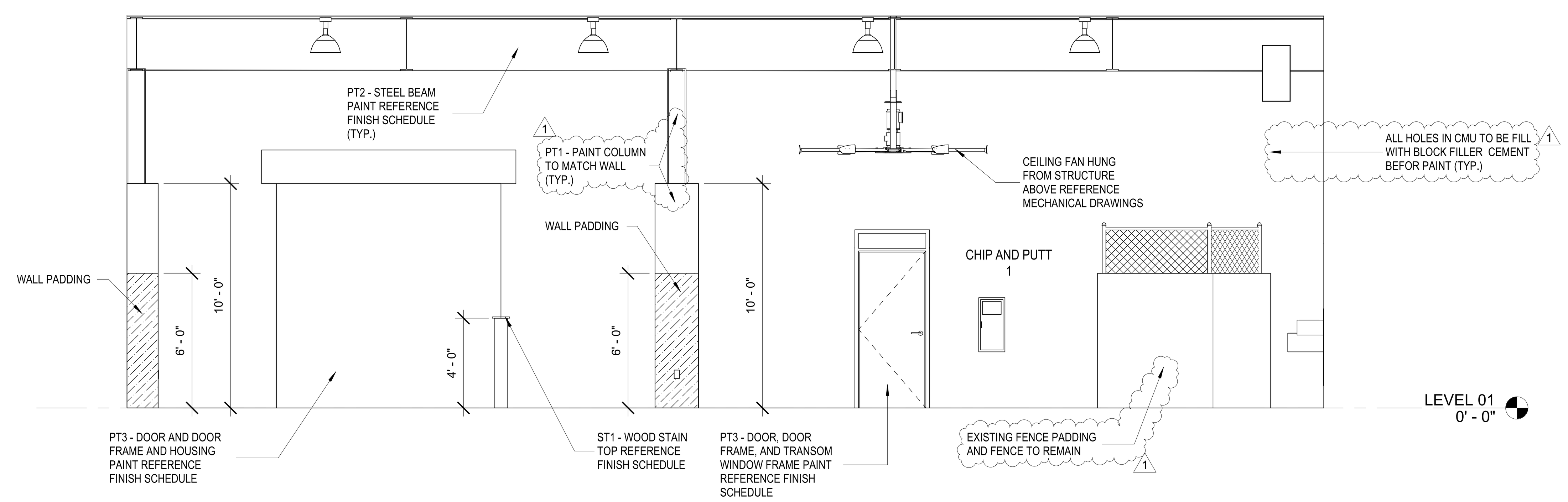
SHEET CONTENTS
FLOOR PLAN AND DEMOLITION FLOOR PLAN

SHEET NO.
A-101

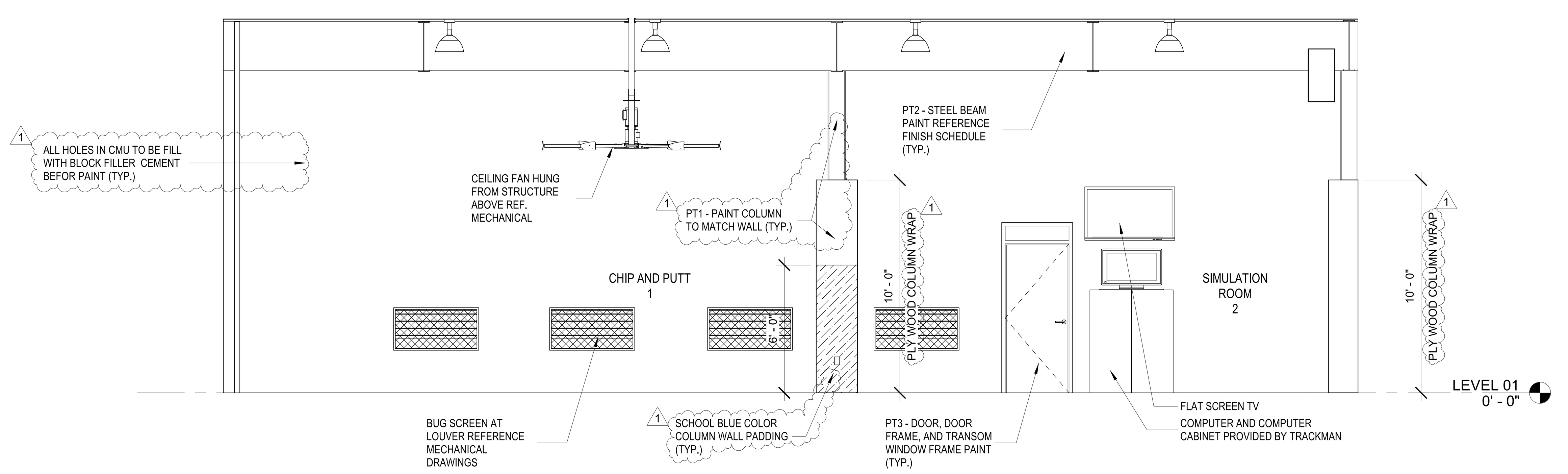
AGENCY NO.



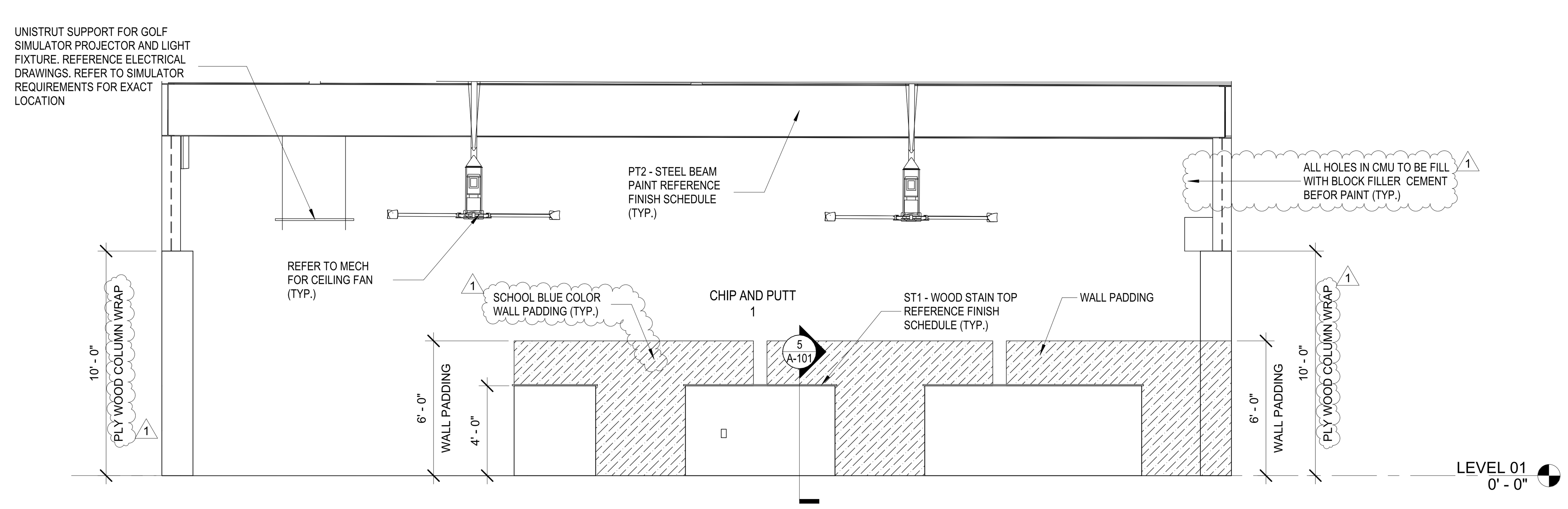
1 EAST INTERIOR ELEVATION
1/4" = 1'-0" REF 2 / A-101



2 NORTH INTERIOR ELEVATION
1/4" = 1'-0" REF 2 / A-101



3 SOUTH INTERIOR ELEVATION
1/4" = 1'-0" REF 2 / A-101



4 WEST INTERIOR ELEVATION
1/4" = 1'-0" REF 2 / A-101

GENERAL SHEET NOTES

A. Paint all exposed metal that is not specified to receive paint finish.

B. All exposed flashing shall be factory finished.

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12-20-2023

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OWP PROJECT NO.	DATE OF ISSUE
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REVISIONS

DELTA	DESCRIPTION	DATE
1	ADDENDUM	12.20.2023

PROJECT TEAM	DRAWN BY
Ed Studio	EA

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SHEET CONTENTS
INTERIOR ELEVATIONS

SHEET NO.
A-202

AGENCY NO.

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SYMBOL SCHEDULE

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
SWITCHES	
$	LINE VOLTAGE SINGLE POLE SWITCH
$2	LINE VOLTAGE 2-POLE SWITCH
$3	LINE VOLTAGE 3-WAY SWITCH
$4	LINE VOLTAGE 4-WAY SWITCH
$K	LINE VOLTAGE KEYED SWITCH
$3K	LINE VOLTAGE KEYED 3-WAY SWITCH
$D	LINE VOLTAGE WALL DIMMER SWITCH, SIZE AND TYPE AS REQUIRED
$VD	LINE VOLTAGE WALL MOUNTED DIMMER SWITCH WITH VACANCY SENSOR. MANUAL ON / AUTO OFF.
$V	LINE VOLTAGE WALL MOUNTED SWITCH WITH VACANCY SENSOR. MANUAL ON / AUTO OFF.
$OC	LINE VOLTAGE WALL MOUNTED SWITCH WITH VACANCY SENSOR. AUTO ON / AUTO OFF.
$P	LINE VOLTAGE SWITCH WITH PILOT LIGHT
$MC	MOMENTARY CONTACT SWITCH
B	PUSH BUTTON
$TH	6-HOUR TIMER SWITCH WITH HOLD
$T	6-HOUR TIMER SWITCH WITH NO HOLD
G	20 AMP GENERATOR TRANSFER DEVICE
LOW VOLTAGE LIGHTING CONTROLS	
$R	LOW VOLTAGE LIGHTING CONTROLLER WALL SWITCH
$B	BMCS TIMER LOCAL OVERRIDE SWITCH
P	CEILING MOUNTED PHOTO SENSOR
V	CEILING MOUNTED VACANCY SENSOR, MANUAL ON / AUTO OFF
S	CEILING MOUNTED OCCUPANCY SENSOR, AUTO ON / AUTO OFF
R	LIGHTING CONTROLLER WITH GTD. ZONES AS REQUIRED.
RECEPTACLES AND OUTLETS	
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	POWER POLE
	125/250 VOLT, 1 PHASE, 3-WIRE, 20 AMPS UNLESS NOTED OTHERWISE
	DOUBLE DUPLEX IN 2-GANG BOX WITH SINGLE COVER PLATE
	DOUBLE DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE IN 2-GANG BOX WITH SINGLE COVER PLATE
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
	FLUSH FLOOR CONCEALED SERVICE DUPLEX RECEPTACLE OUTLET
	FLUSH FLOOR CONCEALED SERVICE DOUBLE DUPLEX RECEPTACLE OUTLET
	CONCEALED SERVICE MULTI-ACCESS FLOOR BOX WITH WIRING DEVICES AS INDICATED ON DRAWINGS. SIZE TO MATCH DEVICE QUANTITIES.
R	REMOTE BLANK FACE GFCI DEVICE.
U	PROVIDE DUPLEX POWER RECEPTACLE AND USB OUTLET PER SPECIFICATION 26 27 73 WITH QUADRUPLEX OUTLET COVER PLATE.
CR	E.C. TO PROVIDE ROUGH-IN FOR CARD READER JUNCTION BOX. REFER TO TECHNOLOGY SHEETS FOR ADDITIONAL INFORMATION.
SR	SWITCH CONTROLLED RECEPTACLE WITH THE TOP RECEPTACLE LOAD CONTROLLED VIA PLUG LOAD SWITCH MEETING 2021 IECC 405.11 REQUIREMENTS. SPLIT LOAD-CONTROLLED RECEPTACLES SHALL BE PERMANENTLY FACTORY MARKED AS CONTROLLED.

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
CIRCUITING	
———	CONDUIT
– — –	CONDUIT BELOW FLOOR, SLAB, OR GRADE
SUBSCRIPTS AND ABBREVIATIONS	
WP	INDICATES WEATHERPROOF
WG	INDICATES WIREGUARD
H	INDICATES HORIZONTAL
TL	INDICATES TWIST LOCK
NL	LIGHT FIXTURE ON NIGHT LIGHT CIRCUIT
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
1-L	REFER TO ONE-LINE DIAGRAM
⊢	INDICATES WALL MOUNTED DEVICE
●	NEXT TO ANY SYMBOL INDICATES FINAL ROUGH-IN FIELD COORDINATION BY CONTRACTOR WITH ARCHITECTURAL MILLWORK DRAWINGS AND OTHER TRADES

GENERAL NOTES:

-ALL EXTERIOR BUILDING ELECTRICAL EQUIPMENT TO BE WEATHERPROOF NEMA-3R MINIMUM.

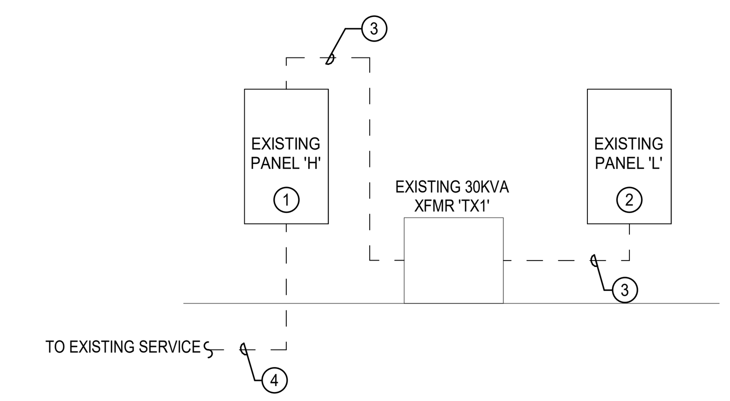
1

CONTRACTOR NOTES:

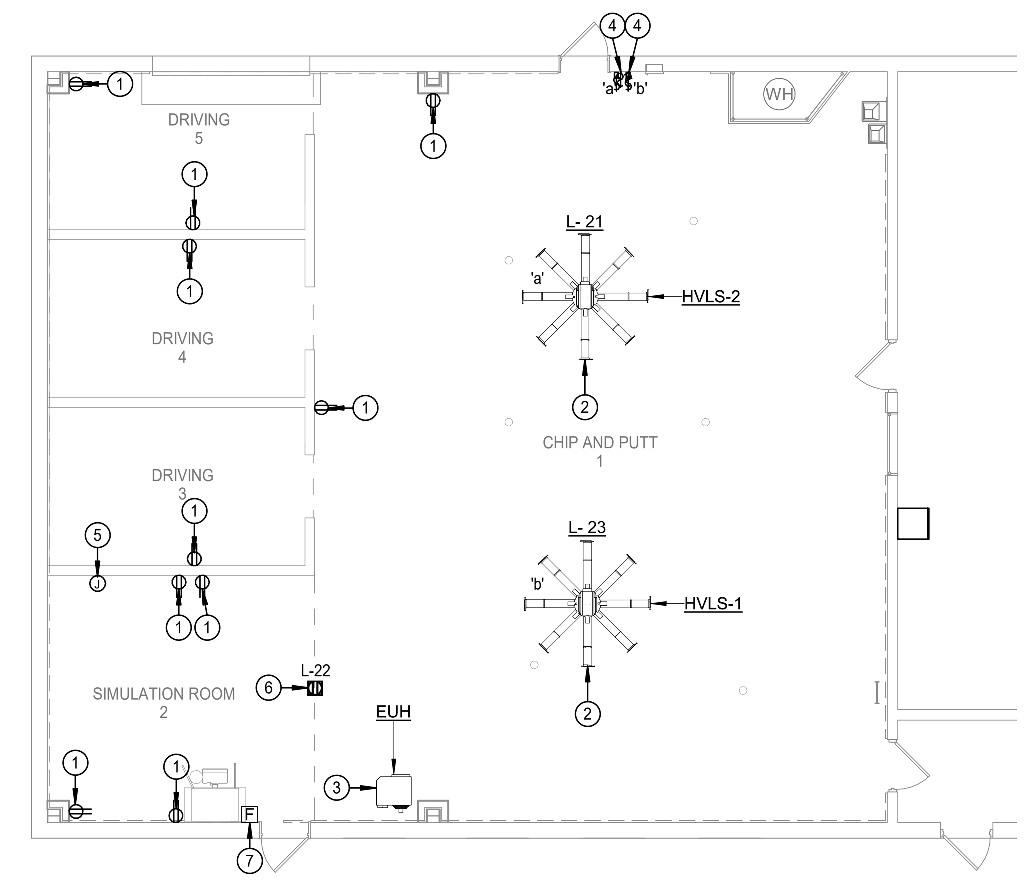
IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO NOTIFY THE ARCHITECT OF ANY DISCREPANCIES ENCOUNTERED ON THE PLANS OR IN EXISTING SITE CONDITIONS PRIOR TO COMMENCEMENT OF WORK.

CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF THE WORK. THE BASE PROPOSAL SHALL INCLUDE MODIFICATIONS TO SYSTEMS AND DEVICES AS REQUIRED BY STATE AND LOCAL CODES WHETHER INDICATED OR NOT ON CONTRACT DOCUMENTS. THE SUBMISSIONS OF A PROPOSAL WILL BE EVIDENCE THAT SUCH AN EXAMINATION AND COMPLIANCE WITH GOVERNING CODES/REQUIREMENTS HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT, OR MATERIALS REQUIRED, OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORSEEN HAD AN EXAMINATION AND CODE/REQUIREMENTS REVIEW BEEN MADE, WILL NOT BE ACCEPTED.

CONTRACTOR TO VERIFY THAT ALL EXISTING CONDUITS, J-BOXES, ETC. ARE NOT DAMAGED, IN GOOD SHAPE, SUPPORTED PROPERLY AND HAVE NO EXPOSED WIRING. CONTRACTOR IS TO PERFORM AN EXTENSIVE WALK THROUGH THE BUILDING PRIOR TO BIDDING TO VERIFY ALL EXISTING CONDITIONS THAT NEED REPAIR ARE IN BASE BID, 'NO EXCEPTIONS'.



2 **ONE LINE DIAGRAM**
Scale: N.T.S.



1 **POWER FLOOR PLAN**
Scale: 1/8" = 1'-0"

ELECTRICAL ONE LINE KEYED NOTES

1	EXISTING 225A, 277/480V, 3-PHASE, 4 WIRE SINGLE SECTION PANEL.
2	EXISTING 120/208V, 3-PHASE, 4 WIRE SINGLE SECTION PANEL. CONTRACTOR TO VERIFY FINAL PANEL SIZE.
3	EXISTING CONDUIT AND WIRE.
4	EXISTING CONDUIT AND CONDUCTORS TO ELECTRICAL SERVICE.

POWER GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY PROBLEMS PERTAINING TO CIRCUIT AVAILABILITY OR LOAD CAPACITY PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF MECHANICAL AND PLUMBING EQUIPMENT AND SCHEDULES. CONTRACTOR SHALL PROVIDE ALL ELECTRICAL DISCONNECTS, BRANCH CIRCUITRY, STARTERS/CONTROLS, CIRCUIT BREAKERS AND CONNECTIONS REQUIRED TO POWER EQUIPMENT.
3. CONTRACTOR TO COORDINATE EXACT LOCATION OF DISCONNECT SWITCHES, JUNCTION BOXES AND SINGLE POLE TOGGLE SWITCHES FOR MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
4. ALL RECEPTACLES LOCATED WITHIN 6'-0" OF SINK SHALL BE GFCI TYPE.
5. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF RECEPTACLES AND SWITCHES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ELECTRICAL ROUGH-IN. ADJUST DEVICES AS REQUIRED SO THAT NO DEVICES ARE INSTALLED BEHIND CABINETS OR SHELVES.
6. ALL BLANK FACE GFCI DEVICES SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION AND NOT BEHIND EQUIPMENT.
7. CONTRACTOR SHALL REFER TO TECHNOLOGY SERIES CONSTRUCTION DOCUMENTS FOR EXACT LOCATION AND REQUIREMENTS OF ALL LOW VOLTAGE BACK BOXES, FITTINGS, AND CONDUITS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
8. ALL EXTERIOR OUTLETS SHALL BE WP GFI IN METAL WHILE-IN -USE LOCKABLE ENCLOSURE WITH EXCEPTION TO INTEGRAL RTU RECEPTACLES.

ELECTRICAL POWER KEYED NOTES

1	CONNECT RECEPTACLE TO NEAREST AVAILABLE 120V CIRCUIT. CONTRACTOR TO VERIFY CIRCUIT AMPACITY DOES NOT EXCEED 16A.
2	NEW BIG ASS FAN. CONNECT TO CIRCUIT INDICATED ON FLOOR PLAN.
3	EXISTING UNIT HEATER TO BE RELOCATED HERE. ELECTRICAL CONTRACTOR TO COORDINATE FINAL LOCATION WITH MECHANICAL CONTRACTOR AND EXTEND EXISTING CONDUCTORS AND CONDUIT TO NEW LOCATION.
4	SPEED DIAL FOR HVLS FAN. CONTROL TO BE CONNECTED TO FIRE ALARM RELAY DEVICE FOR AUTOMATIC SHUT OFF. COORDINATE FINAL LOCATION OF SPEED DIAL WITH ARCHITECT PRIOR TO ROUGH-IN.
5	PROVIDE J-BOX FOR TRACKMAN GOLF SIMULATOR PROVIDED LIGHT. CONNECT J-BOX TO NEAREST AVAILABLE 120V CIRCUIT. ELECTRICAL CONTRACTOR TO VERIFY CIRCUIT AMPACITY DOES NOT EXCEED 16A.ELECTRICAL CONTRACTOR TO COORDINATE FINAL LOCATION AND REQUIREMENTS WITH TRACKMAN GOLF SIMULATOR LIGHTING PROVIDER PRIOR TO ROUGH-IN.
6	NEW CEILING RECEPTACLE FOR GOLF SIMULATOR PROJECTOR. ELECTRICAL CONTRACTOR TO COORDINATE FINAL LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
7	EXISTING FIRE ALARM PULL STATION TO BE SHIFTED 6" TOWARDS DOOR.

LIGHTING NOTE:

ALL LIGHTING IS EXISTING TO REMAIN.

1

Exist. Branch... L

Location:
Supply From:
Mounting: Surface
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: EXIST.
Enclosure: Type 1
Mains: 80A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
--	1	EXISTING CIRCUIT	--	20	1	1.0 / 1.0			1	20	--	EXISTING CIRCUIT	2	--
--	3	EXISTING CIRCUIT	--	20	1		1.0 / 1.0		1	20	--	EXISTING CIRCUIT	4	--
--	5	EXISTING CIRCUIT	--	20	1			1.0 / 1.0	1	20	--	EXISTING CIRCUIT	6	--
--	7	EXISTING CIRCUIT	--	20	1	1.0 / 1.0			1	20	--	EXISTING CIRCUIT	8	--
--	9	EXISTING CIRCUIT	--	20	1		1.0 / 1.0		1	20	--	EXISTING CIRCUIT	10	--
--	11	EXISTING CIRCUIT	--	20	1			1.0 / 1.0	1	20	--	EXISTING CIRCUIT	12	--
--	13	EXISTING CIRCUIT	--	20	1	1.0 / 1.0			1	20	--	EXISTING CIRCUIT	14	--
--	15	EXISTING CIRCUIT	--	20	1		1.0 / 1.0		1	20	--	EXISTING CIRCUIT	16	--
--	17	EXISTING CIRCUIT	--	20	1			1.0 / 1.0	1	20	--	EXISTING CIRCUIT	18	--
--	19	EXISTING CIRCUIT	--	20	1	1.0 / 1.0			1	20	--	EXISTING CIRCUIT	20	--
	21	HVLS-1	#12	20	1		4.5 / 0.2		1	20	#12	REC - GOLF SIMULATOR PROJECTOR	22	
	23	HVLS-1		20	1			4.5 / 0.0	1	--	--	SPACE	24	--
--	25	SPACE	--	--	1	0.0 / 0.0			1	--	--	SPACE	26	--
				Total Load:		8.0 kVA	10.7 kVA	10.5 kVA						
				Total Amps:		67 A	92 A	90 A						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	8.9 kVA	100.00%	8.9 kVA		
Lighting	0.0 kVA	0.00%	0.0 kVA	**Total Conn. Load:**	29.1 kVA
Receptacles	0.2 kVA	100.00%	0.2 kVA	**Total Est. Demand:**	29.1 kVA
Spare	20.0 kVA	100.00%	20.0 kVA	**Total Conn. Current:**	81 A
				Total Est. Demand Current:	81 A

Notes:
CONTRACTOR TO VERIFY MAIN SIZE ON PANEL SCHEDULE.

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

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1

12/20/23
STATE OF TEXAS
KEITH W. GASSMAN
89636
REGISTERED PROFESSIONAL ENGINEER

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OWP PROJECT NO. 2022-079
DATE OF ISSUE 12.1.2023

REVISIONS

DELTA	DESCRIPTION	DATE
1	Addendum 1	12/20/23

PROJECT TEAM: Ed Studio
DRAWN BY: MN
PROJECT PHASE: 100% CD Package
SHEET CONTENTS: ELECTRICAL FLOOR PLAN

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salasobrien.com 972-812-1270
Irving
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Irving, TX 75062
Registration: F-4111
Project Number: 2023-05286

SHEET NO.
E-101
AGENCY NO.

12/19/2023 12:21:37 PM orcutt | winslow / 2022-079 / INDOOR GOLF FACILITY - FRANK SEALE MIDDLE SCHOOL / SCHEMATIC DESIGN / E-101- ELECTRICAL FLOOR PLAN / MN
Autodesk Docs://Midlothian ISD - Indoor Golf Simulator Build-Out/2023-05286_Midlothianisd_indoor_Golf_Facility_MEPT_R23.rvt

DIVISION 26 - ELECTRICAL

SECTION 60500 - COMMON WORK RESULTS
PART 1 - GENERAL
1. GENERAL NOTES
A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS, APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 26.
B. THE CONTRACTOR FOR THIS DIVISION OF WORK IS REQUIRED TO OBTAIN A COMPLETE SET OF BID DOCUMENTS (DRAWINGS AND SPECIFICATIONS) AND FULLY REVIEW THEM. COORDINATE DIVISION 26 WORK WITH THAT OF ALL OTHER DIVISIONS OF WORK.
C. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER. ANY LABOR OR MATERIAL CALLED FOR IN ONE SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY LABOR OR MATERIAL WHICH IS NEITHER SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY REQUIRED TO COMPLETE THE WORK, AND WHICH IS NORMALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS CONTRACT.
D. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING THE COMPLETION AND INSPECTION OF THIS WORK TO COMPLY WITH THE OWNER'S SCHEDULE AND PROJECT COMPLETION DATE.
2. SCOPE OF WORK
A. THE DESCRIPTION OF GENERAL CONDITION WORK IN THIS DIVISION SHALL ALSO APPLY TO DIVISION 23.
B. THIS CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE ELECTRICAL AND FIRE ALARM SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS AND AS REQUIRED BY JOB CONDITIONS. WORK IS TO BE COMPLETE IN EVERY RESPECT, WHETHER SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS OR NOT.
C. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OWNER (BUILDING OWNER, LANDLORD, OR TENANT), SHALL BE PROVIDED BY THIS CONTRACTOR.
D. THIS WORK, MATERIALS, AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING ITEMS:
a. A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM INCLUDING THE INSTALLATION OF ELECTRICAL PANELBOARDS, TRANSFORMERS, SAFETY AND DISCONNECT SWITCHES, MOTOR STARTERS, VFD'S AND LIGHTING.
b. CONTRACTOR MUST ALSO INCLUDE IN BID ALL NECESSARY MATERIALS REQUIRED TO COMPLETE THE SYSTEM INCLUDING, BUT NOT LIMITED TO FEEDERS, BRANCH CIRCUITS, JUNCTION BOXES, OUTLET BOXES, WIRING DEVICES, COVER PLATES, CONDUITS, ETC.
c. METERING REQUIRED PER DRAWING AND/OR OWNER.
d. THE WIRING OF MECHANICAL EQUIPMENT SHALL BE AS OUTLINED ON THE BID SET DRAWINGS AND IN THE SPECIFICATIONS. WORK SHALL INCLUDE WIRING OF ALL STARTERS, DISCONNECTS, VFD'S, AND POWER WIRING OF MECHANICAL EQUIPMENT EXCEPT AS SPECIFICALLY NOTED OTHERWISE. ALL LOW VOLTAGE (24 VOLT) EMS TEMPERATURE CONTROL WIRING SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR UNLESS NOTED SPECIFICALLY ON DRAWING.
e. INSTALLATION OF LIGHT FIXTURES AND LAMPS AS SHOWN ON THE DRAWINGS INCLUDING ALL DEVICES, EQUIPMENT, ETC. REQUIRED FOR MOUNTING.
f. A COMPLETE CONDUIT SYSTEM FOR TELEPHONE/DATA INCLUDING BRANCH CONDUITS, OUTLET BOXES, PULL WIRES, GROUND CONDUCTORS, COVER PLATES, ETC. OR AS SPECIFCALLY NOTED OTHERWISE ON THE DRAWINGS.
g. A COMPLETE EMERGENCY AND EXIT LIGHTING SYSTEM AS SHOWN ON THE DRAWINGS.
h. TEMPORARY SERVICE AS REQUIRED FOR CONSTRUCTION, INCLUDING ITS REMOVAL.
i. SMOKE/FIRE ALARM WIRING, DEVICES, AND CONDUIT, AS DESCRIBED ON DRAWINGS OR AS NECESSARY TO MEET OWNER, STATE, LOCAL, INSURANCE, AND FIRE DEPARTMENT REQUIREMENTS.
j. INSTALLATION OF CONDUITS STUBBED TO BE ABOVE CEILING FOR HVAC CONTROLS AND FUTURE LOADS.
k. BALANCING LOADS.
3. CODES
A. ALL WORK SHALL CONFORM TO THE OWNER'S CRITERIA, STATE, COUNTY, CITY, AND LOCAL CODES AND ORDINANCES, SAFETY AND HELATH CODES, NFPA CODES, ENERGY CODES, AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. THIS CONTRACTOR SHALL INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. THIS CONTRACTOR SHALL INCLUDE ANY CHANGES REQUIRED BY CODES IN THE BID AND IF THESE CHANGES ARE NOT INCLUDED IN THE BID, THEY MUST BE QUALIFIED AS A SEPARATE LINE ITEM IN THE BID. AFTER CONTRACT IS AWARDED, CHANGE ORDERS FOR INCREASED COSTS DUE TO CODE ISSUES WILL NOT BE ACCEPTED UNLESS ALLOWANCES HAVE BEEN PREVIOUSLY AGREED UPON.
4. LICENSES, PERMITS, INSPECTION, AND FEES
A. THIS CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS AND FEES REQUIRED OR RELATED TO THIS WORK. ALL CONSTS ASSOCIATED WITH THESE SHALL BE PAID FOR BY THE CONTRACTOR AND INCLUDED AS PART OF THE BID.
B. FURNISH TO THE OWNER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT THE COMPLETION OF THE PROJECT.
5. GUARANTEE
A. ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF 1 YEAR FROM THE DATE OF ACCEPTANCE (OFFICIAL DATE IN WRITING) OF THE PROJEC. ALL WORK FOUND TO BE DEFECTIVE SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
B. WHERE SPECIFIC EQUIPMENT IS NOTED TO HAVE EXTENDED WARRANTIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER REGISTRATION SO THE OWNER CAN MAKE ALL APPROPRIATE CLAIMS.
6. RECORD DRAWINGS
A. THIS CONTRACTOR SHALL MAINTAIN ONE SET OF DRAWINGS ON THE JOBSITE, UPDATED WEEKLY, TO RECORD ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS SUCH AS:
a. LOCATIONS OF CONEALED CONDUITS.
b. PANEL DESCRIPTIONS, CIRCUIT DIRECTORIES, AND LABELS.
c. REVISIONS, ADDENDUMS, AND CHANGE ORDERS.
d. SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTOR'S COORDINATION WITH OTHER TRADES.
B. DELIVER RECORD DRAWINGS TO THE OWNER AT PROJECT COMPLETION.
7. DEMOLITION
A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY THE GENERAL CONTRACTOR. COORDINATE WITH THE GENERAL CONTRACTOR ALL EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.
B. THIS CONTRACTOR SHALL INCLUDE, AND WILL BE RESPONSIBLE FOR, THE REMOVAL OF ALL EXISTING CONDUIT, FIRE ALARM SYSTEM, SWITCH GEAR, AND EQUIPMENT, ETC. UNLESS SPECIFICALLY NOTED OTHERWISE. CONTRACTOR MUST VERIFY WITH THE OWNER ALL PRESUMED ABANDONED EQUIPMENT, CONDUIT, AND SWITCH GEAR PRIOR TO REMOVAL. EXISTING ABNDONED CONDUIT OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE, ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT. IF REQUIRED BY OWNER OR CODES, ABANDONED CONDUIT MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE PROPOSAL.
8. TEMPORARY LIGHT AND POWER
A. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY WIRING AND RELATED GROUND FAULT INTERRUPTION PROTECTION FOR LIGHT AND POWER FOR ALL CONTRACTORS DURING CONSTRUCTION AND IS RESPONSIBLE FOR ITS REMOVAL.

