CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

CURRENT ISSUE: ISSUE FOR PERMIT
ISSUE DATE: 2026-05-01

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DRAWING ISSUE

IN	DATE	DESCRIPTION
	2025-09-29	ISSUE FOR SCHEMATIC DESIGN
	2025-12-22	ISSUE FOR DESIGN DEVELOPMENT
	2026-03-06	ISSUE FOR SITE PERMIT
	2026-03-16	75% CONSTRUCTION DOCUMENT PROGRESS

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JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE
COVER PAGE

SHEET NUMBER
G-000

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A.M.D.G.

ABBREVIATIONS

	@	AT
	&	AND
A	AB	ANCHOR BOLT
	AFF	ABOVE FINISHED FLOOR
	AHJ	AUTHORITY HAVING JURISDICTION
	ALUM	ALUMINUM
	ANOD	ANODIZED
	AFES	AUTOMATIC FIRE EXTINGUISHING SYSTEM
B	BD	BOARD
	BLDG	BUILDING
	BLKG	BLOCKING
C	CL	CENTER LINE
	CAB	CABINET
	CB	CATCH BASIN
	CER	CERAMIC
	CJ	CONTROL JOINT
	CLG	CEILING
	CLO	CLOSET
	CLR	CLEAR
	CO	CASED OPENING
	COL	COLUMN
	CONC	CONCRETE
	CONSTR	CONSTRUCTION
	CONT	CONTINUOUS
	CONTR	CONTRACTOR
D	DBL	DOUBLE
	DET	DETAIL
	DIA	DIAMETER
	DN	DOWN
	DS	DOWN SPOUT
	DWG	DRAWING
E	EA	EACH
	EDF	ELECTRIC DRINKING FOUNTAIN
	EL	ELEVATION
	ELEC	ELECTRICAL
	ELEV	ELEVATOR
	EQ	EQUAL
	EJ	EXPANSION JOINT
	EXT	EXTERIOR
F	FA	FIRE ALARM
	FD	FLOOR DRAIN
	FE	FIRE EXTINGUISHER W/ WALL BRACKET
	FEC	FIRE EXTINGUISHER CABINET
	FHC	FIRE HOSE CABINET
	FIN	FINISH
	FLR	FLOOR
	FOC	FACE OF CONCRETE
	FOM	FACE OF MASONRY
	FOS	FACE OF STUD
	FT	FEET
G	GA	GAUGE
	GALV	GALVANIZED
	GI	GALVANIZED IRON
	GL	GLASS
	GYP BD	GYPSUM BOARD
H	HC	HOLLOW CORE
	HM	HOLLOW METAL
	HORIZ	HORIZONTAL
	HNDRL	HAND RAIL
	HT	HEIGHT
	HW	HOT WATER
I	ID	INSIDE DIAMETER
	IN	INCH
	INSUL	INSULATION
K	KIT	KITCHEN
L	LAV	LAVATORY
	LB	POUND
M	MAX	MAXIMUM
	MB	MINI BLINDS
	MEMB	MEMBRANE
	MFR	MANUFACTURER
	MTL	METAL
N	NIC	NOT IN CONTRACT
	NTS	NOT TO SCALE
O	OC	ON CENTER
	OD	OUTSIDE DIAMETER
	OPH	OPPOSITE HAND
P	PL	PROPERTY LINE
	PLAM	PLASTIC LAMINATE
	PLAS	PLASTIC
	PLYWD	PLYWOOD
	PTD	PAINTED
	PTN	PARTITION
R	R	RADIUS
	RA	RETURN AIR
	RB	RESILIENT BASE
	RD	ROOF DRAIN
	REF	REFERENCE
	REQD	REQUIRED
	RO	ROUGH OPENING
S	SC	SOLID CORE
	STN	STAIN
	SST	STAINLESS STEEL
	STD	STANDARD
	STOR	STORAGE
	STRUCT	STRUCTURAL
T	TOC	TOP OF CURB
	TCH	TRASH CHUTE
	THK	THICK
	TOC	TOP OF CONCRETE
	TOP	TOP OF PARAPET
	TOS	TOP OF STEEL
	TOW	TOP OF WALL
	TYP	TYPICAL
U	UR	URINAL
	UNO	UNLESS NOTED OTHERWISE
V	VR	VAPOR RETARDER
	VERT	VERTICAL
	VIF	VERIFY IN FIELD
W	WI	WITH
	WC	WATER CLOSET
	WH	WATER HEATER
	WP	WATER PROOF
	WD	WOOD

GRAPHICS AND SYMBOLS

CONSTRUCTION TYPE SYMBOLS

- EXISTING CONSTRUCTION TO REMAIN
- EXISTING CONSTRUCTION TO BE DEMOLISHED
- NEW NON-RATED CONSTRUCTION
- NEW SMOKE RATED CONSTRUCTION (30 MIN)
- NEW 1 HR. RATED CONSTRUCTION
- NEW 2 HR. RATED CONSTRUCTION
- NEW 3 HR. RATED CONSTRUCTION
- PROPERTY LINE
- MATCH LINE

PLAN REFERENCE SYMBOLS

- OFFICE / 1002 — ROOM NAME / ROOM NO. — ROOM SYMBOL
- 03 / A3.2 — DETAIL NO. — BUILDING SECTION SYMBOL
- 03 / A3.2 — SHEET NO. — WALL SECTION SYMBOL
- 01 / A12.34 — DETAIL NO. / SHEET NO. — INTERIOR ELEVATION SYMBOL
- 01 / A12.34 — DETAIL NO. / SHEET NO. — EXTERIOR ELEVATION SYMBOL
- 03 / A3.2 — DETAIL NO. / SHEET NO. — SECTION DETAIL SYMBOL (NOTE: SHADED ARROW IDENTIFIES VIEW DIRECTION)
- 03 / A3.2 — DETAIL NO. / SHEET NO. — ENLARGED DETAIL SYMBOL SECTION OR PLAN
- N — TRUE NORTH — PLAN NORTH
- DR/A — DOOR NO. — DOOR TAG
- W140 — PARTITION TAG (RE:PARTITION SCHEDULE)
- W1 — WINDOW TYPE SYMBOL
- TA-1 — EQUIPMENT REFERENCE
- 01.00 — KEY NOTE
- 1 — REVISION DELTA
- LEVEL 10'-0" — DATUM POINT
- ST / PT — START POINT FOR CEILING GRIDS, FINISHES, ETC.
- 105.05 — FINISH GRADE ELEVATION

MATERIAL SYMBOLS - PLAN

- BRICK
- CONCRETE MASONRY UNIT
- CAST-IN-PLACE CONCRETE
- PRECAST CONCRETE
- STONE
- GRAVEL
- COMPACTED EARTH FILL

MATERIAL SYMBOLS - DETAIL

- STEEL
- OTHER METALS
- BATT INSULATION
- RIGID INSULATION
- GYPSUM BOARD
- PLASTER ON LATHE
- PLYWOOD
- MDF BOARD
- FINISHED WOOD
- GLASS
- TILE
- CARPET
- ACOUSTICAL TILE
- CONTINUOUS WOOD BLOCKING
- WOOD SHIM
- GRAVEL
- CONCRETE
- SAND