PART 2 - PRODUCTS
1. MATERIALS
A. MATERIALS UTILIZED IN THE CONSTRUTION OF THIS PROJECT SHALL BE NEW AND CARRY ALL UL LABELS WHERE APPLICABLE, UNLESS APPROVED BY THE OWNER.
B. ANY USED EQUIPMENT OR MATERIALS USED SHALL STILL CARRY THE SPECIFIED 1 YEAR GUARANTEE AND APPROVAL OF THE USE OF THIS EQUIPMENT OR MATERIALS DOES NOT RELIEVE THE CONTRACTOR FROM ENSURING EVERYTHING IS OPERATIONAL.
2. MANUFACTURERS
A. WHERE TRADE NAMES OR MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE CONSIDERED THE BASIS OF DESIGN AND USED AS A MINIMUM FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUAL OR BETTER IN ALL ASPECTS TO THAT SPECIFIED, WILL BE SUBJECT TO APPROVAL IN WRITING BY THE ENGINEER THROUGH THE SHOP DRAWING SUBMITTAL PROCESS, FOR ACCEPTANCE PRIOR TO INSTALLATION. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
3. SLEEVES
A. PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL, OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2 INCHES ABOVE THE FLOOR.
B. CONTRACTOR SHALL COORDINATE THROUGH THE GENERAL CONTRACTOR AND OWNER ANY CORE DRILLING OR CUTTING OF OPENINGS IN MASONRY WALLS OR CONCRETE FLOORS.
C. ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND FLOORS SHALL BE FIRE SEALED. REFER TO "FIRE STOPPING".
D. SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE MINIMUM NO. 22 USG GALVANIZED STEEL.
4. FLAME SPREAD PROPERTIES OF MATERIALS
A. MATERIALS USED ON THIS PROJECT SHALL EACH HAVE A FLAME SPREAD RATING OF 25 OR LESS, AND A SMOKE DEVELOPED RATING OF 50 OR LESS, AS DETERMINED BY AN INDEPENDENT TESTING LABORATORY IN ACCORDANCE WITH NFPA-255.
5. FIRE STOPPING
A. PROVIDE FIRE STOPPING IN SEALING OF PENETRATIONS IN FIRE-RATED CONSTRUCTION, HORIZONTAL, AND VERTICAL, INCLUDING THE FOLLOWING MATERIALS:
a. FOAM: DOW CORNING FIRESTOP SILICONE RTV FOAM, CAT #2001 LIQUID COMPONENT PART A (BLACK) AND LIQUID COMPONENT PART B (OFF-WHITE)
b. SEALANT: 3M 1000 NS AND 1003 SL SILICONE ADHESIVE SEALANT.
c. DAMMING MATERIALS: MINERAL FIBERBOARD, AS SELECTED BY THE APPLICATOR.
B. MIXES SHALL CONFORM TO THE MANUFACTURER'S DIRECTIONS.
6. FLOOR, CEILING, AND WALL PLATES
A. PROVIDE CHORME-PLATED, ONE-PIECE, ESCUTCHEONS ON CONDUITS AND HANGER RODS PENETRATING THE WALLS, FLOORS, AND CEILINGS IN FINISHED AREAS OF THE BUILDING. SPLIT RING ESCUTCHEONS ARE NOT ACCEPTABLE. EQUIPMENT FOUNDATIONS AND SUPPORTS.
7. EQUIPMENT FOUNDATIONS AND SUPPORTS
A. PROVIDE FOUNDATIONS AND SUPPORTS FOR ELECTRICAL EQUIPMENT AS REQUIRED. THESE SHALL INCLUDE REINFORCED CONCRETE HOUSEKEEPING PADS FOR ANY DISTRIBUTION EQUIPMENT INSTALLED INDOORS ON THE FLOOR. PADS SHALL EXTEND A MINMUM OF 3 INCHES BEYOND EQUIPMENT IN ALL DIRECTIONS.

PART 3 - EXECUTION
1. SPACE AND EQUIPMENT ARRANGEMENT
A. EACH CONTRACTOR SHALL BE RESPONSIBLE TO SEE THAT THEIR PURCHASED EQUIPMENT WILL FIT THE SPACES AVAILABLE. IN CERTAIN INSTANCES, HE WILL NOTE THAT THE EQUIPMENT IS MENTIONED BY NAME IN THE EQUIPMENT SCHEDULES. IN THESE CASES, IT IS THAT EQUIPMENT WHOSE DIMENSIONS AND CONNECTION ARRANGEMENTS HAVE BEEN USED FOR THE PREPARATION OF THE LAYOUTS SHOWN ON THE WORKING DRAWINGS. SHOULD THE USE OF EQUIPMENT BY OTHER APPROVED MANUFACTURERS OR OF OTHER PHYSICAL SHAPE THAN THOSE SHOWN ON THE DRAWINGS BE PROPOSED, THE CONTRACTOR SHALL CONFIRM THE EQUIPMENT WILL FIT WITHIN THE ALLOTTED SPACE WITHOUT ARCHITECTURAL MODIFICATIONS OR IMPACT ON OTHER TRADES.
B. ALL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING. PROVIDE SUFFICIENT SERVICE ACCESS TO ALL EQUIPMENT.
C. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, FIRE PROTECTION, MECHANICAL, AND PLUMBING PLANS, SHOP DRAWINGS, AND SPECIFICATIONS TO SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF THE ELECTRICAL SYSTEM TO AVOID INTERFERENCES AND CONFLICTS.
2. MANUFACTURER'S DIRECTIONS
A. THE MANUFACTURER'S PUBLISHED DIRECTIONS SHALL BE FOLLOWED IN THE DELIVERY, STORAGE, PROTECTION, INSTALLATION, AND WIRING OF ALL EQUIPMENT AND MATERIAL. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER IN WRITING OF ANY CONFLICT BETWEEN THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND THE MANUFACTURER'S DIRECTIONS, AND SHALL OBTAIN INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK. SHOULD THE CONTRACTOR PERFORM ANY WORK BEFORE RECEIVING SUCH INSTRUCTIONS, HE SHALL BEAR ALL COSTS ARISING IN CONNECTIONS WITH THE DEFICIENCIES.
3. CONSTRUCTION REQUIREMENTS
A. THE DRAWINGS AND SPECIFICATIONS SHOW EQUIPMENT CONNECTIONS, CONDUIT, AND WIRE SIZE, GENERAL ROUTING AND LOCATION, AND DESCRIBE THE VARIOUS SYSTEMS. THESE DOCUMENTS DESCRIBE AND SIZE EQUIPMENT, ITS GENERAL LOCATION, USAGE, SUPPORT, AND AUXILIARY REQUIREMENTS. THEY DESCRIBE MOST, BUT NOT ALL OF THE MATERIALS AND THEIR USAGE FOR THIS PROJECT.
B. CONTRACT DOCUMENTS DO NOT DETAIL ALL JOB REQUIREMENTS. THEY DO NOT SHOW LAYOUTS, LOCATIONS, OR ELEVATIONS OF CONDUITS, ANCHORS, SLEEVES, HANGERS, JUNCTION BOXES, OR ACCESS DOORS. THEY DO NOT SHOW FINAL PRECISE LOCATIONS OF EQUIPMENT BY DIMENSIONS IN ALL INSTANCES.
C. THE EXACT LOCATION OF EACH ITEM SHALL BE DETERMINED BY REFERENCE TO THE PROJECT CONTRACTO DRAWINGS, AND TO DETAILS, EQUIPMENT DRAWINGS, AND ROUGH-IN DRAWINGS, BY MEASUREMENTS AT THE BUILDING, AND IN COOPERATION WITH THE VARIOUS TRADES. MINOR RELOCATION NECESSITATED BY THE CONDITIONS AT THE SITE OR DIRECTED BY THE OWNER SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER. WHERE CONFLICTS OCCUR, WORK IN THE AREA INVOLVED.
4. EQUIPMENT FOUNDATIONS, HANGERS, AND SUPPORTS
A. FOR FLOOR MOUNTED ELECTRICAL EQUIPMENT, PROVIDE CONCRETE HOUSEKEEPING PADS NOT LESS THAN 3-1/2 INCHES THICK REINFORCED WITH NO. 3 DOWELS AND NO. 3 BARS, 2 FEET - 0 INCHES ON CENTER EACH WAY.
B. SUSPENDED EQUIPMENT SHALL HAVE SUPPORTS CONSISTING OF MANUFACTURED METAL FRAMING OR HANGERS CONFORMING TO SECTION 260529.
5. INSTRUCTIONS TO OWNER'S PERSONNEL
A. PROVIDE THE SERVICES OF COMPETENT ENGINEERS OR TECHNICIANS TO INSTRUCT REPRESENTATIVES OF THE OWNER IN COMPLETE AND DETAILED OPERATION AND MAINTENANCE OF EACH ITEM OF EQUIPMENT AND EACH SYSTEM.
B. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROPER MAINTENANCE OF EQUIPMENT AND SYSTEMS UNTIL THE INSTRUCTIONS HAVE BEEN GIVEN TO THE OWNER'S PERSONNEL AND THE LETTER OF RELEASE ACKNOWLEDGED.
C. PROVIDE OPERATION & MAINTENANCE MANUALS (3 COPIES), ALONG WITH AS-BUILT SET OF PRINTS PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT.
6. QUIET OPERATION
A. THIS WORK SHALL BE INSTALLED IN SUCH A MANNER THAT UNDER ALL CONDITIONS OF LOAD, IT SHALL OPERATE WITHOUT SOUND OR VIBRATION WHICH IS OBJECTIONABLE IN THE OCCUPIED SPACES IN THE OPINION OF THE OWNER. IN THE CASE OF MOVING MACHINERY, SOUND, OR VIBRATION ANNOYINGLY NOTICEABLE, MOVING INSIDE ITS OWN ROOM CAN BE CONSIDERED AS OBJECTIONABLE. IN ANY CASE, THE SITUATION SHALL BE REMEDIED AT NO COST TO THE OWNER.
7. CUTTING AND PATCHING
A. PROVIDE ALL CUTTING, CHASING, AND CHANNELING REQUIRED FOR ANY WORK UNDER THIS DIVISION. CUTTING SHALL HAVE PRIOR APPROVAL FROM ARCHITECT AND OWNER.
B. ALL PATCHING SHALL BE BY THE GENERAL CONTRACTOR AND SHALL MATCH THE SURROUNDING SURFACES.
8. TESTS
A. THE CONTRACTOR INSTALLING THE ELECTRICAL SYSTEMS SHALL FOLLOW ALL TESTS AS REQUIRED TO PROVE COMPLIANCE WITH ALL LOCAL CODES.

END OF SECTION

SECTION 260519 - CONDUCTORS
PART 1 - GENERAL
1. SCOPE OF WORK
A. REFER TO SECTION 260500.

PART 2 - PRODUCTS
1. SINGLE CONDUCTORS
A. CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS SHALL BE COPPER AND THE AWG SIZE AND TYPE AS SHOWN ON DRAWINGS. MINIMUM WIRE SIZE #12 UNLESS NOTED OTHERWISE ON PLAN OR IN GENERAL NOTES FOR VOLTAGE DROP. THE CONDUCTORS SHALL BE 600 VOLT INSULATION, TYPE THW, THWN, OR THHN.
B. CONDUCTORS MAY BE STRANDED FOR SIZES #10 AWG AND LARGER. CONDUCTOR SIZE #12 SHALL BE SOLID (NOT STRANDED).
C. ALUMINUM CONDUCTORS ARE NOT PERMITTED. CONTRACTOR MUST OBTAIN WRITTEN PERMISSION FROM GENERAL CONTRACTOR AND ENGINEER WHEN USED.
2. MULTICONDUCTOR CABLES
A. PROVIDE TYPE MC MULTICONDUCTOR CABLE IN COMPLIANCE WITH NEMA WC 70, WITH METAL CLAD AND GROUND WIRE.
3. CONNECTIONS
A. WIRE CONNECTORS SHALL BE QUAL TO "SCOTCH LOCK" FOR #8 AWG WIRE AND SMALLER. USE T&B "LOCKTIGHT" FOR #6 AWG WIRE AND LARGER.

PART 3 - EXECUTION
1. APPLICATIONS AND INSTALLATION
A. ALL WIRING SHALL BE IN CONDUIT, UNLESS NOTED OTHERWISE (IE-LOW VOLATGE PLENUM RATED WIRE).
B. THE USE OF SHARED NEUTRALS IS REQUIRED FOR LIGHTING CIRCUITS AND ALLOWED PER DRAWING NOTES. IT SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND LOCAL CODES.
C. THE USE OF ROMEX, BX, ETC. IS NOT PERMITTED.
D. ALL WIRING TO BE COLOR-CODED AS FOLLOWS:
a. 120/208 VOLT SYSTEM
b. NEUTRAL - WHITE
c. PHASE A OR L1 - BLACK
d. PHASE B OR L2 - RED
e. PHASE C OR L3 - BLUE
f. GROUND - GREEN
g. ISOLATED GROUND - GREEN WITH YELLOW TRACER
E. UNLESS NOTED OTHERWISE, MC-CABLE IS ONLY ALLOWED WITHIN PARTITIONS OR MILLWORK AND LOCATIONS DESCRIBED IN SECTION 260533.

END OF SECTION

SECTION 260526 - GROUNDING
PART 1 - GENERAL
1. SCOPE OF WORK
A. REFER TO SECTION 260500

PART 2 - PRODUCTS
1. CONDUCTORS AND JUMPERS
A. ALL CONDUIT, INCLUDING FLEXIBLE CONDUIT, SHALL BE GROUNDED WITH A GREEN COPPER GROUNDING CONDUCTOR.
B. GROUNDING CONNECTIONS MADE TO THE WATER PIPING SYSTEM SHALL BE COORDINATED WITH THE PLUMBING CONTRACTOR AND A BONDING JUMPER INSTALLED AROUND WATER METER PER CODES AND AS INDICATED ON DRAWINGS.
C. ALL DEVICES SHALL BE BONDED TO THE CONDUIT SYSTEM. USE A BONDING JUMPER BETWEEN THE OUTLET BOX AND THE DEVICE GROUNDING TERMINAL. METAL-TO-MATAL CONTACT BETWEEN THE DEVICE YOKE AND THE OUTLET BOX IS NOT ACCEPTABLE AS A BOND FOR EITHER SURFACE MOUNTED BOXES OR FLUSH TYPE BOXES. ALL JUNCTION BOXES, OUTLET BOXES, AND PULL BOXES SHALL BE BONDED TO THE CONDUIT SYSTEM.

PART 3 - EXECUTION
1. INSTALLATION
A. RUN A SEPARATE ISOLATED GROUNDING CONDUCTOR, #12 AWG MINMUM, IN EACH CONDUIT FEEDING ISOLATED GROUND RECEPTACLES AND OTHER COMPUTERIZED EQUIPMENT AS SHOWN ON DRAWINGS.
B. ALL ENLCOSURES AND NON-CURRENT CARRYNG METAL PARTS ARE TO BE GROUNDED. CONDUIT SYSTEM IS TO BE ELECTRICALLY CONTINUOUS. ALL LOCKNUTS MUST CUT THROUGH ENAMELED OR PAINTED SURFACES ON CONDUIT SYSTEM, USE BONDING JUMPERS WITH APPROVED CLAMPS. ALL GROUND CLAMPS SHALL BE "PENN-UNION" OR EQUAL, SIMILAR TO "GPL" TYPE.

END OF SECTION

SECTION 260533 - RACEWAYS AND BOXES
PART 1 - GENERAL
1. SCOPE OF WORK
A. REFER TO SECTION 260500.
B. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS SERVING ALL EQUIPMENT, INCLUDING BUT NOT LIMITED TO LIGHTING, RECEPTACLES, HEATING, AIR CONDITIONAL, PLUMBING EQUIPMENT, TELEPHONE, DATA, AUDIO/VISUAL, SECURITY, AND ELECTRICAL EQUIPMENT.

PART 2 - PRODUCTS
1. RACEWAYS
A. ALL CONDUITS SHALL BE GALVANIZED IMC, EMT, OR MC TYPE UNLESS OTHERWISE SPECIFIED IN SPECIFICATIONS OR ON DRAWINGS. ALL CONDUIT IS TO BE UL LABELED.
a. EMT CONNECTORS SHALL BE STEEL COMPRESSION OR SET SCREW TYPE.
b. CONDUIT UNDER SLAB ON GRADE SHALL BE RIGID STEEL, OR SCHEDULE 40 PVC WITH RIGID STEEL ELLS WHERE PERMITTED BY OWNER OR CODE.
B. MINIMUM SIZE OF CONDUIT SHALL BE:
a. 1/2 INCH
C. ALL UNDER FLOOR CONDUIT SHALL BE OF MINMUM 3/4 INCH SIZE.
2. OUTLET BOXES
A. ALL OUTLET BOXES SHALL BE GALVANIZED PRESSED STEEL OF THE STANDARD KNOCKOUT TYPE. NO ROUND OUTLET BOXES SHALL BE PERMITTED UNLESS INDICATED AND FOR LIGHTING THAT REQURIE SUCH CONFIGURATION. CONCEALED BOXES SHALL NOT BE LESS THAN 4 INCH SQUARE AND 1-1/2 INCH DEEP, WITH PLASTER RINGS.
B. ALL KNOCKOUT BOXES, UPON WHICH LIGHTING FIXTURES ARE TO BE INSTALLED, SHALL BE EQUIPMENT WITH 3/8 INCH FIXTURE STUDS.
3. JUNCTION AND PULL BOXES
A. BOXES AND COVERS SHALL BE GALVANIZED STEEL OF CODE GAUGE AND SIZE.

PART 3 - EXECUTION
1. INSTALLATION
A. SUPPORT ALL CONDUIT IN ACCORDANCE WITH THE NEC AND LOCAL CODES.
B. GENERALLY, ALL CONDUIT SHALL BE CONCEALED EXCEPT FOR UNFINISHED AREAS, SUCH AS EQUIPMENT ROOMS. EXPOSED CONDUIT SHALL BE ALLOWED ONLY AS NOTED ON PLAN AND AS APPROVED BY TENANT'S PROJECT MANAGER. PAINTING OF CONDUITS, NOTED ON DRAWINGS OR SPECIFICATIONS WILL BE BY GENERAL CONTRACOR.
C. FLEXIBLE CONDUIT OR MC TYPE CABLE SHALL BE USED FOR THE FOLLOWING APPLICATIONS:
a. FINAL CONNECTIONS WHERE RIGID CONDUIT IS NOT PRACTICAL.
b. IN WALLS (FOR LIGHT SWITCHES AND 120 VOLT POWER RECEPTACLES AND HVAC CONTROL EQUIPMENT).
D. FLEXIBLE METAL CONDUIT MUST BE THE SAME SIZE AS THE IMC OR EMT CONDUIT TO WHICH IT IS CONNECTED. THE FLEXIBLE METAL CONDUIT AND ITS FITTINGS ARE TO BE LISTED FOR GROUNDING. A GREE GROUNDING CONDUCTOR SHALL BE INSTALLED. ALL CONNECTORS ARE TO BE OF A NEMA APPROVED TYPE.
E. THE USE OF ROMEX, BX, ETC. IS NOT PERMITTED.
F. PROVIDE PULL-WIRE IN ALL EMPTY CONDUITS EXCEPT AS NOTED OTHERWISE ON DRAWINGS.
G. HOME RUNS AND MAIN CONDUIT RUNS ARE TO BE HELD TIGHT TO STRUCTURE ABOVE OR AS REQUIRED TO ALLOW PROPER SERVICE ACCESS AND OTHER TRADES WORK. CONDUIT MUST BE TRAPEZED TO ALLOW 3 FEET MINIMUM CLEARANCE ABOVE CEILING.
H. ALL CONDUITS MUST BE SIZED PER NEC AND LOCAL CODES.
I. INSTALL BOXES RIGIDLY FROM BUILDING STRUCTURE AND SUPPORT INDEPENDENTLY OF THE CONDUIT SYSTEM. ALSO, PROVIDE SUITABLE BOX EXTENSIONS TO EXTEND BOXES TO FINISHED FACES OF FLOORS, CEILINGS, WALLS, ETC. ALL OUTLET BOXES TO BE PROVIDED WITH CADDY "QUICK-MOUNT BOX SUPPORT" TO MINIMUZE THE DEFLECTION THAT OCCURS WHEN PLUGGING/UNPLUGGING INTO THESE DEVICES.
J. UNLESS OTHERWISE NOTED ON DRAWINGS OR OTHERWISE REQUIRED BY THE NATIONAL ELECTRIC CODE, HANDICAPE CODES, OR LOCAL CODES, OUTLET HEIGHTS SHALL BE AS FOLLOWS:
a. SWITCH HEIGHT 48 INCHES FROM FINISHED FLOOR TO CENTERLINE OF OUTLET.
b. CONVENINENCE OUTLETS: 18 INCHES FROM FINISHED FLOOR TO CENTERLINE OF OUTLET.
c. TELEPHONE OUTLETS SHALL BE LOCATED AS NOTED ON DRAWINGS.
K. ARRANGE CIRCUITS TO AVOID THE USE OF JUNCTION BOXES IN INACCESSIBLE LOCATIONS. THE USE OF JUNCTION BOXES ABOVE DRYWALL CEILINGS SHOULD BE LIMITED TO LOCATIONS NEAR ACCESS FRAMES USED FOR DIFFUSERS AND RETURN AIR GRILLES OR ACCESS PANELS AS LOCATED ON PLANS.
L. JUNCTION AND PULL BOXES MUST BE LABELED WITH CIRCUIT NUMBER IDENTIFIACTION AND SYSTEM TYPE ON COVER.
M. JUNCTION AND PULL BOXES MUST BE ACCESSIBLE ACCORDING TO NEC 314.29. REFER TO ARCHITECTURAL SPECIFICATIONS FOR ACCESS PANEL SPECIFICATION IF NEEDED.

END OF SECTION

SECTION 260553 - IDENTIFICATION
PART 1 - GENERAL
1. SCOPE OF WORK
A. REFER TO SECTION 260500.

PART 2 - PRODUCTS
1. EQUIPMENT LABELS
A. MULTILAYER, MULTICOLOR PLASTIC LABELS WITH MECHANICAL ENGRAVING, FOR ATTACHMENT TO EQUIPMENT.
2. CONDUCTORS
A. REFER TO SECTION 260519.
B. PROVIDE SELF-ADHESIVE VINYL LABLES THAT ARE PREPRINTED.

PART 3 - EXECUTION
1. LABELING
A. ALL EQUIPMENT (INCLUDING BUT NOT LIMITED TO PANELBOARDS, SWITCHBOARDS, DISTRIBUTION BOARDS, UPS'S, PDU'S, MOTORS, TRANSFORMERS, DISCONNECT SWITCHES) SHALL BE LABELED INDICATING EQUIPMENT NAME AND FEEDER SIZE.
B. ALL BRANCH CIRCUIT WIRING DEVICES SHALL BE LABELED WITH CIRCUIT NUMBER.
C. ALL JUNCTION BOXES ABOVE CEILING AND BELOW RAISED FLOOR SHALL BE LABELED WITH CIRCUIT NUMBER.

END OF SECTION

SECTION 262726 - WIRING DEVICES
PART 1 - GENERAL
1. SCOPE OF WORK
A. REFER TO SECTION 260500.

PART 2 - PRODUCTS
1. SWITCHES AND RECEPTACLES
A. FURNISH AND INSTALL SWITCHES AND RECEPTACLES, UNLESS NOTED OTHERWISE, AS NECESSARY FOR A COMPLETE INSTALLATION. COLOR OF DEVICES AND PLATES SHALL BE SELECTED BY THE ARCHITECT.
B. THE DEVICES SHALL BE OF THE TYPES AND RATINGS LISTED, OR EQUALS BY PASS & SEYMOR, HUBBEL, OR LEVITON.
a. SINGLE POLE SWITCHES: 20AMP - 120-277V: LEVITON 'DECORA' #5621-X
b. THREE WAY SWITCHES: 20AMP - 120/277V: LEVITON 'DECORA' #5623-X
c. DUPLEX RECEPTACLES: 20AMP - 125V: LEVITON 'DECORA' #16352-X
d. ISOLATED GROUND RECEPTACLES: 20AMP - 125V: LEVITON 'DECORA' #16352-IG
e. GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLES: 20AMP - 125V: LEVITON 'DECORA' #8899
C. ALL DEVICE COVER PLATES SHALL BE LEVITON 'DECORA' NYLON STYLE.

PART 3 - EXECUTION
1. INSTALLATION
A. INSTALL DEVICES PER THE MANUFACTURER'S RECOMMENDATIONS.
B. LABEL ALL RECEPTACLES INDICATING PANELBOARD AND CIRUIT NUMBER. INSTALL LABEL ON THE FACE OF WALL PLATE.

END OF SECTION.

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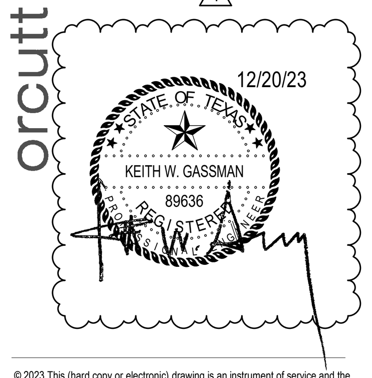

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OWP PROJECT NO. 2022-079
DATE OF ISSUE 12.1.2023

REVISIONS

DELTA	DESCRIPTION	DATE
1	Addendum 1	12/20/23

PROJECT TEAM: Ed Studio
DRAWN BY: MN

PROJECT PHASE
100% CD Package

SHEET CONTENTS
ELECTRICAL SHEET SPECIFICATIONS

SHEET NO.
E-102

AGENCY NO.

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MECHANICAL SPECIFICATIONS

HIGH VOLUME LOW SPEED FANS

23 34 18 INDUSTRIAL HIGH VOLUME LOW SPEED FANS (DIRECT DRIVE)

PART 1. GENERAL

1.1 WORK INCLUDED
A. FURNISH AND INSTALL AN INDUSTRIAL HIGH VOLUME LOW SPEED (HVLS) CEILING MOUNTED FANS WITH SUPPLEMENTAL EQUIPMENT.

1.2 RELATED WORK
A. DIVISION 23 MECHANICAL:
1. ELECTRICAL PROVISIONS OF MECHANICAL WORK

1.3 PERFORMANCE
A. PROVIDE FAN TYPE, ARRANGEMENT, ROTATION, CAPACITY, SIZE, MOTOR HORSEPOWER, AND MOTOR VOLTAGE AS SHOWN. FAN CAPACITIES AND CHARACTERISTICS ARE SCHEDULED ON THE DRAWINGS. PROVIDE FANS CAPABLE OF ACCOMMODATING STATIC PRESSURE VARIATIONS OF +10% OF SCHEDULED DESIGN AT THE DESIGN AIR FLOW.
B. RATE FANS ACCORDING TO APPROPRIATE AIR MOVING AND CONDITIONING ASSOCIATION, INC. (AMCA), APPROVED TEST CODES AND PROCEDURES. SUPPLY FANS WITH SOUND RATINGS BELOW THE MAXIMUMS PERMITTED BY AMCA STANDARDS. ALL FANS PROVIDED MUST BE LICENSED TO BEAR THE CERTIFIED RATINGS SEAL.
C. STATICALLY AND DYNAMICALLY BALANCE ALL FANS.
D. MOTORS SHALL BE SIZED SO THAT THEY DO NOT OPERATE WITHIN THE MOTOR SERVICE FACTOR.

1.4 SUBMITTALS
A. SUBMIT FAN DRAWINGS DETAILING PRODUCT DIMENSIONS, WEIGHT, STRUCTURAL SUPPORTING POINTS AND ATTACHMENT METHODS.
B. SUBMIT PRODUCT SPECIFICATION SHEETS ON THE CEILING MOUNTED FAN, SPECIFYING ELECTRICAL AND INSTALLATION REQUIREMENTS, FEATURES, AND BENEFITS AND CONTROLLER INFORMATION.
C. SUBMIT MANUFACTURER'S INSTALLATION INSTRUCTIONS AND OPERATION AND MAINTENANCE INSTRUCTIONS.
D. SUBMIT DOCUMENTATION ILLUSTRATING FAN SIZING, PLACEMENT AND PERFORMANCE WAS VERIFIED USING COMPUTATIONAL FLUID DYNAMICS (CFD) ANALYSIS. DOCUMENTATION SHALL INCLUDE ALL INPUT DATA USED FOR CFD ANALYSIS INCLUDING SIGNIFICANT OBSTRUCTIONS TO AIRFLOW AT THE FLOOR LEVEL AND THE ACTUAL SPACE DIMENSIONS. SUBMITTAL SHALL ALSO INCLUDE RESULTS OF THE CFD ANALYSIS.
E. SUBMIT ALL WARRANTY INFORMATION INCLUDING A LIST OF EACH COMPONENT'S WARRANTY COVERAGE.
F. MARK-UP A COPY OF THE SPECIFICATIONS, INDICATING IN THE MARGIN OF EACH PARAGRAPH, THE FOLLOWING: COMPLY, DO NOT COMPLY, NOT APPLICABLE.