SHEET INDEX

SHEET #	SHEET NAME	INITIAL ISSUE DATE	CURRENT REV	CURRENT REVISION DATE
GENERAL				
G-000	COVER PAGE	2026-05-01		
G-002	SHEET INDEX AND GENERAL INFO	2026-03-16		
G-010	CODE ANALYSIS	2026-03-16		
G-011	FIRE ACCESS PLAN	2026-03-16		
G-012	LIFE SAFETY PLAN	2026-03-16		
G-020	ADA STANDARDS	2026-03-16		
G-021	ADA STANDARDS	2026-03-16		
CIVIL				
C0.00	GENERAL NOTES	2026-03-16		
C1.00	EXISTING CONDITIONS & DEMOLITION PLAN	2026-03-16		
C2.00	EROSION CONTROL PLAN	2026-03-16		
C3.00	OVERALL SITE PLAN	2026-03-16		
C4.01	PAVING & DIMENSIONAL CONTROL PLAN	2026-03-16		
C4.02	PAVING & DIMENSIONAL CONTROL PLAN	2026-03-16		
C5.01	GRADING & DRAINAGE PLAN	2026-03-16		
C5.02	GRADING & DRAINAGE PLAN	2026-03-16		
C5.03	GRADING & DRAINAGE PLAN	2026-03-16		
C6.01	WATER & SEWER PLAN	2026-03-16		
C6.02	WATER & SEWER PLAN	2026-03-16		
C7.01	STORM DETAILS	2026-03-16		
C7.02	STORM & WASTEWATER DETAILS	2026-03-16		
C7.03	WATER LINE, HANDICAP, & PAVING DETAILS	2026-03-16		
C7.04	STREET & SIDEWALK DETAILS	2026-03-16		
C7.05	EROSION CONTROL & MISC. DETAILS	2026-03-16		
LANDSCAPE				
L-001	LANDSCAPE TREE PROTECTION PLAN	2026-03-16		
L-002	LANDSCAPE TREE PROTECTION DETAILS AND NOTES	2026-03-16		
L-100	LANDSCAPE SITE PLAN	2026-03-16		
L-200	LANDSCAPE DETAILS AND NOTES	2026-03-16		
L-300	PLANTING PLAN	2026-03-16		
L-400	LANDSCAPE PLANTING DETAILS AND NOTES	2026-03-16		
STRUCTURAL				
S-001	GENERAL NOTES	2026-03-16		
S-002	GENERAL NOTES	2026-03-16		
S-201	FOUNDATION PLAN	2026-03-16		
S-202	FOUNDATION PLAN - SECTOR A	2026-03-16		
S-203	FOUNDATION PLAN - SECTOR B	2026-03-16		
S-204	FOUNDATION PLAN - SECTOR C	2026-03-16		
S-300	TYPICAL CONCRETE DETAILS	2026-03-16		
S-301	TYPICAL FOUNDATION DETAILS	2026-03-16		
S-302	PEMB FOUNDATION DETAILS	2026-03-16		
ARCHITECTURE				
A-000	ARCHITECTURAL SITE PLAN	2026-03-16		
A-101	FLOOR PLAN	2026-03-16		
A-102	FLOOR PLAN - SECTOR A	2026-03-16		
A-103	FLOOR PLAN - SECTOR B	2026-03-16		
A-104	FLOOR PLAN - SECTOR B	2026-03-16		
A-105	FLOOR PLAN - SECTOR C	2026-03-16		
A-110	SLAB EDGE PLAN	2026-03-16		
A-140	FINISH PLAN	2026-03-16		
A-141	FINISH PLAN - SECTOR A	2026-03-16		
A-142	FINISH PLAN - SECTOR B	2026-03-16		
A-143	FINISH PLAN - SECTOR C	2026-03-16		
A-150	CEILING PLAN	2026-03-16		
A-151	CEILING PLAN - SECTOR A	2026-03-16		
A-152	CEILING PLAN - SECTOR B	2026-03-16		
A-153	CEILING PLAN - SECTOR C	2026-03-16		
A-160	FURNITURE PLAN	2026-03-16		
A-161	FURNITURE PLAN - SECTOR A	2026-03-16		
A-162	FURNITURE PLAN - SECTOR B	2026-03-16		
A-163	FURNITURE PLAN - SECTOR C	2026-03-16		
A-170	ROOF PLAN	2026-03-16		
A-180	ENLARGED PLANS	2026-03-16		
A-200	BUILDING ELEVATIONS	2026-03-16		
A-300	BUILDING SECTIONS	2026-03-16		
A-310	WALL SECTIONS	2026-03-16		
A-560	PARTITION TYPES	2026-03-16		
A-570	PLAN DETAILS	2026-03-16		
A-571	PLAN DETAILS	2026-03-16		
A-610	DOOR TYPES & SCHEDULE	2026-03-16		
A-615	DOOR DETAILS	2026-03-16		
A-620	WINDOW TYPES & SCHEDULES	2026-03-16		
A-621	WINDOW TYPES & SCHEDULES	2026-03-16		
A-625	WINDOW DETAILS	2026-03-16		
A-630	SIGNAGE TYPES, SCHEDULES AND DETAILS	2026-03-16		
A-640	FINISH AND MATERIAL LEGEND	2026-03-16		
A-700	INTERIOR ELEVATIONS	2026-03-16		
A-701	INTERIOR ELEVATIONS	2026-03-16		
A-702	INTERIOR ELEVATIONS	2026-03-16		
A-703	INTERIOR ELEVATIONS	2026-03-16		
A-704	INTERIOR ELEVATIONS	2026-03-16		
A-705	INTERIOR ELEVATIONS	2026-03-16		
A-706	INTERIOR ELEVATIONS	2026-03-16		
FOOD SERVICE				
QF000	FOODSERVICE CONSTRUCTION NOTES/ SHEET INDEX	2026-03-16		
QF101	FOODSERVICE EQUIPMENT PLAN	2026-03-16		
QF201	FOODSERVICE EQUIPMENT SCHEDULE	2026-03-16		
QF301	FOODSERVICE PLUMBING ROUGH-IN PLAN	2026-03-16		
QF401	FOODSERVICE ELECTRICAL ROUGH-IN PLAN	2026-03-16		
QF501	FOODSERVICE WALL BACKING AND STRUCTURAL SUPPORT PLAN	2026-03-16		
QF601	FOODSERVICE REFRIGERATION AND CONDUIT PLAN	2026-03-16		
QF901	FOODSERVICE ELEVATION KEY PLAN	2026-03-16		
QF902	FOODSERVICE ELEVATIONS	2026-03-16		
FIRE PROTECTION				
SP-000	FIRE SPRINKLER GENERAL NOTES AND LEGED	2026-03-16		
SP-101	FIRE SPRINKLER LEVEL 01 PLAN - OVERALL	2026-03-16		
PLUMBING				
P-100	PLUMBING SITE PLAN	2026-03-16		
ELECTRICAL				
E-001	ELECTRICAL SITE PLAN	2026-03-16		
E-500	ELECTRICAL DETAILS	2026-03-16		
E-600	ELECTRICAL ONE-LINE DIAGRAM	2026-03-16		
AQUATICS				
AQ-000	GENERAL NOTES & LEGENDS	2026-02-13		
AQ-100	SITE EQUIPMENT ID & UTILITY CONNECTIONS	2026-02-13		
AQ-200	SPA EQUIPMENT ID, DIMENSION, & SECTIONS	2026-02-13		
AQ-210	LAP POOL EQUIPMENT ID	2026-02-13		
AQ-214	LAP POOL SECTIONS	2026-02-13		
AQ-220	ACTIVITY POOL EQUIPMENT ID & DIMENSIONS	2026-02-13		
AQ-224	ACTIVITY POOL SECTIONS	2026-02-13		
AQ-300	MECH ROOM 1 EQUIPMENT ID	2026-02-13		
AQ-310	SPA PIPING DIAGRAM	2026-02-13		
AQ-320	LAP POOL PIPING DIAGRAM	2026-02-13		
AQ-330	ACTIVITY POOL PIPING DIAGRAM	2026-02-13		
AQ-400	ELECTRICAL GENERAL NOTES	2026-02-13		
AQ-411	SPA FUNCTIONAL BLOCK DIAGRAM	2026-02-13		
AQ-421	LAP POOL FUNCTIONAL BLOCK DIAGRAM	2026-02-13		
AQ-431	ACTIVITY POOL FUNCTIONAL BLOCK DIAGRAM	2026-02-13		
AQ-450	MECH ROOM 1 SINGLE LINE DIAGRAM	2026-02-13		
AQ-451	MECH ROOM 1 SINGLE LINE DIAGRAM	2026-02-13		
AQ-452	MECH ROOM 1 SINGLE LINE DIAGRAM	2026-02-13		
AQ-460	MECH ROOM 1 PANEL SCHEDULES	2026-02-13		
AQ-470	MECH ROOM 1 ELECTRICAL EQUIPMENT SCHEDULES	2026-02-13		
AQ-600	EQUIPMENT SCHEDULES	2026-02-13		

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1	2026-01-12	ISSUE FOR DESIGN DEVELOPMENT
2	2026-02-13	50% CONSTRUCTION DOCUMENT PROGRESS
3	2026-03-16	75% CONSTRUCTION DOCUMENT PROGRESS

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JOB No.: WESCIT00561

SHEET TITLE

SHEET INDEX AND GENERAL INFO

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DATE PRINTED: 3/16/2026 8:44:48 AM

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PROJECT INFORMATION

SCOPE OF WORK:
NEW CONSTRUCTION OF A RECREATION CENTER WITH NATATORIUM, COURTS,CONCESSIONS, OFFICES AND RESTROOMS.

AUTHORITES HAVING JURISDICTION:
CITY OF WEST MEMPHIS BUILDING DEPARTMENT AND FIRE DEPARTMENT

APPLICABLE CODES:

BUILDING CODE:	2021 ARKANSAS FIRE PREVENTION CODE VOL II (BUILDING)
ENERGY CODE:	2014 ARKANSAS ENERGY CODE
MECHANICAL CODE:	2021 ARKANSAS MECHANICAL CODE
ELECTRICAL CODE:	2023 NATIONAL ELECTRICAL CODE
PLUMBING CODE:	2018 ARKANSAS PLUMBING CODE AND ARKANSAS GAS CODE
FIRE CODE:	2021 ARKANSAS FIRE PREVENTION CODE VOL 1 (FIRE)
ACCESSIBILITY:	2010 ADA STANDARDS

BUILDING ADDRESS:
ST HWY 191/I-40 SERV, West Memphis, AR 72301

BUILDING NUMBER:
1 OF 1

BUILDING HEIGHT:
37'-5 1/4"

NUMBER OF STORIES:
1 STORY

BUILDING AREA:

TYPE	AREA
CONDITIONED	83,108 SF
UNCONDITIONED	4,495 SF
TOTAL GROSS	87,603 SF

VICINITY MAP

BUILDING OCCUPANCY AND CONSTRUCTION

OCCUPANCY CLASSIFICATION (IBC SECTION 302):
NON-SEPARATED MIXED USE:
A-4 ASSEMBLY (PRIMARY USE)
A-2 ASSEMBLY
A-3 ASSEMBLY
B BUSINESS
S STORAGE

H-2 HAZARD

CONSTRUCTION TYPE (IBC TABLE 601):
TYPE II-B

ALLOWABLE HEIGHT/STORIES ABOVE GRADE PLANE (IBC TABLE 504.3 & 504.4)
HEIGHT: 75FT
STORIES : 1 (PER 507.4 RESTRICTIONS)

ALLOWABLE BUILDING AREA (IBC TABLE 506.2)
BASED ON THE MOST RESTRICTIVE USE FOR NON-SEPARATED MIX USE
AREA (SPRINKLERED): 38,000 SF
FRONTAGE INCREASE: N/A
TOTAL ALLOWABLE: UNLIMITED PER SEC 507.4

REQUIRED SEPARATION OF OCCUPANCIES (IBC TABLE 508.4)

OCCUPANCY TYPE	ADJACENT OCCUPANCY	REQUIRED SEPARATION (HOURS)
H-2	A,S-2	3
H-2	B	2

FIRE RESISTANCE REQUIREMENTS

FIRE RESISTANCE REQUIREMENTS FOR ALL BUILDING ELEMENTS (IBC TABLE 601)

BUILDING ELEMENT	FIRE RATING (HOURS)	UL ASSEMBLY
PRIMARY STRUCTURAL FRAME	0	N/A
BEARING WALLS		
EXTERIOR	0	N/A
INTERIOR	0	N/A
NON-BEARING WALLS & PARTITIONS		
INTERIOR	0	N/A
FLOOR CONSTRUCTION & ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0	N/A
ROOF CONSTRUCTION & ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0	N/A