1.5 STORAGE/HANDLING/SHIPPING
A. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR RIGGING, UNLOADING, AND TRANSPORTING UNITS.
B. PROTECT UNITS FROM PHYSICAL DAMAGE. DELIVER PRODUCT IN ORIGINAL, UNDAMAGED PACKAGING WITH IDENTIFICATION LABELS INTACT. THE FAN SHALL BE NEW, FREE FROM DEFECTS AND FACTORY TESTED.
C. THE FAN, FAN COMPONENTS AND ACCESSORIES SHALL BE STORED IN A SAFE, DRY LOCATION UNTIL INSTALLATION.

1.6 WARRANTY
A. THE MANUFACTURER SHALL REPLACE ANY PRODUCTS OR COMPONENTS DEFECTIVE IN MATERIAL OR WORKMANSHIP, FREE OF CHARGE TO THE CUSTOMER (INCLUDING TRANSPORTATION CHARGES) IN ACCORDANCE TO THE FOLLOWING SCHEDULE.
1. MECHANICAL 15 YEARS
2. ELECTRICAL 7 YEARS
3. LABOR 1 YEAR

PART 2. PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS
A. BIG ASS FANS – POWERFOIL D
B. GREENHECK
C. MACROAIR - AVDX

2.2 HIGH VOLUME, LOW SPEED FANS (DIRECT DRIVE)
A. COMPLETE UNIT: THE FAN SHALL BE NRTL CERTIFIED AND BUILT PURSUANT TO CONSTRUCTION GUIDELINES SET FORTH BY UL STANDARD 507 AND CSA STANDARD 22.2. THE FAN CONTROLLER SHALL BE COMPLIANT WITH FCC RULES TO NOT CAUSE HARMFUL INTERFERENCE AND ACCEPT AND INTERFERENCE RECEIVED. THE FAN SHALL BE DESIGNED TO MOVE AN EFFECTIVE AMOUNT OF AIR AND PROVIDE DESTRATIFICATION IN IN A VARIETY OF APPLICATIONS WITH DENSE FLOOR OBSTRUCTIONS, OVER AN EXTENDED LIFE. THE FAN AND COMPONENTS SHALL BE DESIGNED SPECIFICALLY FOR HIGH VOLUME, LOW SPEED FANS TO ENSURE LOWER OPERATIONAL NOISE. THE SOUND LEVELS FROM THE FAN OPERATING AT MAXIMUM SPEED MEASURED IN A LABORATORY SETTING SHALL NOT EXCEED 55 DBA.
B. ONBOARD FAN CONTROL: THE FAN SHALL BE EQUIPPED WITH AN ONBOARD FAN CONTROLLER WHICH UTILIZES A VARIABLE FREQUENCY DRIVE (VFD) THAT IS PREWIRED TO THE MOTOR AND FACTORY PROGRAMMED TO MINIMIZE THE STARTING AND BRAKING TORQUES.
C. AIRFOIL SYSTEM: THE FAN SHALL BE EQUIPPED WITH SIX (8) AIRFOILS OF PRECISION EXTRUDED ALUMINUM ALLOY. THE AIRFOILS SHALL BE CONNECTED BY MEANS OF TWO (2) LOCKING BOLTS PER AIRFOIL. THE AIRFOILS SHALL BE CONNECTED TO THE HUB AND INTERLOCKED WITH ZINC PLATED STEEL RETAINERS. AIRFOILS SHALL BE POWDER COATED WITH COLOR PER ARCHITECT. THE FAN SHALL BE EQUIPPED WITH SIX (8) AIRFOIL WINGLETS ON THE ENDS OF THE AIRFOILS. THE WINGLETS SHALL BE MOLDED OF HIGH-DENSITY POLYETHYLENE. WINGLETS SHALL BE "SAFETY YELLOW," BUT MAY BE COLORED AS SPECIFIED BY THE ARCHITECT OR OWNER.
D. MOTOR: THE FAN MOTOR SHALL BE PERMANENT MAGNET BRUSHLESS MOTOR RATED FOR CONTINUOUS OPERATION AT MAXIMUM SPEED WITH THE CAPABILITY OF MODULATING FROM 0%-100% WITHOUT THE USE OF A GEARBOX. THE MOTOR SHALL BE TOTALLY ENCLOSED IP66 RATED. THE MOTOR FRAME SHALL BE PROVIDED FOR EASE OF SERVICE. THE MOTOR SHALL BE MANUFACTURED WITH A DOUBLE BAKED CLASS F MINIMUM INSULATION AND BE CAPABLE OF CONTINUOUS OPERATION IN -4°F TO 131°F AMBIENT CONDITIONS. THE MOTOR SHALL OPERATE FROM ANY VOLTAGE RANG, SINGLE PHASE OF THREE PHASE WITHOUT ADAPTERS OR CUSTOMER SELECTION.
E. MOUNTING POST: THE FAN SHALL BE EQUIPPED WITH A MOUNTING POST THAT PROVIDES A STRUCTURAL CONNECTION BETWEEN THE FAN ASSEMBLY AND EXTENSION TUBE. THE MOUNTING POST SHALL BE FORMED FROM A36 STEEL, CONTAIN NO CRITICAL WELDS AND BE POWDER COATED FOR CORROSION RESISTANCE AND APPEARANCE. MOUNTING POST COLOR SHALL BE PER ARCHITECT.
F. HUB: THE FAN HUB SHALL BE PRECISION CUT ALUMINUM FOR HIGH STRENGTH AND LIGHT WEIGHT. THE HUB DESIGN SHALL PROVIDE FLEXIBLE ASSEMBLY TO DISTRIBUTE FORCE LOADS EXPERIENCED BY THE HUB ASSEMBLY OVER A LARGE AREA TO REDUCE FATIGUE EXPERIENCED AT THE ATTACHMENT POINT FOR THE FAN BLADE. THE HUB SHALL BE SECURED TO THE OUTPUT SHAFT OF THE MOTOR BY MEANS OF ONE AEROSPACE GRADE LUG NUT. THE HUB SHALL INCORPORATE A MINIMUM OF SIX (6) SAFETY RETAINING CLIPS MADE OF 1/4" THICK STEEL THAT SHALL RESTRAIN THE HUB/AIRFOIL ASSEMBLY.
G. MOUNTING SYSTEM: THE FAN MOUNTING SYSTEM SHALL BE DESIGNED FOR QUICK AND SECURE INSTALLATION TO A VARIETY OF STRUCTURAL SUPPORT TYPES. THE MOUNTING SYSTEM SHALL ACCOMMODATE ADJUSTMENTS AFTER FAN INSTALLATION VIA TWO AXES OF ROTATION TO ENSURE FAN WILL HANG LEVEL FROM STRUCTURE. ALL COMPONENTS IN THE MOUNTING SYSTEM SHALL BE WELDED CONSTRUCTION USING LOW CARBON STEEL NO LESS THAN 3/16" THICK AND BE POWDER COATED FOR APPEARANCE AND RESISTANCE TO CORROSION. ALL MOUNTING BOLTS SHALL BE SAE GRADE 8 OR EQUIVALENT AND RATED WITH A MINIMUM TENSILE STRENGTH OF 150,000 PSI. MOUNTING COMPONENTS COLOR SHALL BE PER ARCHITECT.
H. SAFETY CABLE: THE FAN SHALL BE EQUIPPED WITH AN UPPER SAFETY CABLE THAT PROVIDES ADDITIONAL MEANS OF SECURING THE FAN ASSEMBLY TO THE BUILDING STRUCTURE. THE SAFETY CABLE SHALL BE 3/8" DIAMETER AND FABRICATED OF 7X19 STRANDED GALVANIZED STEEL. THE LOOPS SHALL BE SECURED WITH SWAGED NICOPRESS FITTINGS, PRE-LOADED AND TESTED TO 3,200 LBF. FIELD CONSTRUCTION OF SAFETY CABLES SHALL NOT BE PERMITTED.
I. WALL CONTROL CONTROLLER (SINGLE FAN): EACH FAN SHALL BE PROVIDED WITH MANUFACTURERS WALL MOUNTED SPEED CONTROLLER.
J. FIRE CONTROL PANEL INTEGRATION: INCLUDES A 10–30 VDC PILOT RELAY FOR SEAMLESS FIRE CONTROL PANEL INTEGRATION. THE PILOT RELAY CAN BE WIRED NORMALLY OPEN OR NORMALLY CLOSED IN THE FIELD.
K. GUY WIRES: PROVIDE GUY WIRES TO LIMIT THE POTENTIAL FOR LATERAL MOVEMENT.

PART 3. EXECUTION

3.1 INSTALLATION
A. THE FAN SHALL BE INSTALLED BY A FACTORY CERTIFIED INSTALLER IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTION.
B. FAN LOCATION SHALL BE FREE FROM OBSTACLES SUCH AS LIGHTS, CABLES OR OTHER BUILDING COMPONENTS AND HAVE BAR JOISTS OR I-BEAM STRUCTURE TO MOUNT FAN AND BE CAPABLE OF SUPPORTING FAN WEIGHT AND FAN OPERATIONAL TORQUE. A STRUCTURAL ENGINEER SHALL BE CONSULTED FOR INSTALLATION METHODS OUTSIDE THE MANUFACTURER'S RECOMMENDATION AND A CERTIFICATION SUBMITTED PRIOR TO INSTALLATION.
C. THE FAN SHALL BE INSTALLED SO THAT THE AIRFOILS ARE A MINIMUM OF 10' ABOVE THE FLOOR. THE FAN INSTALLATION AREA MUST BE FREE OF OBSTRUCTIONS SUCH AS LIGHTS, CABLES, SPRINKLERS OR OTHER BUILDING STRUCTURES; WITH THE AIRFOILS AT LEAST 2' CLEAR OF ALL OBSTRUCTIONS. THE FAN SHOULD NOT BE INSTALLED WHERE IT WILL BE CONTINUOUSLY SUBJECTED TO WIND GUSTS OR IN CLOSE PROXIMITY TO THE OUTPUTS OF HVAC SYSTEMS.
D. THE FAN CONTROLLER SHALL BE MOUNTED TO A FLAT, READILY ACCESSIBLE SURFACE THAT IS FREE FROM VIBRATION AND AWAY FROM FOREIGN OBJECTS AND MOVING EQUIPMENT. MOUNTING LOCATION SHALL MEET ALL ACCESSIBILITY REQUIREMENTS.
E. IN BUILDINGS EQUIPPED WITH SPRINKLERS, INCLUDING ESFR SPRINKLERS, FAN INSTALLATION SHALL COMPLY WITH ALL OF THE FOLLOWING:
1. THE MAXIMUM FAN DIAMETER SHALL BE 24 FT (7.3 M).
2. THE HVLS FAN SHALL BE CENTERED APPROXIMATELY BETWEEN FOUR ADJACENT SPRINKLERS.
3. THE VERTICAL CLEARANCE FROM THE HVLS FAN TO THE SPRINKLER DEFLECTOR SHALL BE A MINIMUM OF 3 FT (0.9 M).
4. ALL HVLS FANS SHALL BE INTERLOCKED TO SHUT DOWN IMMEDIATELY UPON RECEIVING A WATERFLOW SIGNAL FROM THE ALARM SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 72—NATIONAL FIRE ALARM AND SIGNALING CODE.

3.2 WORKMANSHIP
A. GOOD WORKMANSHIP SHALL BE EVIDENT IN ALL ASPECTS OF CONSTRUCTION. FIELD BALANCING OF THE AIRFOILS SHALL NOT BE NECESSARY.

23 05 13 ELECTRICAL PROVISIONS OF HVAC WORK

PART 1. GENERAL:

1.1 WORK INCLUDED
A. ELECTRICAL PROVISIONS TO BE PROVIDED AS MECHANICAL WORK ARE INDICATED IN OTHER DIVISION 23 SECTIONS, ON DRAWINGS, AND AS SPECIFIED.
B. TYPES OF WORK, NORMALLY RECOGNIZED AS ELECTRICAL BUT PROVIDED AS MECHANICAL, SPECIFIED OR PARTIALLY SPECIFIED IN THIS SECTION, INCLUDE BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING:
1. MOTORS FOR MECHANICAL EQUIPMENT.
2. STARTERS FOR MOTORS OF MECHANICAL EQUIPMENT, BUT ONLY WHERE SPECIFICALLY INDICATED TO BE FURNISHED INTEGRALLY WITH EQUIPMENT.
3. WIRING FROM MOTORS TO DISCONNECT SWITCHES OR JUNCTION BOXES FOR MOTORS OF MECHANICAL EQUIPMENT, BUT ONLY WHERE SPECIFICALLY INDICATED TO BE FURNISHED INTEGRALLY WITH EQUIPMENT.
4. WIRING OF FIELD-MOUNTED FLOAT CONTROL SWITCHES, FLOW CONTROL SWITCHES, AND SIMILAR MECHANICAL-ELECTRICAL DEVICES PROVIDED FOR MECHANICAL SYSTEMS, TO EQUIPMENT CONTROL PANELS.
5. WIRING OF SMOKE DETECTORS FOR SHUTDOWN OF AIR HANDLING EQUIPMENT WHEN A FIRE ALARM SYSTEM IS NOT INCLUDED IN THE PROJECT.
6. LOW VOLTAGE THERMOSTAT WIRING
C. REFER TO DIVISION 23 CONTROLS SECTIONS FOR RELATED CONTROL SYSTEM WIRING.
D. REFER TO DIVISION 23 SECTIONS FOR SPECIFIC INDIVIDUAL MECHANICAL EQUIPMENT ELECTRICAL REQUIREMENTS.
E. REFER TO DIVISION 26 SECTIONS FOR MOTOR STARTERS AND CONTROLS NOT FURNISHED INTEGRALLY WITH MECHANICAL EQUIPMENT.
F. REFER TO DIVISION 26 SECTIONS FOR JUNCTION BOXES AND DISCONNECT SWITCHES REQUIRED FOR MOTORS AND OTHER ELECTRICAL UNITS OF MECHANICAL EQUIPMENT.

1.2 RELATED WORK
A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

1.3 QUALITY ASSURANCE
A. WHEREVER POSSIBLE, MATCH ELEMENTS OF ELECTRICAL PROVISIONS OF MECHANICAL WORK WITH SIMILAR ELEMENTS OF ELECTRICAL WORK SPECIFIED IN DIVISION 26 SECTIONS FOR ELECTRICAL WORK NOT OTHERWISE SPECIFIED.
B. FOR ELECTRICAL EQUIPMENT AND PRODUCTS, COMPLY WITH APPLICABLE NEMA STANDARDS, AND REFER TO NEMA STANDARDS FOR DEFINITIONS OF TERMINOLOGY. COMPLY WITH NATIONAL ELECTRICAL CODE (NFPA 70) FOR WORKMANSHIP AND INSTALLATION REQUIREMENTS.

1.4 SUBMITTALS
A. INCLUDE IN LISTING OF MOTORS, VOLTAGE, NOTATION OF WHETHER MOTOR STARTER IS FURNISHED OR INSTALLED INTEGRALLY WITH MOTOR OR EQUIPMENT CONTAINING MOTORS.