FIRE PROTECTION (IBC SECTION 903, 906.1 & 907.2.1)
AUTOMATIC FIRE SPRINKLER SYSTEM: REQUIRED & PROVIDED, RE: SHEET XX.XXXX
PORTABLE FIRE EXTINGUISHER: REQUIRED & PROVIDED, RE: SHEET G-012
FIRE ALARM DETECTION SYSTEM:
MANUAL FIRE ALARM BOXES: NOT REQUIRED

FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS (IBC TABLE 705.5)

FIRE SEPARATION (FEET)	FIRE RESISTANCE (HOURS)
X ≥ 30'	H OCC = 0 HR A,B,S-E OCC = 0 HR

MAXIMUM AREA OF EXTERIOR WALL OPENINGS (IBC TABLE 705.8)

FIRE SEPARATION (FEET)	DEGREE OF OPENING PROTECTION	ALLOWABLE PERCENT:
X ≥ 30'	UNPROTECTED, SPRINKLERED	NO LIMIT

CONCEALED SPACES (SECTION 718)
DRAFTSTOPPING NOT REQUIRED IN NON-COMBUSTIBLE CONSTRUCTION AND BUILDINGS EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM.
FIREBLOCKING (718.2)
CONCEALED WALL SPACES (718.2.2)
DRAFTSTOPPING IN FLOORS NOT REQUIRED (718.3)
DRAFTSTOPPING IN ATTICS NOT REQUIRED (718.4)

CORRIDOR FIRE-RESISTANCE RATING (TABLE 1020.2)

OCCUPANCY	OCCUPANCY LOAD SERVED BY CORRIDOR	REQUIRED FIRE RATING
A	> 30	WITH SPRINKLER = 0 HR

PLUMBING FIXTURE COUNTS - BUILDING

MINIMUM FIXTURES REQUIRED ARE CALCULATED BASED ON 50% MALE AND 50% FEMALE OCCUPANTS

ASSEMBLY
1,195 OCCUPANTS = 598 MALE, 598 FEMALE

STORAGE
5 OCCUPANTS = 3 MALE, 3 FEMALE

CLASSIFICATION	DESCRIPTION	WATER CLOSET MALE	WATER CLOSET FEMALE	LAVATORIES MALE	LAVATORIES FEMALE	SHOWERS	DRINKING FOUNTAINS	SERVICE SINKS
ASSEMBLY CODE REQTS.	INDOOR SPORTING EVENTS	FIRST 1,500 = 1/75 REMAINDER = 1/120	FIRST 1,520 = 1/40 REMAINDER = 1/60	1/200	1/150	--	1/1,000	1
FIXTURES REQUIRED		7.97	14.95	2.99	3.99	--	1.20	1
STORAGE CODE REQTS.	CHEMICAL STORAGE ROOMS	1/100	1/100	1/100	1/100	--	1/1,000	1
FIXTURES REQUIRED		.03	.03	.03	.03	--	.01	1
TOTAL FIXTURES REQUIRED		8	15	4	5	--	2	2
TOTAL FIXTURES PROVIDED		15+2*	15	11+2*	11	--	4	2

NOTES:
* UNISEX RESTROOMS

PLUMBING FIXTURE COUNTS - POOL

ISPSC 2018 SECTION 609
MINIMUM FIXTURES REQUIRED ARE CALCULATED BASED ON 50% MALE AND 50% FEMALE OCCUPANTS

2,000 OCCUPANTS = 600 MALE, 600 FEMALE

	WATER CLOSET MALE	WATER CLOSET FEMALE	URINAL MALE	LAVATORIES MALE	LAVATORIES FEMALE	CLEANSING SHOWERS MALE	CLEANSING SHOWERS FEMALE	RINSE SHOWERS MALE	RINSE SHOWERS FEMALE
FIXTURES REQUIRED	1**	3	1	1***	2	2	2	1	1
TOTAL FIXTURES PROVIDED *	--	--	--	--	--	3	3	1	1

NOTES:
* SEE SECTION ABOVE FOR TOTAL WATER CLOSETS AND LAVATORIES PROVIDED
** .7X(8,067/7,500)= .76 =1
*** .85X(8,067/7,500)= .92 =1

ENERGY CODE

CLIMATE ZONE:
3

INTERNATIONAL ENERGY CONSERVATION CODE REQUIREMENTS:

	CODE DESIGN REQUIREMENTS	PROPOSED DESIGN VALUES
WINDOWS	U-FACTOR: ≤ 0.50 SHGC: ≤ 0.30 VISIBLE LIGHT TRANSMISSION:	U-FACTOR: SHGC: VISIBLE LIGHT TRANSMISSION:
DOORS	U-FACTOR: ≤ 0.65	U-FACTOR:
OVERHEAD DOOR	U-FACTOR:	U-FACTOR:
WALL INSULATION	METAL BUILDING R-VALUE: R-13 + R-3 CONTINUOUS INSULATION OR EQUIVALENT	R-VALUE: X
ROOF INSULATION	METAL BUILDING R-VALUE: R-19 W/ R-5 THERMAL BLOCKS	R-VALUE: X

NOTE: R-VALUES LISTED ARE MINIMUMS, U-FACTORS LISTED ARE MAXIMUMS

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CONSULTANT

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

CODE ANALYSIS

SHEET NUMBER

G-010

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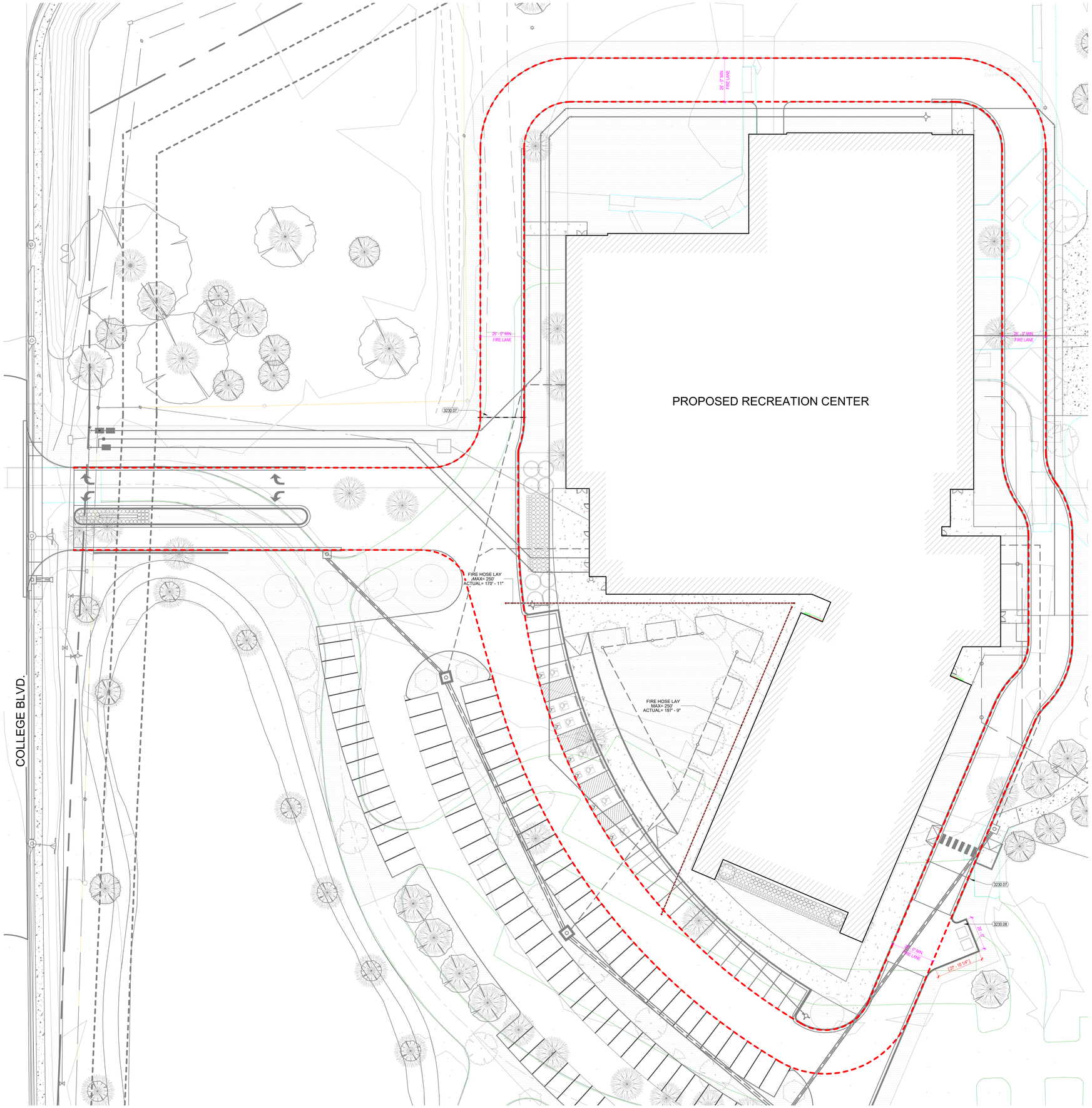

FIRE HOSE LAY
1" = 20'-0" 1

GENERAL NOTES - FIRE HOSE LAY

1. ANY DIMENSIONS INDICATED ON THIS PLAN ARE FOR LIFE SAFETY REVIEW ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES OR SIZES.
2. FIRE ACCESS ROADS TO MEET ALL APPLICABLE REQUIREMENTS OF APPENDIX D OF THE INTERNATIONAL FIRE CODE
3. REFER TO CIVIL DRAWINGS FOR LOCATIONS OF EXISTING AND PROPOSED FIRE HYDRANTS.