PART 2. PRODUCTS:

2.1 MOTORS
A. PROVIDE MOTORS FOR MECHANICAL EQUIPMENT MANUFACTURED BY ONE OF THE FOLLOWING:
1. BALDOR ELECTRIC COMPANY.
2. CENTURY ELECTRIC DIV., INC.
3. GENERAL ELECTRIC CO.
4. LOUIS ALLIS DIV.; LITTON INDUSTRIAL PRODUCTS, INC.
5. LINCOLN ELECTRIC
6. MARATHON ELECTRIC MFG. CORP.
7. RELIANCE ELECTRIC CO.
8. WESTINGHOUSE ELECTRIC CORP.
9. WEG
B. MOTOR CHARACTERISTICS. EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE INDICATED, AND EXCEPT WHERE REQUIRED ITEMS OF MECHANICAL EQUIPMENT CANNOT BE OBTAINED WITH FULLY COMPLYING MOTORS, COMPLY WITH THE FOLLOWING REQUIREMENTS FOR MOTORS OF MECHANICAL WORK:
C. TEMPERATURE RATING. RATED FOR 40 DEGREES C ENVIRONMENT WITH MAXIMUM 50 DEGREES C TEMPERATURE RISE FOR CONTINUOUS DUTY AT FULL LOAD (CLASS A INSULATION).
D. PROVIDE EACH MOTOR CAPABLE OF MAKING STARTS AS FREQUENTLY AS INDICATED BY AUTOMATIC CONTROL SYSTEM, AND NOT LESS THAN 5 STARTS PER HOUR FOR MANUALLY CONTROLLED MOTORS.
E. PHASES AND CURRENT CHARACTERISTICS. PROVIDE SQUIRREL-CAGE INDUCTION POLYPHASE MOTORS FOR 3/4HP AND LARGER, AND PROVIDE CAPACITOR-START SINGLE-PHASE MOTORS FOR 1/2HP AND SMALLER, EXCEPT 1/6HP AND SMALLER MAY, AT EQUIPMENT MANUFACTURER'S OPTION, BE SPLIT-PHASE TYPE. COORDINATE CURRENT CHARACTERISTICS WITH POWER SPECIFIED IN DIVISION 26 SECTIONS, AND WITH INDIVIDUAL EQUIPMENT REQUIREMENTS SPECIFIED IN OTHER DIVISION 23 REQUIREMENTS. FOR 2-SPEED MOTORS PROVIDE 2 SEPARATE WINDINGS ON POLYPHASE MOTORS. DO NOT PURCHASE MOTORS UNTIL POWER CHARACTERISTICS AVAILABLE AT LOCATIONS OF MOTORS HAVE BEEN CONFIRMED, AND UNTIL ROTATION DIRECTIONS HAVE BEEN CONFIRMED.
F. SERVICE FACTOR. 1.15 FOR POLYPHASE MOTORS AND 1.35 FOR SINGLE-PHASE MOTORS.
G. MOTOR CONSTRUCTION. PROVIDE GENERAL PURPOSE, CONTINUOUS DUTY MOTORS, DESIGN "B" EXCEPT "C" WHERE REQUIRED FOR HIGH STARTING TORQUE.
1. FRAMES. NEMA #56.
2. BEARINGS ARE TO BE BALL OR ROLLER BEARINGS WITH INNER AND OUTER SHAFT SEALS, REGREASABLE EXCEPT PERMANENTLY SEALED WHERE MOTOR IS INACCESSIBLE FOR REGULAR MAINTENANCE. WHERE BELT DRIVES AND OTHER DRIVES PRODUCE LATERAL OR AXIAL THRUST IN MOTOR, PROVIDE BEARINGS DESIGNED TO RESIST THRUST LOADING. REFER TO INDIVIDUAL SECTION OF DIVISION 23 FOR FRACTIONAL-HP LIGHT-DUTY MOTORS WHERE SLEEVE-TYPE BEARINGS ARE PERMITTED.
3. EXCEPT AS INDICATED, PROVIDE OPEN DRIP-PROOF MOTORS FOR INDOOR USE WHERE SATISFACTORILY HOUSED OR REMOTELY LOCATED DURING OPERATION, AND PROVIDE GUARDED DRIP-PROOF MOTORS WHERE EXPOSED TO CONTACT BY EMPLOYEES OR BUILDING OCCUPANTS. PROVIDE WEATHER-PROTECTED TYPE I FOR OUTDOOR USE, TYPE II WHERE NOT HOUSED. REFER TO INDIVIDUAL SECTIONS OF DIVISION 23 FOR OTHER ENCLOSURE REQUIREMENTS.
4. PROVIDE BUILT-IN THERMAL OVERLOAD PROTECTION AND, WHERE INDICATED, PROVIDE INTERNAL SENSING DEVICE SUITABLE FOR SIGNALING AND STOPPING MOTOR AT STARTER.
5. NOISE RATING: PROVIDE "QUIET" RATING ON MOTORS.
H. ALL MOTORS SHALL BE PREMIUM EFFICIENCY.
I. PROVIDE AN INVERTER DUTY MOTOR ON ALL EQUIPMENT THAT UTILIZES A VARIABLE FREQUENCY DRIVE.

2.2 EQUIPMENT FABRICATION
A. FABRICATE MECHANICAL EQUIPMENT FOR SECURE MOUNTING OF MOTORS AND OTHER ELECTRICAL ITEMS INCLUDED IN WORK. PROVIDE EITHER PERMANENT ALIGNMENT OF MOTORS WITH EQUIPMENT, OR ADJUSTABLE MOUNTINGS AS APPLICABLE FOR BELT DRIVES, GEAR DRIVES, SPECIAL COUPLINGS AND SIMILAR INDIRECT COUPLING OF EQUIPMENT. PROVIDE SAFE, SECURE, DURABLE, AND REMOVABLE GUARDS FOR MOTOR DRIVES. ARRANGE FOR LUBRICATION AND SIMILAR RUNNING-MAINTENANCE WITHOUT REMOVAL OF GUARDS.

2.3 GENERAL REQUIREMENTS – SHAFT GROUNDING RINGS
A. ALL MOTORS OPERATED ON VARIABLE FREQUENCY DRIVES SHALL BE EQUIPPED WITH A MAINTENANCE-FREE, CONDUCTIVE MICROFIBER SHAFT GROUNDING RING TO MEET NEMA MG-1, 3.4.4.4.3 REQUIREMENTS, WITH A MINIMUM OF TWO ROWS OF CIRCUMFERENTIAL MICROFIBERS TO DISCHARGE DAMAGING SHAFT VOLTAGES AWAY FROM THE BEARINGS TO GROUND. SGR'S SERVICE LIFE: DESIGNED TO LAST FOR SERVICE LIFE OF MOTOR. PROVIDE AEGIS SGR CONDUCTIVE MICROFIBER SHAFT GROUNDING RING OR APPROVED EQUAL.
B. APPLICATION NOTE: MOTORS UP TO 100 HP SHALL BE PROVIDED WITH ONE SHAFT GROUND RING INSTALLED ON EITHER THE DRIVE END OR NON-DRIVE END. MOTORS OVER 100 HP SHALL BE PROVIDED WITH AN INSULATED BEARING ON THE NON-DRIVE END AND A SHAFT GROUNDING RING ON THE DRIVE END OF THE MOTOR WITH THE EXCEPTION OF LINE CONTACT BEARINGS IN THE DRIVE END OF THE MACHINE. IN THIS INSTANCE THE LINE CONTACT BEARING MUST BE ELECTRICALLY INSULATED, AND THE AEGIS BEARING PROTECTION RING INSTALLED ON THE OPPOSITE DRIVE END OF THE MOTOR. GROUNDING RINGS SHALL BE PROVIDED AND INSTALLED BY THE MOTOR MANUFACTURER'S RECOMMENDATIONS.

PART 3. EXECUTION:
3.1 INSTALLATION
A. INSTALL MOTORS ON MOTOR MOUNTING SYSTEMS IN ACCORDANCE WITH MOTOR MANUFACTURER'S INSTRUCTIONS, ANCHORED TO RESIST TORQUE, DRIVE THRUSTS, AND OTHER EXTERNAL FORCES INHERENT IN MECHANICAL WORK. SECURE SHEAVES AND OTHER DRIVE UNITS TO MOTOR SHAFTS WITH KEYS AND ALLEN SET SCREWS ON FLAT SURFACE OF SHAFT. UNLESS OTHERWISE INDICATED, SET MOTOR SHAFTS PARALLEL WITH MACHINE SHAFTS.
B. VERIFY VOLTAGE WITH ELECTRICAL PLANS.

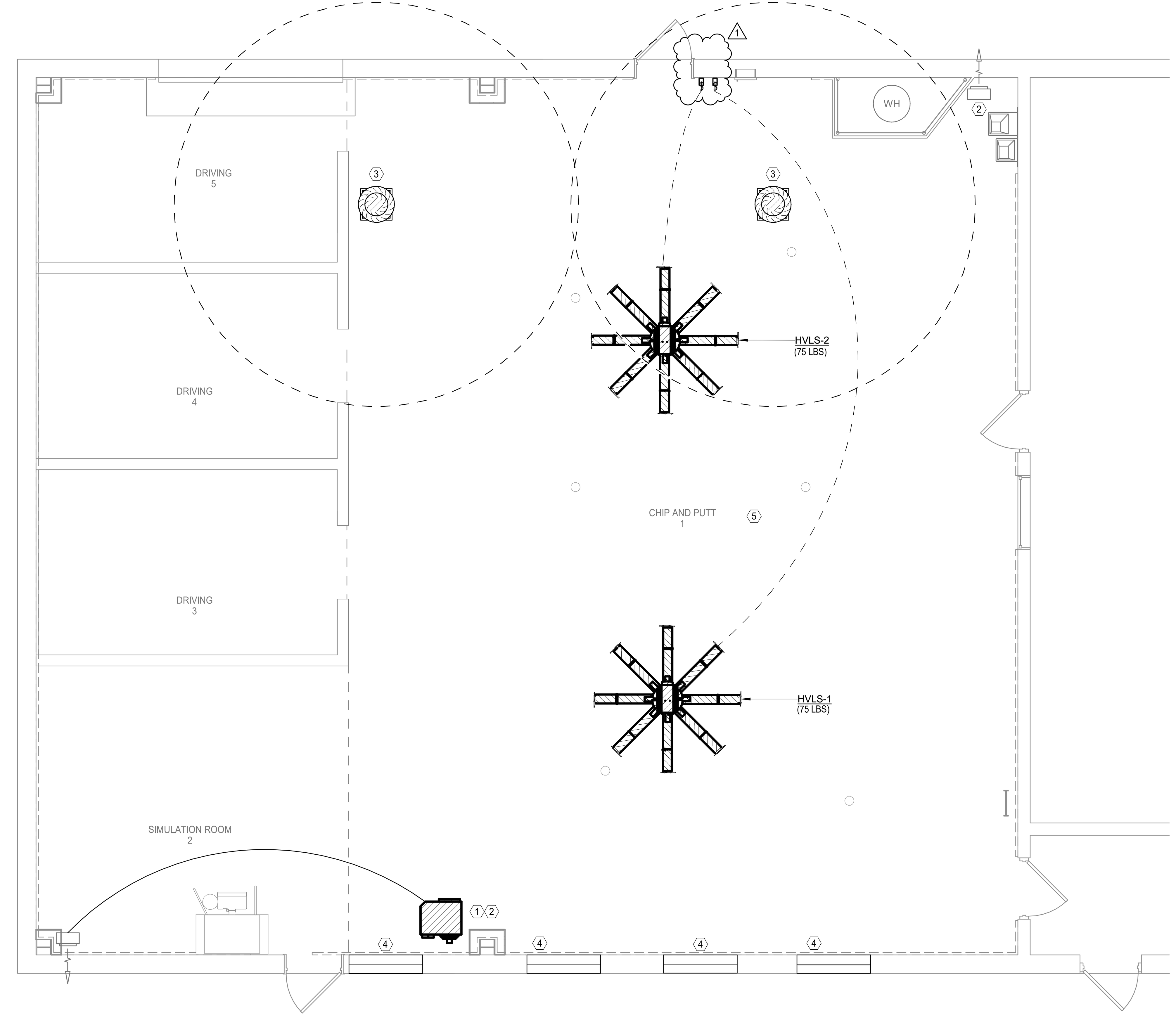
1

GENERAL

A. PERFORM WORK IN ACCORDANCE WITH APPLICABLE STATUTES, ORDINANCES, CODES AND REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION.
B. OBTAIN ALL PERMITS REQUIRED.
C. CONTRACT DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK. DETERMINE EXACT LOCATIONS FROM FIELD MEASUREMENTS.
D. GUARANTEE WORK FOR 1 YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE PROJECT. DURING THAT PERIOD MAKE GOOD ANY FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIAL, EQUIPMENT OR WORKMANSHIP. AT THE OWNER'S OPTION, REPLACEMENT OF FAILED PARTS OR EQUIPMENT SHALL BE PROVIDED.
E. IMMEDIATELY PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, REPLACE AIR FILTERS.
F. PROVIDE EQUIPMENT HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED AND GROUND MOUNTED HVAC EQUIPMENT, AND AS SHOWN ON THE DRAWINGS. CONCRETE PADS ARE TO BE 4" THICK UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
G. PROVIDE NAMEPLATES WITH 1/2" HIGH LETTERS AND FASTENED WITH EPOXY OR SCREWS.
H. MAINTAIN QUALITY CONTROL OVER SUPERVISION, SUBCONTRACTORS, SUPPLIERS, MANUFACTURERS, PRODUCTS, SERVICES, SITE CONDITIONS AND WORKMANSHIP TO PRODUCE WORK IN ACCORDANCE WITH CONTRACT DOCUMENTS.
I. COMPLY WITH INDUSTRY STANDARDS EXCEPT WHEN MORE RESTRICTIVE TOLERANCES OR SPECIFIED REQUIREMENTS INDICATE MORE RIGID STANDARDS OR MORE PRECISE WORKMANSHIP.
J. PERFORM WORK BY PERSONS QUALIFIED TO PRODUCE WORKMANSHIP OF SPECIFIED QUALITY.
K. SECURE PRODUCTS IN PLACE WITH POSITIVE ANCHORAGE DEVICES DESIGNED AND SIZED TO WITHSTAND STRESSES, VIBRATION, AND RACKING. UNDER NO CONDITIONS SHALL MATERIAL OR EQUIPMENT BE SUSPENDED FROM STRUCTURAL BRIDGING.
L. PROVIDE FINISHES TO MATCH APPROVED SAMPLES. ALL EXPOSED FINISHES SHALL BE APPROVED BY THE ARCHITECT. SUBMIT COLOR SAMPLES AS REQUIRED.
M. COMPLY WITH INSTRUCTIONS IN FULL DETAIL, INCLUDING EACH STEP IN SEQUENCE. SHOULD INSTRUCTION CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT / ENGINEER BEFORE PROCEEDING.