LEGEND - FIRE HOSE LAY

FIRE LANE

START — END

FIRE HOSE LAY DISTANCE
MAX = _____
ACTUAL= _____

*(S) SPRINKLED

KEYNOTES

NOTE: KEYNOTE NUMBERING IS FOR ORGANIZATIONAL PURPOSES ONLY AND NOT INTENDED TO REFERENCE A SPECIFIC CSI DIVISION

NUMBER	DESCRIPTION
3230.07	EMERGENCY BREAKAWAY GATE RE: LANDSCAPE
3230.08	ASPHALT DUMPSTER PAD

SEAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PRELIMINARY SUBMITTAL
ALEC A. LUONG
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IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES

CLIENT

City of West Memphis
205 Redding St. West
Memphis, AR 72301

DRAWING ISSUE

No.	DATE	DESCRIPTION
	2025-01-17	ISSUE FOR DESIGN DEVELOPMENT
	2025-04-04	ISSUE FOR 50% SET
	2025-05-16	75% CONSTRUCTION DOCUMENT PROGRESS

ARCHITECT

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CONSULTANT

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

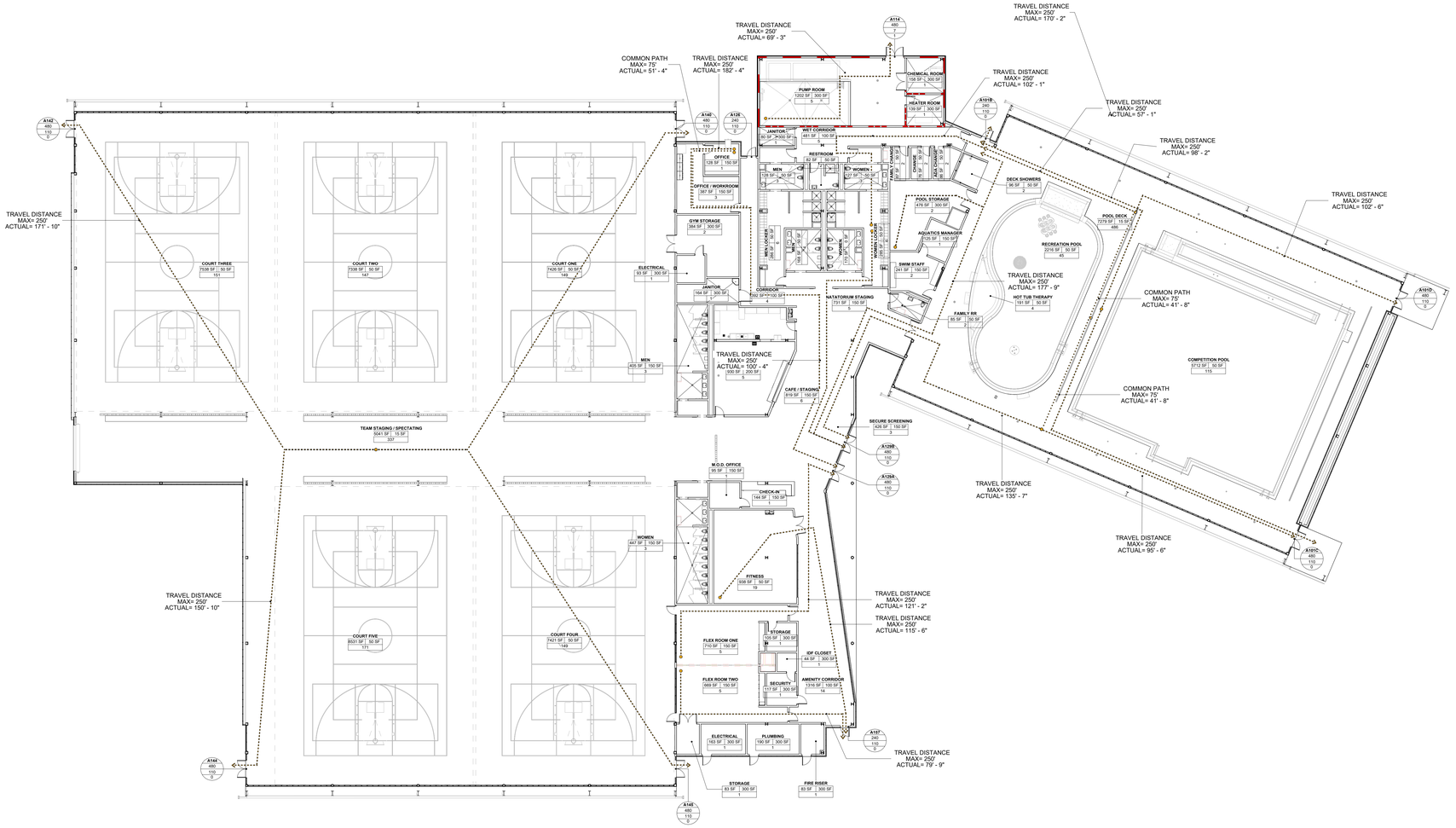
FIRE ACCESS PLAN

SHEET NUMBER

G-011

A.M.D.G.
FILE PATH: ...\Luong Docs (City of West Memphis Recreation Center)\WEST_W_ECEX_INC_ARCH.rvt
DATE PRINTED: 5/21/2025 9:51:34 AM

A.M.O.G.



LEVEL 01 - LIFE SAFETY
1/16" = 1'-0" | 1

MEANS OF EGRESS REQUIREMENTS

MEANS OF EGRESS SIZING (IBC SECTION 1005)

EXIT WIDTH REQUIRED FOR OTHER EGRESS COMPONENTS: 1,200 X .15 = 180"
TOTAL EGRESS DOOR WIDTH PROVIDED: (2) 3' DOORS AND (6) 6' DOUBLE DOORS = 648"

NOTES:
1. EGRESS REQUIREMENTS SHALL NOT BE LESS THAN REQUIRED BY 2021 ARKANSAS FIRE PREVENTION CODE VOL II AND ELSEWHERE AS REQUIRED BY APPLICABLE CODE. INCLUDING THE AMERICANS WITH DISABILITIES ACT (ADA). IN THE EVENT OF DISCREPANCIES BETWEEN CODES, COMPLY WITH THE MORE RESTRICTIVE REQUIREMENT IN ALL CASES.
2. MEANS OF EGRESS DOORS SHALL MEET THE REQUIREMENTS OF THE 2021 ARKANSAS FIRE PREVENTION CODE VOL II SECTION 1005 AND ADA SECTION 404. DOORS PROVIDED FOR EGRESS PURPOSES IN NUMBERS GREATER THAN REQUIRED BY CODE SHALL ALSO MEET THE REQUIREMENTS OF THESE SECTIONS.
3. PROJECTIONS INTO THE REQUIRED EGRESS CLEAR OPENING WIDTH, INCLUDING HANDRAILS, SHALL COMPLY WITH THE 2021 ARKANSAS FIRE PREVENTION CODE VOL II SECTION 1005.7 AND ADA SECTION 307 NOT TO EXCEED 4" BETWEEN 21" AND 80" ABOVE THE FLOOR OR GROUND.

COMMON PATH OF EGRESS TRAVEL DISTANCE (IBC TABLE 1006.2.1)

OCCUPANCY TYPE	MAX OCC LOAD OF SPACE:	MAX COMMON PATH OF EGREES TRAVEL DISTANCE
A	49	WITH SPRINKLER SYSTEM = 75'
H-2	3	WITH SPRINKLER SYSTEM = 25'

MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY (IBC TABLE 1006.3.3)
NUMBER OF EXITS REQUIRED: 4
NUMBER OF EXITS PROVIDED:

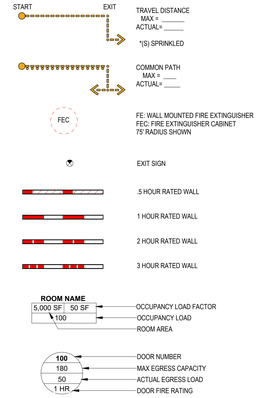
EXIT ACCESS TRAVEL DISTANCE (IBC TABLE 1017.2)
OCCUPANCY TYPE A WITH SPRINKLER SYSTEM = 250' MAX

DEAD END CORRIDOR (SECTION 1020.5)
20FT

GENERAL NOTES - LIFE SAFETY

1. ANY DOORS SHOWN IN RATED ASSEMBLIES SHALL ALSO BE RATED AS REQUIRED BY CODE. REFERENCE DOOR SCHEDULE.
2. ANY SIZES INDICATED ON THIS PLAN ARE FOR LIFE SAFETY REVIEW ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES OR SIZES.
3. ALL LIFE SAFETY DEVICES SHOWN ARE REQUIRED, BUT PRODUCT TYPES, DETAILS, MEANS, AND METHODS MUST BE FULLY COORDINATED BY THE CONTRACTOR.
4. MINIMUM SETBACKS SHOWN FOR REFERENCE ONLY IN THESE DRAWINGS.
5. DO NOT SCALE DIMENSIONS FROM DRAWINGS, ANY UNKNOWN DIMENSIONS SHALL BE OBTAINED FROM DESIGN PROFESSIONALS.
6. ROOM AND DOOR NUMBERS ARE FOR CONSTRUCTION & DESIGN COORDINATION. FINAL ROOM NAMES AND NUMBERS SHALL BE CONFIRMED PRIOR TO FABRICATION OF SIGNAGE.
7. FURNITURE SHOWN IS BY OTHERS AND IS FOR PLANNING PURPOSES ONLY.
8. FIRE EXTINGUISHERS SHALL BE INSTALLED PER NFPA 10.
9. REFER TO MECHANICAL DRAWINGS FOR SMOKE AND/OR FIRE DAMPER LOCATIONS.
10. REFER TO ELECTRICAL DRAWINGS SMOKE DETECTOR LOCATIONS.
11. EXIT SIGN LOCATIONS/QUANTITIES INDICATED ARE APPROXIMATE AND ADDITIONAL SIGNS MAY BE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. CONFIRM FINAL LOCATIONS WITH THE AHJ PRIOR TO INSTALLATION AND PROVIDE ANY ADDITIONAL EXIT SIGNS AS REQUIRED BY THE AHJ.

LEGEND - LIFE SAFETY



KEYNOTES

NOTE: KEYNOTE NUMBERING IS FOR ORGANIZATIONAL PURPOSES ONLY AND NOT INTENDED TO REFERENCE A SPECIFIC CSI DIVISION

NUMBER	DESCRIPTION

OCCUPANCY LOADS (IBC TABLE 1004.5)

ROOM DATA			OCCUPANCY LOADS		
RM #	NAME	AREA	OCC. TYPE	O.L.F.	O.L.
A137	CONCESSION	930 SF	A-2	200 SF	5
A-2		930 SF			5
A134	FITNESS	938 SF	A-3	50 SF	19
A-3		938 SF			19
A100	COMPETITION POOL	5,712 SF	A-4	50 SF	115
A101	POOL DECK	7,279 SF	A-4	15 SF	486
A102	RECREATION POOL	2,216 SF	A-4	50 SF	45
A103	HOT TUB THERAPY	191 SF	A-4	50 SF	4
A125	WOMEN	170 SF	A-4	0 SF	
A140	COURT ONE	7,426 SF	A-4	50 SF	149
A141	COURT TWO	7,338 SF	A-4	50 SF	147
A142	COURT THREE	7,538 SF	A-4	50 SF	151
A144	COURT FIVE	8,531 SF	A-4	50 SF	171
A145	COURT FOUR	7,421 SF	A-4	50 SF	149
A146	TEAM STAGING / SPECTATING	5,041 SF	A-4	15 SF	337
A-4		58,862 SF			1,754
A104	SWIM STAFF	241 SF	B	150 SF	2
A105	AQUATICS MANAGER	125 SF	B	150 SF	1
A107	DECK SHOWERS	96 SF	B	50 SF	2
A108	ADA CHANGE	86 SF	B	50 SF	2
A109	CHANGE	76 SF	B	50 SF	2
A110	FAMILY CHANGE	87 SF	B	50 SF	2
A111	WOMEN SHOWER	142 SF	B	50 SF	3
A112	WOMEN LOCKER	285 SF	B	50 SF	6
A113	FAMILY RR	85 SF	B	50 SF	2
A115	WET CORRIDOR	481 SF	B	100 SF	5
A117	VESTIBULE	57 SF	B	100 SF	1
A118	VESTIBULE	62 SF	B	100 SF	1
A119	WOMEN	127 SF	B	50 SF	3
A120	RESTROOM	82 SF	B	50 SF	2
A121	MEN	128 SF	B	50 SF	3
A122	MEN SHOWER	140 SF	B	50 SF	3
A123	MEN LOCKER	286 SF	B	50 SF	6
A124	MEN	168 SF	B	50 SF	4
A126	CORRIDOR	392 SF	B	100 SF	4
A127	NATATORIUM STAGING	731 SF	B	150 SF	5
A129	SECURE SCREENING	426 SF	B	150 SF	3
A132	FLEX ROOM TWO	669 SF	B	150 SF	5
A133	FLEX ROOM ONE	710 SF	B	150 SF	5
A135	ENTRY / STAGING	906 SF	B	150 SF	7
A136	CHECK-IN	144 SF	B	150 SF	1
A138	OFFICE / WORKROOM	387 SF	B	150 SF	3
A139	OFFICE	128 SF	B	150 SF	1
A153	WOMEN	447 SF	B	150 SF	3
A154	MEN	405 SF	B	150 SF	3
A156	M.O.D. OFFICE	95 SF	B	150 SF	1
A157	AMENITY CORRIDOR	1,316 SF	B	100 SF	14
A158	CAFE / STAGING	819 SF	B	150 SF	6
B		10,329 SF			111
A114	PUMP ROOM	1,202 SF	H-2	300 SF	5
A151	CHEMICAL ROOM	158 SF	H-2	300 SF	1
H-2		1,360 SF			6
A106	POOL STORAGE	476 SF	S-2	300 SF	2
A116	HEATER ROOM	139 SF	S-2	300 SF	1
A128	JANITOR	164 SF	S-2	300 SF	1
A130	PLUMBING	190 SF	S-2	300 SF	1
A131	STORAGE	83 SF	S-2	300 SF	1
A148	ELECTRICAL	93 SF	S-2	300 SF	1
A149	GYM STORAGE	384 SF	S-2	300 SF	2
A150	SECURITY	117 SF	S-2	300 SF	1
A152	STORAGE	105 SF	S-2	300 SF	1
A155	FIRE RISER	83 SF	S-2	300 SF	1
A159	JANITOR	80 SF	S-2	300 SF	1
A160	ELECTRICAL	163 SF	S-2	300 SF	1
A161	IDF CLOSET	44 SF	S-2	300 SF	1
S-2		2,122 SF			15
		74,540 SF			1,910

CALCULATION NOTES

1. BUILDING OCCUPANT LOAD SHALL BE LIMITED TO 1,200 OCCUPANTS.
2. OCCUPANCY TYPES B, S-2, A-2, A-3 DO NOT EXCEED 10% OF FLOOR AREA AND SERVICE THE PRIMARY A-4 OCCUPANCY, THEREFORE CLASSIFYING THEM AS ACCESSORY OCCUPANCIES PER IBC SECTION 508.2.
3. 'N/A' OCCUPANCY CATEGORY - NOT REGULARLY OCCUPIED SPACES.

SEAL

CLIENT

City of West Memphis
205 Redding St. West
Memphis, AR 72301

DRAWING ISSUE

IN	DATE	DESCRIPTION
	2025-01-17	ISSUE FOR DESIGN DEVELOPMENT
	2025-02-14	PER CONSTRUCTION DOCUMENT PROGRESS

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CONSULTANT

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE
LIFE SAFETY PLAN

SHEET NUMBER
G-012

FILE PATH: Autodesk Docs://City of West Memphis Recreation Center/AMR_BLDG1_A_INIC_ARCH.rvt
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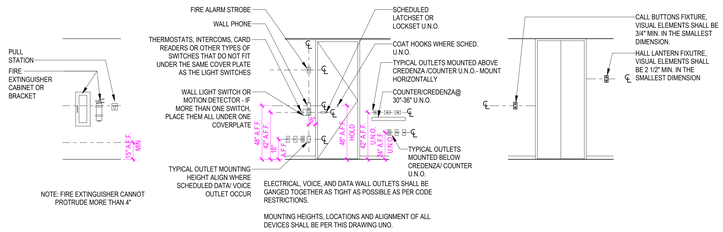
A.M.D.G.

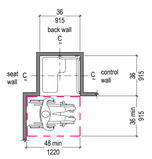


FIRE PROTECTION **TYPICAL** **ELEVATOR**

Graphic Convention for Figures

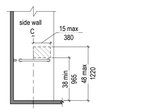
Convention	Description
36 / 915	dimension showing English units (in inches unless otherwise specified) above the line and SI units (in millimeters unless otherwise specified) below the line
6 / 150	dimension for small measurements
33-36 / 840-915	dimension showing a range with minimum - maximum
min	minimum
max	maximum
>	greater than
≥	greater than or equal to
<	less than
≤	less than or equal to
	boundary of clear floor space or maneuvering clearance
	centerline
	a permitted element or its extension
	direction of travel or approach
	a wall, floor, ceiling or other element cut in section or plan
	a highlighted element in elevation or plan
	location zone of element, control or feature

TYPICAL INSTALLATION HEIGHTS

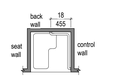


Note: inside finished dimensions measured at the center points of opposing sides.

608.2.1 Transfer Type Shower Compartment Size and Clearance.

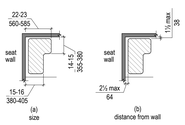


608.5.1 Transfer Type Shower Compartment Control Location

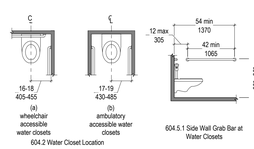


608.3.1 Grab Bars for Transfer Type Showers

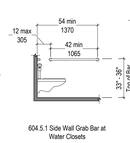
608 Showers



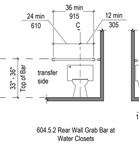
610.3.2 L-Shaped Shower Seat



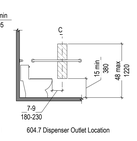
604.2 Water Closet Location



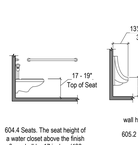
604.5.1 Side Wall Grab Bar at Water Closets



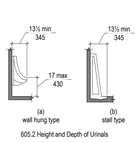
604.5.2 Rear Wall Grab Bar at Water Closets



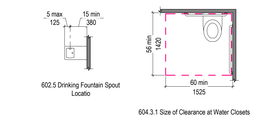
604.7 Dispenser Outlet Location



604.4 Seats. The seat height of a water closet above the finish floor shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum measured to the top of the seat.



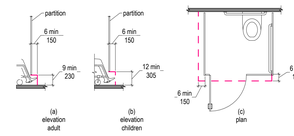
605.2 Height and Depth of Urinals



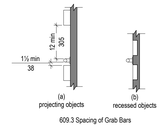
602.5 Drinking Fountain Spout Locatio

604.3.1 Size of Clearance at Water Closets

603 Toilet and Bathing Rooms



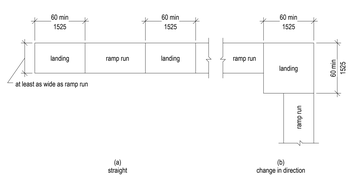
604.8.1.4 Wheelchair Accessible Toilet Compartment Toe Clearance



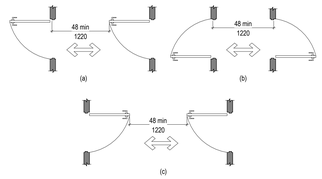
609.3 Spacing of Grab Bars

Spacing of Grab Bars

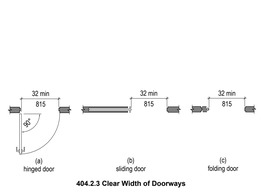
CHAPTER 6: PLUMBING ELEMENTS AND FACILITIES



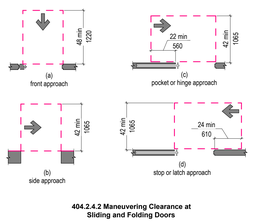
405.7 Ramp Landings



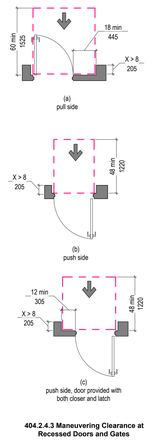
404.2.6 Doors in Series and Gates in Series