MECHANICAL ALTERATIONS

A. INSPECT AND SERVICE EXISTING EQUIPMENT AND MATERIALS THAT ARE TO REMAIN OR TO BE REUSED.
B. DISPOSAL OF EQUIPMENT, MATERIALS, OR HOUSEKEEPING PADS TO BE ABANDONED. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL VERIFY WITH THE OWNER WHAT IS TO BE SALVAGED BY THE OWNER AND WHAT IS TO BECOME THE PROPERTY OF THE CONTRACTOR.
C. HANDLING OF EQUIPMENT AND MATERIALS TO BE REMOVED.
D. INSPECTION: EXISTING MATERIALS AND EQUIPMENT INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO BE REUSED SHALL BE INSPECTED FOR DAMAGED OR MISSING PARTS. CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER, IN WRITING, ACCORDINGLY. IF USING MATERIALS SPECIFIED OR SHOWN ON THE DRAWING VOIDS OR DIMINISHES THE WARRANTY OR OPERATION OF REMAINING EQUIPMENT OR SYSTEMS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER, IN WRITING. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED.
E. APPLICATION: EXISTING MATERIALS AND EQUIPMENT INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO BE REUSED SHALL BE CLEANED AND RECONDITIONED, INCLUDING CLEANING OF PIPING SYSTEMS AND HVAC COILS PRIOR TO INSTALLATION AND REUSE. MATERIAL AND EQUIPMENT REMOVED THAT IS NOT TO BE SALVAGED FOR OWNER'S USE OR FOR REUSE ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE. MATERIAL OR EQUIPMENT SALVAGED FOR OWNER'S USE SHALL BE CAREFULLY HANDLED AND STORED WHERE DIRECTED BY THE OWNER OR THE ARCHITECT / ENGINEER. RELOCATE MATERIAL AND / OR EQUIPMENT AS DIRECTED BY OWNER. MATERIALS AND EQUIPMENT NOT INDICATED TO BE REMOVED OR ABANDONED SHALL BE RECONNECTED TO THE NEW SYSTEM. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL WALK AREAS TO BE RENOVATED WITH OWNER TO IDENTIFY AND DOCUMENT ITEMS TO BE SALVAGED FOR OWNER'S USE.
F. SEQUENCE AND SCHEDULE: COORDINATE UTILITY SERVICE OUTAGES WITH UTILITY COMPANY, ARCHITECT AND OWNER. REMOVE CONCRETE HOUSEKEEPING PAD WHERE MATERIALS OR EQUIPMENT HAVE BEEN REMOVED.



1 **MECHANICAL FLOOR PLAN**
Scale: 1/4" = 1'-0"

MECHANICAL KEYED NOTES

1

1	CONTRACTOR TO RELOCATE EXISTING UNIT HEATER. EXTEND EXISTING GAS PIPING, EXISTING FLUE VENT, THERMOSTAT, AND EXISTING CONTROL WIRING TO NEW LOCATION SHOWN AS REQUIRED.
2	UNIT HEATER EXISTING TO REMAIN. CONTRACTOR TO FIELD VERIFY EXACT LOCATION. CONTRACTOR SHALL CLEAN AND INSPECT EXISTING HEATER AND ALL ACCESSORIES AND REPAIR OR REPLACE ANY EQUIPMENT AS REQUIRED FOR PROPER WORKING ORDER.
3	EXHAUST FAN ON ROOF EXISTING TO REMAIN. CONTRACTOR TO FIELD VERIFY EXACT LOCATION. CONTRACTOR SHALL CLEAN AND INSPECT EXISTING FAN SYSTEM, DAMPERS, AND ALL ACCESSORIES AND REPAIR OR REPLACE ANY EQUIPMENT AS REQUIRED FOR PROPER WORKING ORDER. CONTRACTOR TO ENSURE FAN IS PROPERLY INTERLOCKED WITH EXISTING INTAKE LOUVERS MOTORIZED DAMPER.
4	INTAKE LOUVER EXISTING TO REMAIN. CONTRACTOR TO FIELD VERIFY EXACT LOCATION. CONTRACTOR SHALL CLEAN AND INSPECT EXISTING LOUVER, INSECT SCREEN, MOTORIZED DAMPERS AND ALL ACCESSORIES AND REPAIR OR REPLACE ANY EQUIPMENT AS REQUIRED FOR PROPER WORKING ORDER. CONTRACTOR TO ENSURE MOTORIZED DAMPERS FULLY OPEN UPON ACTIVATION OF EXHAUST FANS.
5	

FAN

MARK	LOCATION	MAX. RPM	FLA	CURRENT CHARAC. V	PH	F	LOCALLY SWITCHED BY	INTERLOCKED WITH	FAN TYPE	DRIVE TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
HVLS-1	CHIP AND PUT	158	6	120	1	60	WALL CONTROLLER	-	HIGH VOLUME LOW SPEED	DIRECT	BIG ASS FANS	ESSENCE 8'	1-3
HVLS-2	CHIP AND PUT	158	6	120	1	60	WALL CONTROLLER	-	HIGH VOLUME LOW SPEED	DIRECT	BIG ASS FANS	ESSENCE 8'	1-3

GENERAL NOTES:
1. REFER TO MANUFACTURER INSTALLATION INSTRUCTIONS FOR ALL REQUIRED HVLS CLEARANCES AND MOUNTING TO STRUCTURE.
2. COORDINATE FINAL COLOR WITH ARCHITECT.

REMARKS:
1. PROVIDE WITH DISCONNECT.
2. PROVIDE WITH WALL MOUNTED VARIABLE SPEED CONTROLLER.
3. PROVIDE WITH FIRE RELAY FOR FIRE CONTROL PANEL INTEGRATION.

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OWP PROJECT NO. 2022-079
DATE OF ISSUE 12.1.2023

REVISIONS

DELTA	DESCRIPTION	DATE
1	Addendum 1	12/20/23

PROJECT TEAM: Ed Studio
DRAWN BY: Author
PROJECT PHASE: 100% CD Package
SHEET CONTENTS: MECHANICAL FLOOR PLAN

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Project Number: 2023-05286

SHEET NO.
M-101

AGENCY NO.

12/19/2023 12:21:38 PM orcutt | winslow / 2022-079 / INDOOR GOLF FACILITY - FRANK SEALE MIDDLE SCHOOL / SCHEMATIC DESIGN / M-101- MECHANICAL FLOOR PLAN / Author
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TECHNOLOGY LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
*# ▼	WALL MOUNTED NETWORK OUTLET D#: NUMBER OF DATA DROPS IN OUTLET AP: WIRELESS ACCESS POINT	+18" AFF, UNLESS OTHERWISE NOTED	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
V# ▽	COMMUNICATIONS OUTLET	FIELD COORDINATE	FIELD COORDINATE	
W ▼	WALL MOUNTED NETWORK OUTLET	+44" AFF	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
B ▽	WALL MOUNTED BOX FOR FUTURE USE.	+18" AFF UNO	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
D# ▼	FLOOR MOUNTED NETWORK OUTLET	N/A	COORDINATE WITH ELECTRICAL CONTRACTOR	FINISHED HARDWARE PROVIDED BY DIV 27
⌖ *#	CEILING MOUNTED NETWORK OUTLET AP: WIRELESS ACCESS POINT D#": NETWORK OUTLET	ABOVE CEILING	CEILING BRACKET WITH BISCUIT BLOCK	

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. CONDUIT STUB UP AND SLEEVES SHALL HAVE A SOLID UNCUT PLASTIC PROTECTIVE BUSHING.
5. NO CONDUITS SHALL EXCEED FOR 40% MAXIMUM FILL RATIO. CONTRACTOR TO PROVIDE ADDITIONAL CONDUITS REQUIRED.

AUDIO/VIDEO LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
WMP	WALL MOUNTED PROJECTOR AV OUTPUT OUTLET	REFERENCE FLOOR PLANS.	4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C	NOTE #5
CMP	CEILING MOUNTED PROJECTOR AV OUTPUT OUTLET	CEILING MOUNTED	N/A	NOTE #5
AV-1	WALL MOUNTED AUDIO/VIDEO INPUT OUTLET	+18" AFF UNO	4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C	
FSD-1	WALL MOUNTED FLAT SCREEN DISPLAY AUDIO/VIDEO OUTPUT OUTLET	REFERENCE FLOOR PLAN	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	NOTE #5
FSD-2	WALL MOUNTED FLAT SCREEN DISPLAY AUDIO/VIDEO OUTPUT OUTLET ASSOCIATED WITH AV-1 INPUT OUTLET	REFERENCE FLOOR PLAN	4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C	NOTE #5
IVD	INTERACTIVE VIDEO DISPLAY AUDIO/VIDEO OUTPUT OUTLET	REFERENCE FLOOR PLAN	4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C	NOTE #5
CP	AV CONTROL PANEL	+48" AFF TO TOP	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
PS	LOCAL INSTRUCTIONAL SPACE PRESENTATION SPEAKER	CEILING	CONTRACTOR PROVIDED CEILING BOX	COORDINATE POWER WITH EC
	STREAMING CAMERA	CEILING UNO	N/A	NOTE #5

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

INTERCOM LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
S3	WALL MOUNTED INTERIOR INTERCOM SPEAKER	REFERENCE FLOOR PLANS	CONTRACTOR PROVIDED	SEE NOTE 5

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

1

RESPONSIBILITY MATRIX

SCOPE ITEM	RESPONSIBILITY			NOTES
COMMUNICATIONS - DIVISION 27	OFOI	CFCI	OFCI	
CATEGORY 6/6A STRUCTURED CABLING SYSTEM		✓		
FLAT PANEL DISPLAYS		✓		
FLAT PANEL DISPLAY MOUNTS		✓		
PROJECTOR	✓			
PROJECTOR MOUNTS	✓			
BUILDING INTERCOM/PA, BELL, AND CLOCK SYSTEM		✓		

1

OFOI - OWNER FURNISHED AND OWNER INSTALLED
CFCI - CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED
OFCI - OWNER FURNISHED AND CONTRACTOR INSTALLED

RESPONSIBILITY MATRIX NOTES:
1. NONE IN PROJECT.
2. OWNER CONFIGURED, CONTRACTOR INSTALLED AND PATCHED.
3. OWNER CONFIGURED, CONTRACTOR INSTALLED AND PATCHED. CONTRACTOR TO PROVIDE AND INSTALL WALL MOUNT BRACKETS AND HIGH IMPACT ENCLOSURES.
4. BY DIVISION 26.
5. REFERENCE DIVISION 8 FOR DOOR HARDWARE.
6. BY DIVISION 11.
7. BY DIVISION 27.
8. UNLESS SPECIFIED OTHERWISE

SUBSCRIPTS AND ABBREVIATIONS

TEXT	DESCRIPTION
'WP'	DEVICE SHALL BE WEATHER PROOF AND RATED FOR EXTERIOR CONDITIONS
●	FIELD COORDINATE ELEVATION.
AFF	ABOVE FINISHED FLOOR
'UC'	DEVICE IS TO BE MOUNTED ON THE UNDERSIDE OF THE ELEVATED CANOPY.

SUBSCRIPTS LEGEND - EXISTING DEVICES

TEXT	DESCRIPTION
'E'	EXISTING TO REMAIN.
'D'	DEVICE IS EXISTING AND IS TO BE REMOVED. CONTRACTOR TO REMOVE THE DEVICE AND RETURN TO OWNER.
'RR'	REMOVE EXISTING DEVICE AND RELOCATE TO A LOCATION INDICATED ON THE DRAWINGS.

NOTES TO CONTRACTOR

1. EVERY SYMBOL SHOWN ON LEGEND MAY NOT APPEAR ON DRAWINGS.
2. SYSTEM INSTALLERS SHALL COORDINATE LOCATIONS AND CONNECTIONS WITH THE PROJECT'S ELECTRICAL CONTRACTOR.
3. CONTRACTOR TO PROVIDE PROPERLY GROUNDED LIGHTING PROTECTION ON ALL CABLING ENTERING AND EXITING THE BUILDING.

TECHNOLOGY KEYED NOTES

1	DATA TO BE FOR PROJECTOR MOUNTED TO TRACKMAN CAGE SYSTEM.
2	APPROXIMATE LOCATION OF EXISTING WALL MOUNTED TELECOMMUNICATIONS CABINET TO REMAIN. NEW DATA CABLES SHOULD BE HOMERUN BACK TO THIS CABINET.
3	EXISTING INTERCOM SPEAKER. CONTRACTOR TO REMOVE EXISTING SPEAKER AND REPLACE WITH NEW. HOMERUN NEW POE WALL MOUNTED SPEAKER PROGRAMMED TO CONNECT TO EXISTING INTERCOM SYSTEM.

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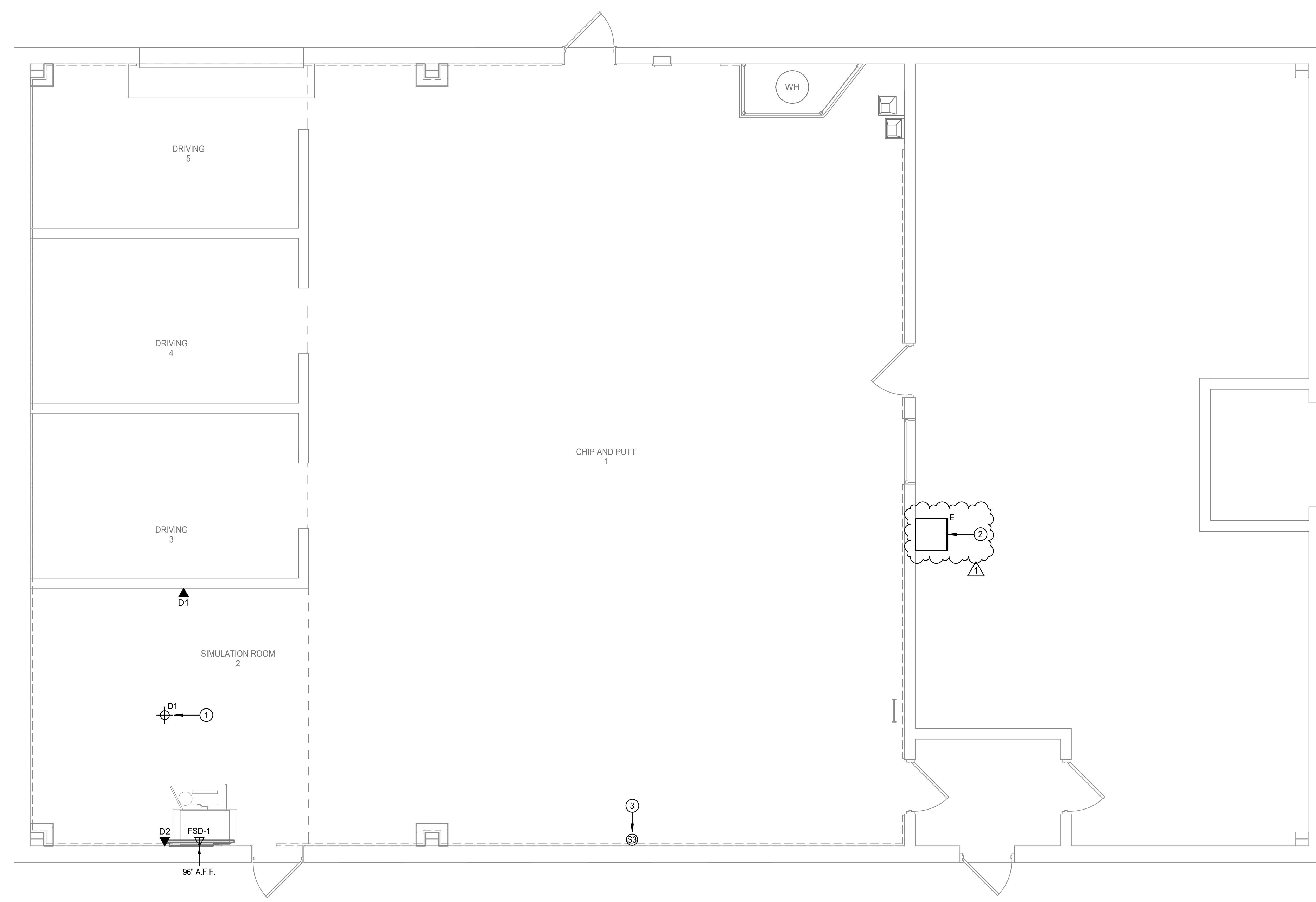

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2 **TECHNOLOGY FLOOR PLAN**
Scale: 1/4" = 1'-0"

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OWP PROJECT NO.	DATE OF ISSUE
2022-079	12.20.2023

REVISIONS

DELTA	DESCRIPTION	DATE
1	Addendum 1	12/20/23

PROJECT TEAM	DRAWN BY
Ed Studio	Author

PROJECT PHASE
100% CD Package

SHEET CONTENTS
TECHNOLOGY FLOOR PLAN

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SHEET NO.
T-200

AGENCY NO.