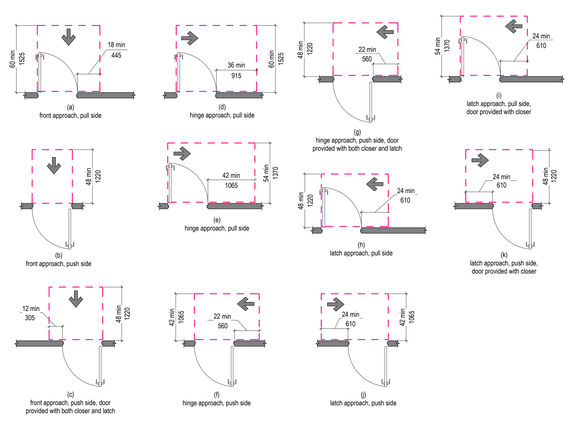
404.2.3 Clear Width of Doorways



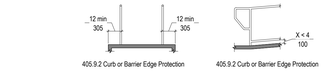
404.2.4.2 Maneuvering Clearance at Sliding and Folding Doors



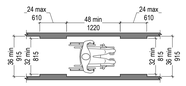
404.2.4.3 Maneuvering Clearance at Recessed Doors and Gates



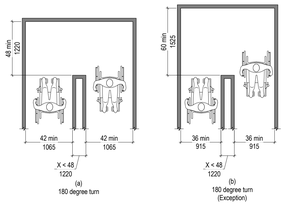
404 Doors, Doorways, and Gates



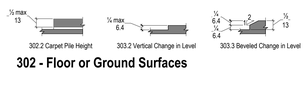
405.9 Extended Floor or Ground Surface



403.5.1 Clear Width of an Accessible Route

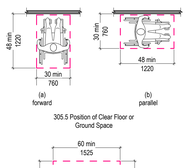


403.5.2 Clear Width at Turn

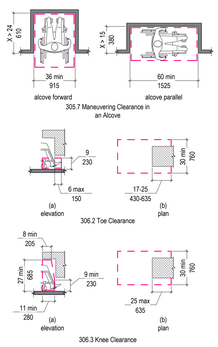


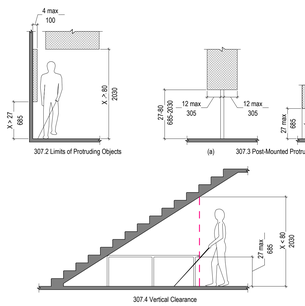
302 - Floor or Ground Surfaces

302 Floor or Ground Surfaces

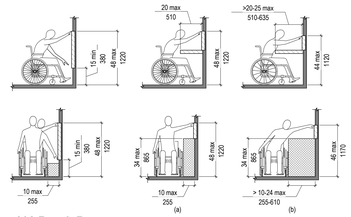


304 305 306 Clearance Space





307 Limits of Protruding Objects



308 Reach Ranges

CHAPTER 3: BUILDING BLOCKS

FILE PATH: ...\Untitled Dock\City of West Memphis Recreation Center.RVMS_BLDG.5_INC_ARCH.rvt
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SEAL

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City of West Memphis
205 Redding St. West
Memphis, AR 72301

DRAWING ISSUE

No.	DATE	DESCRIPTION
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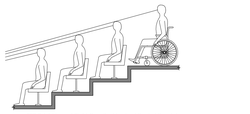
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

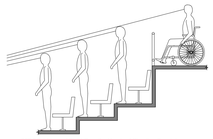
JOB No.: WESCIT00561

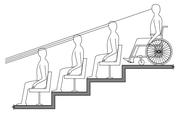
SHEET TITLE
ADA STANDARDS

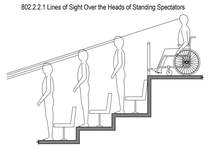
SHEET NUMBER
G-020

A.M.D.G.


802.2.1.1 Lines of Sight Over the Heads of Seated Spectators

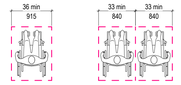

802.2.2.1 Lines of Sight Over the Heads of Standing Spectators


802.2.1.2 Lines of Sight Between the Heads of Seated Spectators


802.2.2.2 Lines of Sight Between the Heads of Standing Spectators

Lines of Sight Over the Heads of Seated Spectators

NOTE: NOT ALL DETAILS OR CONDITIONS SHOWN ON THIS SHEET WILL BE USED .

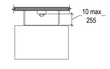


Width of Wheelchair Spaces in Assembly Areas

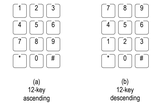
CHAPTER 8: SPECIAL ROOMS, SPACES AND ELEMENTS

703.7.2.4 International Symbol of Access for Hearing Loss

703.7.2.1 International Symbol of Accessibility



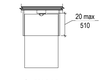
704.2.1.1 Parallel Approach to Telephone



707.6.2 Numeric Key Layout

703.7.2.3 Volume-Controlled Telephone

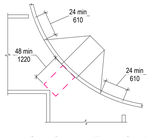
703.7.2.2 International TTY Symbol



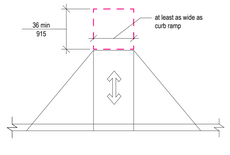
704.2.1.2 Forward Approach to Telephone

CHAPTER 7: COMMUNICATION ELEMENTS AND FEATURES

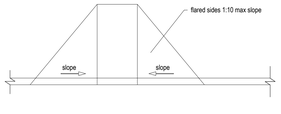
Counter Slope of Surfaces Adjacent to Curb Ramps



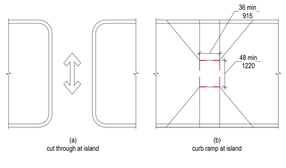
Diagonal or Corner Type Curb Ramps



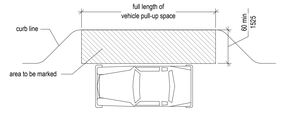
Landings at the Top of Curb Ramps



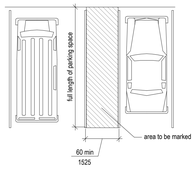
Sides of Curb Ramps



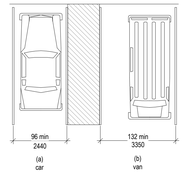
Islands in Crossings



Passenger Loading Zone Access Aisle



Parking Space Access Aisle



Vehicle Parking Spaces

CHAPTER 5: GENERAL SITE AND BUILDING ELEMENTS

SEAL

CLIENT

City of West Memphis
205 Redding St. West
Memphis, AR 72301

DRAWING ISSUE

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JOB No.: WESCIT00561

SHEET TITLE

ADA STANDARDS

SHEET NUMBER

G-021

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AUDIO-VIDEO LEGEND

v2.00

GENERAL NOTES

SPECIFICATION REFERENCES:

1. REFER TO SPECIFICATION SCOPE MATRIX FOR DELINEATION OF SCOPE WITHIN INDIVIDUAL SPECIFICATION SECTIONS AND DELEGATED DESIGN REQUIREMENTS.
2. REFER TO DIVISION 27 SPECIFICATION SECTION "AUDIO-VIDEO SYSTEMS" AND RELATED DOCUMENTS AND SECTIONS FOR PRODUCT INFORMATION AND ADDITIONAL REQUIREMENTS.
3. CATEGORY AND FIBER CABLING SHALL BE INSTALLED, TERMINATED, AND TESTED PER DIVISION 27 SECTION "COMMUNICATIONS HORIZONTAL CABLING".

GENERAL PATHWAY NOTES:

1. ALL BUILDING INFRASTRUCTURE, METAL TUBE, AND PATHWAYS INCLUDING BUT NOT LIMITED TO CONDUIT, RACEWAYS, CABLE TRAYS, PEDESTALS, BACK BOXES, JUNCTION BOXES, FLOOR BOXES, DOORS, LIDS, AND COVERS ARE PER DIVISION 27 SECTION "COMMON WORK RESULTS FOR COMMUNICATIONS" UNLESS OTHERWISE NOTED WITHIN THIS DRAWING SERIES SET.
2. REFER TO "MINIMUM SEPARATION REQUIREMENTS" ON THIS SHEET FOR METAL TUBE SPACING INFORMATION.
3. PROVIDE CONTINUOUS UNOBSTRUCTED CABLE PATH FOR ENTIRE LENGTH OF CABLE RUN. EXPOSED CABLING MAY REQUIRE METAL TUBING TRANSITION(S) TO ACHIEVE A COMPLETE PATHWAY. REFER TO "CIRCUIT ROUTING" ON THIS SHEET FOR ADDITIONAL REQUIREMENTS.
4. COORDINATE ANY CONFLICTS WITH APPROPRIATE DISCIPLINES.
5. REFER TO LIFE SAFETY PLANS FOR LOCATION OF FIRE-RATED AND SMOKE-RATED WALLS AND FLOORS. PROVIDE LISTED FIRE STOPPING SYSTEMS FOR PENETRATIONS PER DIVISION 27 SPECIFICATION SECTION "COMMON WORK RESULTS FOR COMMUNICATIONS".

BOX SCHEDULE NOTES:

1. VERIFY QUANTITIES, LOCATIONS, AND MOUNTING WITH PLAN, DETAIL, AND EQUIPMENT VIEW DRAWINGS.
2. ALL BOXES SHOWN IN SCHEDULE ARE PER DIVISION 27 SECTION "COMMON WORK RESULTS FOR COMMUNICATIONS" UNLESS OTHERWISE NOTED WITHIN THIS DRAWING SERIES SET.
3. FIELD VERIFY MOUNTING CONDITIONS AND BOX SIZE PRIOR TO INSTALLATION.
4. WALL MOUNTED BOXES SHOWN AT SWITCH OR CONVENIENCE OUTLET HEIGHT SHALL MATCH MOUNTING HEIGHT OF ADJACENT BOXES ON WALL UNLESS OTHERWISE NOTED.
5. WALL MOUNTED TERMINATION GANG BOXES SHALL BE MOUNTED 18" A.F.F. TO CENTER OF DEVICE UNLESS OTHERWISE NOTED.
6. WALL MOUNTED TERMINATION NEMA AND MANUFACTURER SPECIFIC BOXES SHALL BE MOUNTED 16" A.F.F. TO BOTTOM OF DEVICE UNLESS OTHERWISE NOTED.
7. SURFACE MOUNTED BOXES SHALL BE PAINTED TO MATCH SURROUNDING FINISH.
8. COORDINATE ANY CONFLICTS WITH APPROPRIATE DISCIPLINES.

CABLE TERMINATION NOTES:

1. ALL AUDIO TERMINATIONS SHOULD COMPLY WITH RANE CORPORATION RANENOTE 110 REFERENCE FOR SOUND SYSTEM INTERCONNECTION.

EQUIPMENT RACK NOTES:

1. REFER TO SPECIFICATIONS FOR RACK LAYOUT SUBMITTAL REQUIREMENTS.
2. ANY RACK LAYOUTS OR INFORMATION RELATED TO EQUIPMENT RACKING CONTAINED IN THIS SET ARE FOR CONCEPT ONLY. VERIFY RACK LAYOUT FOR EQUIPMENT FURNISHED PRIOR TO SUBMITTAL OF SHOP DRAWINGS. REVISE AS REQUIRED FOR ALTERNATES ACCEPTED OR REJECTED.
3. IF THERE ARE DIFFERENCES IN EQUIPMENT RACKING INFORMATION TO THAT SHOWN ON THE SIGNAL FLOW DIAGRAMS, SIGNAL FLOWS SHALL TAKE PRECEDENCE.

LOUDSPEAKER INSTALLATION NOTES:

1. ANY STRUCTURAL DETAILS, STRUCTURAL MEMBER TYPES, SIZES, AND ATTACHMENT METHODS CONTAINED IN THIS SET ARE SHOWN FOR CONCEPT ONLY. FINAL DESIGN, INCLUDING DOCUMENTATION STAMPED BY STRUCTURAL ENGINEER (PROVIDED AS PORTION OF SHOP DRAWING REQUIREMENTS), SHALL BE MADE BY THE CONTRACTOR AND SHALL BE VERIFIED BY THE OWNER AND AV CONSULTANT.
2. REFER TO SPECIFICATIONS FOR ALL MOUNTING, INSTALLATION, ACCESS, AND SHOP DRAWING REQUIREMENTS.
3. EXPOSED LOUDSPEAKER CIRCUITS UTILIZING STRUCTURAL STEEL SHALL BE ROUTED HIGH WITHIN TRUSS SPACE OR WHERE OTHERWISE PROTECTED FROM DAMAGE. ROUTING SHALL MINIMIZE CIRCUIT LENGTH BETWEEN LOUDSPEAKER AND EQUIPMENT RACK WHERE FEASIBLE. NEATLY BUNDLE CIRCUITS AND FASTEN SECURELY TO STRUCTURE TO ENSURE PROPER SUPPORT AND PROTECTION. TO MINIMIZE DAMAGE FROM TEMPORARY RIGGING ACTIVITIES ASSOCIATED WITH SPECIAL EVENT SUPPORT, AVOID ROUTING CIRCUITS IN AREAS PRONE TO THIS USE, I.E. BOTTOM CHORDS OF TRUSSES. AVOID CONTACT OR CONFLICT WITH OTHER BUILDING ELEMENTS SUCH AS LIGHTING FIXTURES & BALLASTS, DUCTS, RIGGING, AND SHARP EDGES. CABLE COLOR SHALL MATCH SURROUNDING ELEMENTS.

PLAN LEGEND

BOX AND PLAN SYMBOLS

- X## — WALL BOX. "X" INDICATES FUNCTION OF BOX (REFER TO BOX LABEL LEGEND). "##" INDICATES BOX DESIGNATION.
- X## — FLOOR BOX. SIMILAR TO ABOVE.
- X## — POKE THRU. SIMILAR TO ABOVE.
- AV X## — CEILING MOUNTED BOX. SIMILAR TO ABOVE.
- S S## | ## — FLUSH MOUNTED CEILING LOUDSPEAKER. "S## | ##" DESIGNATOR INDICATES LOUDSPEAKER IDENTIFICATION INFORMATION AND SPEAKER TAP IF REQUIRED.
- S S## | ## | R ##" — PENDANT MOUNTED LOUDSPEAKER. "S## | ## | R ##" DESIGNATOR INDICATES LOUDSPEAKER IDENTIFICATION INFORMATION, SPEAKER TAP IF REQUIRED, MOUNTING REFERENCE AND MOUNTING HEIGHT.
- M X## — CEILING MOUNTED MICROPHONE. SIMILAR TO ABOVE. NO BACK BOX.
- C X## — CEILING MOUNTED CAMERA. SIMILAR TO ABOVE. NO BACK BOX.

TYPICAL BOX SYMBOLS

- YY — WALL BOX. "YY" INDICATES TYPE. REFER TO TYPICAL BOX SCHEDULE FOR ADDITIONAL INFORMATION AND AS INDICATED ON PLANS AND KEY NOTES.
- YY-F# YY — FLOOR BOX. CEILING BOX. SIMILAR TO ABOVE. "YY" INDICATES SYMBOL TYPE. "-F#" INDICATES UNIQUE IDENTIFIER.

NOTE: BLANK CELLS ON TYPICAL BOX SCHEDULE INDICATE INFORMATION PROVIDED ELSEWHERE. REFER TO BOX SCHEDULE FOR ADDITIONAL INFORMATION.

PATHWAY LEGEND

- # M — INDICATES MICROPHONE LEVEL SIGNALS ONLY. "#" SPECIFIES SIZE OF PATHWAY.
- # I — INDICATES PRODUCTION INTERCOM LEVEL SIGNALS ONLY. "#" SPECIFIES SIZE OF PATHWAY.
- # S — INDICATES SPEAKER LEVEL SIGNALS ONLY. "#" SPECIFIES SIZE OF PATHWAY.
- # C — INDICATES CONTROL SIGNALS ONLY. "#" SPECIFIES SIZE OF PATHWAY.
- # V — INDICATES VIDEO SIGNALS ONLY. "#" SPECIFIES SIZE OF PATHWAY.
- # F — INDICATES FIBER SIGNALS ONLY. "#" SPECIFIES SIZE OF PATHWAY.
- # X — INDICATES WIRELESS/RF SIGNALS ONLY. "#" SPECIFIES SIZE OF PATHWAY.
- 75 X — 0.75" PATHWAY. X INDICATES SIGNAL TYPE, SEE ABOVE.
- 1.0 X — 1" PATHWAY. X INDICATES SIGNAL TYPE, SEE ABOVE.
- 1.2 X — 1.25" PATHWAY. X INDICATES SIGNAL TYPE, SEE ABOVE.
- 1.5 X — 1.5" PATHWAY. X INDICATES SIGNAL TYPE, SEE ABOVE.
- 2.0 X — 2" PATHWAY. X INDICATES SIGNAL TYPE, SEE ABOVE.
- 2.5 X — 2.5" PATHWAY. X INDICATES SIGNAL TYPE, SEE ABOVE.
- 3.0 X — 3" PATHWAY. X INDICATES SIGNAL TYPE, SEE ABOVE.

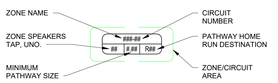
PATHWAY LEGEND

- METAL TUBE PATHWAY.
- X## — METAL TUBE PATHWAY CONTINUES ON TO DESTINATION AS INDICATED.
- METAL TUBE PATHWAY STUB TO ACCESSIBLE PORTION OF CEILING. BUSH METAL TUBE ENDS.
- METAL TUBE PATHWAY STUB TO BELOW RAISED FLOOR IF PRESENT, OTHERWISE BELOW FLOOR SLAB. BUSH METAL TUBE ENDS.
- METAL TUBE PATHWAY IN/UNDER FLOOR/GROUND CONSTRUCTION
- EXPOSED CABLE PATH. NO PATHWAY.
- CABLE TRAY. SIZE AS INDICATED ON PLANS.
- PATHEWAY, SIZE AS INDICATED ON PLANS OR RISER.

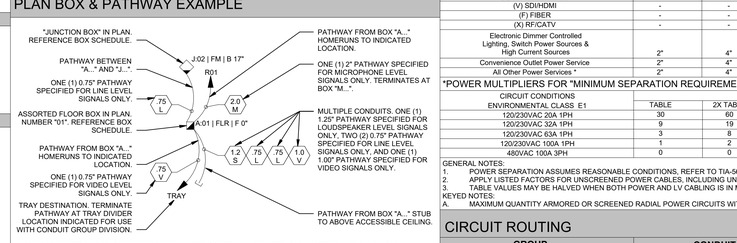
HATCHING LEGEND

- ENLARGED PLAN
- NOT IN SCOPE (NIS)

SPEAKER ZONE/CIRCUIT LEGEND



PLAN BOX & PATHWAY EXAMPLE



NOTE: FOR TYPICAL BOXES, REFER TO TYPICAL BOX SCHEDULE FOR ADDITIONAL INSTRUCTIONS. FOLLOW PATHWAY REQUIREMENTS AS LISTED IN SCHEDULE AND ANY ADDITIONAL NOTES AS INDICATED ON PLANS.

BOX/DEVICE TAG LEGEND

BOX/DEVICE TYPE (DT)

DESIGNATES TYPE OR TYPICAL TYPE FOR BOXES AND DEVICES

U1 - USER INTERFACE/CONTROL TYPE 1

A	AV PULL BOX
B	BROADCAST PULL BOX
C	CAMERA
D	DISPLAY
E	EMITTER
I	PRODUCTION INTERCOM
J	JUNCTION BOX
L	LED VIDEO WALL
M	MICROPHONE
P	PROJECTOR
R	EQUIPMENT RACK
S	SPEAKER
U	USER INTERFACE/CONTROL
V	VOLUME CONTROL
W	ANTENNA
X	NOT USED
Y	NOT USED
Z	ROOM SCHEDULER

MOUNTING TYPE (MT)

DESIGNATES APPENDAGE METHOD TO STRUCTURE FOR BOXES AND DEVICES.