12/19/2023 11:58:18 AM orcutt | winslow / 2022-079 / INDOOR GOLF FACILITY - FRANK SEALE MIDDLE SCHOOL / SCHEMATIC DESIGN / T-200- TECHNOLOGY FLOOR PLAN / Author
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STRUCTURED CABLING
Horizontal Cabling

Requirements

- Copper cable shall be Category 6 plenum rated cable (blue in Color) for all work station drops.
- Approved Category 6 solution by Panduit.
- Data outlet shall be Panduit NetKey connector for all workstation drops.
- Contractor shall provide Midlothian ISD, Technology Department, one 5' category 6 patch cord, (blue in color) for each category 6 work station cable installed. To be installed by contractor at the network cabinet.
- Each cable shall be terminated on the existing patch panel in existing wall mounted cabinet.
- All Category 6 connectors shall be placed into QuickPort faceplates at the workstation end.
- Faceplate shall be Panduit multi-port faceplate, stainless steel.
- No substitutions.

Cable Installation

- Properly support horizontal cables in ceiling every 4'-5' using J-Hooks or cable tray only. (no slings, pouches, or D rings.)
- Place horizontal cables in pathways and spaces dedicated for communications cables. No pathways shall be in or above the red iron. Data cable will be run in separate pathways from all other cables.
- Provide 10' of slack at station end in ceiling and not inside wall.
- Slack shall be rolled neatly in a 2' loop and hanging from a j-hook in ceiling above drop location.
- Cat 6 data cables are to be terminated using the T568B standard.
- Face plates that support 6 snap in jacks will be used with snap in blanks in unused slots.
- Ensure terminations are at 180 degrees to the jack with no more than ¼" un-twisting and no more than ½" un-jacketing and are in accordance with manufacturer's recommendations.
- Ensure terminations have no un-twisting and that tower separators are utilized to separate pairs.
- Ensure pulling tensions of cables are not exceeded.
- Maintain proper cable bend radius of 4 times the cable's outer diameter during placement.
- No splices are permitted.
- No link shall exceed 90 meters. Contractor is responsible for verifying proper footages.
- Pull one additional "Mule Tape" or ¼" Nylon rope when pulling cables through any conduit utilizing existing pull string.
- Mule Tape or Nylon rope is to be pulled into conduit separately and after all other cables have been installed.
- Install sleeves when puncturing walls.
- Cable shall not be installed between cinder block walls and roof decking.
- Cable shall not be installed between red iron and roof decking.
- Firestop all sleeves and conduit openings after cable installation.
- Terminate all pairs and conductors at all ends according to manufacturer's instructions following color code sequence.
- Stress relief cable and the appropriate building fastener will be used on all aerial runs.
- All bends in conduit will be made with sweeps.
- Utilize Velcro ONLY in all closets.
- Install all components in a neat and workmanlike manner.
- Install all horizontal cables and termination frames in accordance with manufacturer's recommendations.

Labelling

- Label shall be a rap type with number printed multiple times enabling print to be legible from any angle.
- Machine label all termination panels and face plates with cabinet and cable number.
- Termination panels shall be labeled in numerical order.
- A single drop will be labeled a total of four times. The labels will be located on the patch panel in the rack, on both ends of the cable, and on the face plate at the work station end. The labels are to read exactly the same in all four locations.
- Numbering scheme will be 00-000 where the first two digits are the cabinet number and the last three are the drop number. Example, drop number 75 in cabinet 2 will read, 02-075.

Test

- Test results for all Category 6 copper and fiber optic cables shall be provided to Midlothian, Technology department.

End of Section

Installation

Cable Management

- All cables shall sweep in and out of any cable management product without a deformation of cable jacket.
- Ensure cables are properly supported when using cable management to ensure cables do not sag.
- Utilize Velcro ONLY for securing of cables on cable management.

Copper Patching Panels

- Route all cables to backside of termination panels in an asymmetrical orientation to ensure cable bundles are split evenly.
- Utilize rear wire management bars for supporting cables into point of termination.
- Secure all cables on all panels using Velcro ONLY to prevent cables from pulling away.

End of Section

Quality Assurance

- Install all components as directed by Manufacturer's installation guidelines.
- All products shall bear the mark of UL or ETL for performance level.
- System installation shall meet all applicable Local/State codes and safety requirements where project is located.
- All products shall be new and un-used in original packaging.
- Follow and adhere to installation practices specified by the applicable Telecommunications Industry Association standards.
- Follow and adhere to installation practices specified by BICSI Information Transport System Installation.
- Follow and adhere to installation practices specified by BICSI Telecommunications Distribution Methods.
- Follow and adhere to installation practices specified by NFPA-70 National Electric Code.
- Follow and adhere to installation practices specified by the Manufacturers.
- Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative.
- Contractor shall replace all defective components.

Bidder/Installer Qualifications

- Bidding Contractor shall be a licensed to install telecommunications systems in the state where work will be performed.
- Bidding Contractor shall be Leviton certified for at least one year
- Bidding Contractor shall have a minimum of 5 years experience installing structured cabling for telecommunications.
- Bidding Contractor shall have the capability to bond project in its entirety.
- Bidding Contractor shall be able to provide insurance at the request of the owner.
- Installer shall have an onsite supervisor and one technician who are certified by the Manufacturer to install the Manufacturer's telecommunications products.
- Communications Contractor shall have an RCDD on staff for at least one year, to certify that the Communications System can support the required applications on the various cabling media.
- Installer shall have obtained Leviton certification from the Manufacturer within 1 year prior to performing the Work.

Delivery, Storage, and Protection

- Communications Contractor shall ensure that materials delivery to work area shall be coordinated with construction site manager responsible for materials distribution to all trades.
- Communications Contractor is responsible for all materials, tools and vehicles left on the job site.
- Communications Contractor shall coordinate a disposal bin for the removal of all trash produced by the Communications Contractor personnel during the project.
- Communications Contractor shall ensure materials are stored in an environmental area where:

  Temperature does not exceed 120 degrees Fahrenheit nor below 32 degrees Fahrenheit.
  Humidity does not exceed 80 %.
  No direct exposure to sunlight.
- Follow Manufacturer's recommendations for handling of materials.

Warranty

- Communications Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure.
- Communications Contractor shall execute a Lifetime Applications Assurance Warranty for parts and labor to support stated applications from the connectivity Manufacturer.

End of Section

Audio Visual Systems for Special Spaces

Requirements

- Contractor to provide and install a complete video system in compliance with the equipment specified in the table below and associated drawings to support Trackman Golf Simulator. Installation shall be turnkey, including programming.

1.01 Golf Simulation Facility
- Reference technology drawings for configuration.

1.02 Flat Panel Displays
- All non interactive Flat Panel displays shall be Samsung BE Series Part No. BE55T-H. Contractor to coordinate sizes with owner and architect prior to purchase.

Display Mounting Hardware

- Universal Articulating Wall Mount: Peerless Product No. PLAV70-UNLP.
- Provide Triple Stud Wall Plate for each, stud-wall, wall mounted solution: Peerless Product No. WSPI(716 or 724). Coordinate exact model with stud-wall construction. Coordinate desired finish color with architect and owner at each location.

Cable Routing/ Pathway

- Cable Support System: All audio-video cabling shall be installed and supported using an approved J-Hook cable support system all 4'-0" intervals unless installed in conduit. Do not exceed manufacture recommendation for the quantity of cables supported in an individual support.
- All cable bundles shall be grouped together using plenum rated Velcro for the entire run above and below the ceilings.

General

- Contractor is required to thoroughly test and verify operation of all A/V inputs and video modes prior to project completion.
- Contractor shall provide owner with written verification test process and results once all have been installed, tested, and placed in final condition.
- Damage: The Contractor shall replace or rework cables showing evidence of improper handling including stretches, kinks, short radius bends, over tightened bindings, loosely twisted and over-twisted pairs at terminals and cable sheath removed too far (over 1-1/2 inches).
- The Contractor shall replace any damaged ceiling tiles that are broken during cable installation.
- Clean Up: All clean up activity related to work performed will be the responsibility of the Contractor and must be completed daily before leaving the facility.

Station Wiring Installation

- General: All cable must be handled with care during installation so as not to change performance specifications. Factory twists of each individual pair must be maintained up to the connection points at both ends of all category 6 cable. There shall never be more than one and one-quarter inch of unsheathed enhanced Category6 UTP cable at either the wiring USB Transmitter or Receiver.
- Exposed Cable: All cabling shall be installed inside walls or ceiling spaces whenever possible. Exposed station cable will only be run where indicated on the Drawings. Additional exposed cable runs will require Owner approval and will only be allowed when no other options exist.
- Placement: All cabling and associated hardware shall be placed so as to make efficient use of available space. All cabling and associated hardware shall be placed so as not to impair the Owner's efficient use of their full capacity.
- Cable Routes:
  1. All cabling placed in ceiling areas must be in conduit, cable tray or an approved J-Hook cable support. Cable supports shall be permanently anchored to building structure or substrates. Provide attachment hardware and anchors designed for the structure to which attached and that are suitably sized to carry the weight of the cables to be supported. Do not route cable through webbing of structural steel. Cabling must be supported in dedicated supports intended to support cabling as described in this section. Contractor shall adhere to the manufacturer's suggested fill ratio for each size cable support installed.
  2. Attaching cable to pipes or other mechanical items is not permitted. Communications cable shall be rerouted so as to provide a minimum of 18 inches spacing from light fixtures, sources of heat, power feeder conduits and EMI sources. Cabling shall not be attached to ceiling. Grid support wires. Cable runs shall be routed down the corridors; parallel or perpendicular to building structure. Multiple cables to be bundled together at and between each cable support installed.
  3. Contractor shall be responsible for coordinating with other trades on the project so that the installed cable pathway does not interfere with the installation of other systems to insure that mechanical ducts, pipes, conduits, or any other above ceiling systems are not putting unnecessary stress on any portion of the install audio-video cabling.

End of Section

INTERCOM SYSTEM SPECIFICATIONS

Equipment

1.01 System Manufacture
- Atlas IED

1.02 Intercom Systems Equipment

1.02.a Telecor Intercom Equipment
- IP-SDM-AtlasIED PoE+ indoor wall mount IP speaker with LCD display and talkback microphone.

End of Section

1

Installation

2.01 Systems Installation

- All non-IP cabling shall be **shielded** and have a minimum of 5 conductors.
- All network IP cabling shall be Cat6 (See Structured Cabling System Specifications for cabling information)
- All circuits and cabling shall be labeled at all terminating ends.
- All devices shall be mounted according to the manufacture's specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All non-IP room circuits shall run from the intercom system to the call button then to the room speaker.
- All extra speaker wire taps shall be insulated.
- All rooms shall be individually wired and terminated at the intercom system on individual points. (No Doubling)
- All rooms shall be tested to verify proper room number programming and operation.
- All call buttons shall be labeled with their corresponding system point number.
- Protective grommets shall be installed on all conduits to protect wire.
- All wire shall be run in J hooks above ceiling with a minimum space of 4" from ceiling deck. All wire shall be in separate pathways 6" from other system wiring. No wire ties allowed. No wire shall be run between the red iron and roof deck.
- All wire ran between building shall be in conduit and shall be direct burial cable. It shall be a minimum of 5 conductor 18 AWG copper.
- Installer shall supply the electrical and or masonry contractors with specialty back boxes and coordinate with them to ensure that all necessary conduits, back boxes, etc. are installed in the proper locations.
- Follow and adhere to installation practices specified by NFPA-70 National Electric Code, Edition 2008.
- Follow and adhere to installation practices specified by the Manufacturers.

2.02 Quality Assurance

- Install all components as directed by Manufacturer's installation guidelines.
- All products shall bear the mark of UL or ETL for performance level.
- System installation shall meet all applicable Local/State codes and safety requirements where project is located.
- All products shall be new and un-used in original packaging.

2.03 Bidder/Installer Qualifications
- Bidding contractor shall have a minimum of 5 years experience installing school intercom systems.
- Bidding contractor shall be able to provide insurance at the request of the owner.

2.04 Delivery, Storage, and Protection
- Contractor shall ensure that materials delivery to work area shall be coordinated with construction site manager responsible for materials distribution to all trades.
- Contractor is responsible for all materials, tools and vehicles left on the job site.
- Follow Manufacturer's recommendations for handling of materials.

2.05 Scheduling
- Contractor shall provide a detailed construction schedule with hard dates for completion of roughing in cables, terminations and testing once scheduling sequence has been determined to the Owner's Project Manager.

2.06 Warranty
- Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure.

End of Section

Execution

3.01 Field Quality Control

- Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative.
- Contractor shall replace all defective components.

3.02 Adjusting

- No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative.

3.03 Protection

- It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project with appropriate materials.
- Remove all protective covers and protective materials from equipment prior to turnover to Owner.

3.04 Schedules

- Coordinate work with Owner's project manager and follow scheduling sequence as established by Owner's project manager.
- It is recommended that the Contractor schedule closely with any other systems contractor to ensure turnover date is met.
- Contractor bidding will supply the electrical and or masonry contractors with any specialty back boxes such as clock recessed back boxes etc. and coordinate with them to ensure that all necessary conduits, back boxes, etc. are installed in the proper locations.

3.05 Submittals

1.03.01 Prior to installation

- Show complete map of system design for approval by Owner.

3.06 System Requirements

- Intercom system shall be capable of communicating to all rooms and shall have adequate number of room points as to not double up on any given point.

End of Section

Intercom System Installation Completion Check List

4.01 Section Includes

- Intercom System Completion Check List

4.02 Completion Check List

- Main control panel has a map of the entire system inside and a copy has been given to Jack Phillips with MPS.
- All intercom programming such as bell times, tornado drill alert, etc has been checked and is correct.
- Intercom has been tested for proper operation.
- All rooms have been tested to verify proper description at console.
- All speakers have been tested to verify proper operation and volume.
- All extra speaker wires have been tapped or insulated
- All call buttons are labeled and have been tested for proper operation.

End of Section

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12/20/23
STATE OF TEXAS
KEITH W. GASSMAN
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PROFESSIONAL ENGINEER

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OWP PROJECT NO.	DATE OF ISSUE
2022-079	12.20.2023

REVISIONS

DELTA	DESCRIPTION	DATE
1	Addendum 1	12/20/23

PROJECT TEAM	DRAWN BY
Ed Studio	Author

PROJECT PHASE
100% CD Package

SHEET CONTENTS
TECHNOLOGY SHEET SPECIFICATIONS

SHEET NO.
T-201

AGENCY NO.

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Irving
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Irving, TX 75062
Registration: F-4111
Project Number: 2023-05286

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Autodesk Docs://Midlothian ISD - Indoor Golf Simulator Build-Out/2023-05286_Midlothianisd_indoor_Golf_Facility_MEPT_R23.rvt

MIDLOTHIAN ISD
INSPIRING EXCELLENCE

CSP 2324-04 GOLF PRACTICE FACILITY PROJECT

12/7/23	Golf Practice Facility Project	Meeting Date:	Dec. 7, 2023 10 am
Pre-Bid	MISD	Place/Room:	MISD Admin/FSMS

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