AFC	ABOVE FINISHED CEILING
CF	CEILING FLUSH
CS	CEILING SURFACE
FLR	FLOOR MOUNT
FM	FLUSH MOUNT
SR	SEMI-RECESSED
SM	SURFACE MOUNT

DESIGNATES APPENDAGE METHOD TO STRUCTURE FOR DISPLAYS.

C-P	CEILING POLE
C-PD	CEILING POLE DUAL DISPLAYS
W-A	WALL ARTICULATING
W-AT	WALL ARTICULATING THIN (ADA)
W-F	WALL FIXED
W-FT	WALL FIXED THIN (ADA)
W-T	WALL TILT
W-TT	WALL TILT THIN (ADA)
W-S	WALL SERVICE
W-V	WALL VIDEOWALL

MOUNTING LOCATION REFERENCE (L)

DESIGNATES HEIGHT REFERENCE POINT ON BOXES BASED ON CUT OUT REQUIREMENTS AND FOR DEVICES BASED ON EDGES.

T	TOP OF DEVICE/BOX
C	CENTER OF DEVICE/BOX
B	BOTTOM OF DEVICE/BOX

PATHWAY/CIRCUIT GROUP DIVISIONS

GROUP	DESCRIPTIONS	LEVEL	BANDWIDTH
M	MICROPHONE LEVEL AUDIO CIRCUITS LINE LEVEL AUDIO CIRCUITS	BELOW -30dBu -30dBU TO +24dBu	20Hz TO 20KHz
I	COMMUNICATION AUDIO CIRCUITS (PRODUCTION INTERCOM)	-30dBU TO +24dBu	20 Hz TO 20kHz
S	SPEAKER LEVEL AUDIO CIRCUITS (LOW & HIGH IMPEDANCE "CONSTANT VOLTAGE CIRCUITS")	GREATER THAN +24dBu	20 Hz TO 20kHz
C	COPPER DATA (CATEGORY) CIRCUITS CONTROL CIRCUITS	2 VOLT PEAK-PEAK INTO 100Ω 0-28 VOLT INTO +50 kΩ	0Hz TO 100MHz --
V	VIDEO CIRCUITS (SDI & HDMI)	1 VOLT PEAK-TO-PEAK INTO 75Ω	0Hz TO 100MHz
F	FIBER OPTIC CIRCUITS	50/125 MICROMETER OM3/OM4	500-3500 MHz-km @850 nm
X	RF LEVEL CIRCUITS (CATV & ANTENNA)	GREATER THAN +24dBu	5 MHz TO 3GHz

CABLE GROUP RACEWAY MINIMUM SEPARATION REQUIREMENTS

GROUP	M	I	S	C	V	F	X
(M) MIC/LINE	X	2" (150mm)	4" (200mm)	4" (200mm)	4" (200mm)	ADJACENT	4" (200mm)
(I) INTERCOM	-	X	4" (200mm)	2" (150mm)	ADJACENT	ADJACENT	2" (150mm)
(S) SPEAKER	-	-	X	2" (150mm)	2" (150mm)	ADJACENT	2" (150mm)
(C) CA Tx/CONTROL	-	-	-	X	ADJACENT	ADJACENT	ADJACENT
(V) SDI/HDMI	-	-	-	-	X	ADJACENT	ADJACENT
(F) FIBER	-	-	-	-	-	X	ADJACENT
(X) RF/CATV	-	-	-	-	-	-	X
Electronic Dimmer Controlled Lighting, Switch Power Sources & High Current Sources	2"	4"	12"	4"	2"	2"	2"
Convenience Outlet Power Service	2"	4"	12"	4"	2"	2"	2"
All Other Power Services *	2"	4"	12"	4"	2"	2"	2"

*POWER MULTIPLIERS FOR "MINIMUM SEPARATION REQUIREMENTS" TABLE ABOVE

CIRCUIT CONDITIONS ENVIRONMENTAL CLASS E1	KEY NOTE A TABLE	2X TABLE	6X TABLE	12X TABLE	UNSCREEN POWER	BOTH SCREENED
120/230VAC 20A 1PH	30	60	91	-	2X TABLE	0.5X TABLE
120/230VAC 32A 1PH	9	19	29	-	2X TABLE	0.5X TABLE
120/230VAC 63A 1PH	3	8	15	-	2X TABLE	0.5X TABLE
120/230VAC 100A 1PH	1	2	4	-	2X TABLE	0.5X TABLE
480VAC 100A 3PH	0	0	1	2	1X TABLE	0.5X TABLE

GENERAL NOTES:
1. POWER SEPARATION ASSUMES REASONABLE CONDITIONS. REFER TO TIA-569 FOR SPECIFIC REQUIREMENTS
2. APPLY MULTIPLY FACTORS FOR UNSCREENED POWER CABLES, INCLUDING UNDERGROUND ROUTING IN PVC OR SIMILAR
3. TABLE VALUES MAY BE HALVED WHEN BOTH POWER AND LV CABLING IS IN METAL PATHWAYS PER TIA-569

KEYED NOTES:
A. MAXIMUM QUANTITY ARMORED OR SCREENED RADIAL POWER CIRCUITS WITH NO LOW VOLTAGE CABLE PROTECTION

CIRCUIT ROUTING

GROUP	CONDUIT		J-HOOK	DIVIDED CABLE TRAY		
	HOME RUN	STUB	FROM STUB	DATA SEGMENT	SPEAKER SEGMENT	AV SEGMENT
(M) MIC/LINE	REQUIRED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED
(I) INTERCOM	ALLOWED	ALLOWED	ALLOWED	PROHIBITED	PROHIBITED	PROHIBITED
(S) SPEAKER	ALLOWED	ALLOWED	ALLOWED	PROHIBITED	ALLOWED	PROHIBITED
(C) CA Tx/CONTROL	ALLOWED	ALLOWED	ALLOWED	ALLOWED	PROHIBITED	ALLOWED
(V) SDI/HDMI	ALLOWED	ALLOWED	ALLOWED	PROHIBITED	PROHIBITED	ALLOWED
(F) FIBER	ALLOWED	ALLOWED	ALLOWED	PROHIBITED	PROHIBITED	ALLOWED
(X) RF/CATV	REQUIRED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED
LIFE SAFETY	REQUIRED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED	PROHIBITED

CIRCUIT REQUIREMENTS:
1. REFER TO SPECIFICATIONS AND NEC FOR CABLE CLASSIFICATION REQUIREMENTS
2. ALL FIBER CIRCUITS NOT IN HOME RUN CONDUIT SHALL BE ARMOR JACKETED
3. LIFE SAFETY CIRCUITS MAY BE COMPOSED OF ANY CIRCUIT GROUP WHERE THE SYSTEM OR CABLE IS SERVING AN EMERGENCY OR LIFE SAFETY FUNCTION PER NEC AND/OR NFPA
4. REFER TO SPECIFICATIONS FOR REQUIREMENTS RELATED TO CABLING WITHIN UNDERGROUND CONDUITS

HOME RUN CONDUIT REQUIREMENTS:
1. WHERE LISTED DESTINATION IS AN EQUIPMENT ROOM OR RACK WITHIN AN EQUIPMENT ROOM (E.G. R:1738), CONDUITS SHALL TERMINATE WITHIN ROOM FOR CABLE TO CONTINUE TO EQUIPMENT RACK VIA LADDER RACK OR SIMILAR
2. CIRCUITS OF LIKE GROUPS MAY BE CONSOLIDATED ALONG PATH WITH CONDUITS UPSIZED PER NEC

CONDUIT STUB & J-HOOK REQUIREMENTS:
1. PROVIDE WALL PENETRATIONS AS NECESSARY. ALL PENETRATIONS MUST CONSIST OF CONDUIT WITH BUSHINGS OR EZ-PATH PER SPECIFICATIONS
2. REFER TO SPECIFICATIONS FOR FIRE STOPPING REQUIREMENTS
3. OPEN CABLING IS NOT PERMITTED IN AREAS EXPOSED TO STRUCTURE. WHERE CABLE TRAY IS NOT PROVIDED, ROUTE IN CONDUIT UNTIL OUT OF EXPOSED AREA AT A MINIMUM

CABLE TRAY REQUIREMENTS
1. REQUIREMENTS INDICATE THE ACCEPTABLE CABLE TRAY ALLOCATION OF SIGNALS BETWEEN CABLE TRAY DIVIDERS
2. "DIVIDER" INDICATES A CABLE TRAY DIVIDER EQUAL TO THE HEIGHT OF THE TRAY AND SUFFICIENT TO PROVIDE AN EMI BARRIER. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

CABLE SCHEDULE

TYPE	DESCRIPTION	MFR	PART #	O.D. (inches)	COLOR	MAX RUN
MIC	24/2 STRANDED TINNED COPPER CONDUCTORS, INDIVIDUALLY SHIELDED WITH AN OVERALL JACKET	BELDEN	1800B	0.185	BLACK	N/A
LINE	24/2 STRANDED TINNED COPPER CONDUCTORS, INDIVIDUALLY SHIELDED WITH AN OVERALL JACKET	BELDEN	1800B	0.185	BLACK	N/A
SPK10	10/2 STRANDED BARE COPPER CONDUCTORS, UNSHIELDED & JACKETED- CLUSTER SPEAKER CABLE	BELDEN	6T00UP	0.302	BLACK	N/A
SPK12	12/2 STRANDED BARE COPPER CONDUCTORS, UNSHIELDED WITH OVERALL JACKET	BELDEN	6000UE	0.262	GRAY	N/A
SPK14	14/2 STRANDED BARE COPPER CONDUCTORS, UNSHIELDED WITH OVERALL JACKET	BELDEN	5100UE	0.218	BLACK	N/A
SPK16	16/2 STRANDED BARE COPPER CONDUCTORS, UNSHIELDED WITH OVERALL JACKET	BELDEN	5200UE	0.180	GRAY	N/A
INTERCOM	18/2 STRANDED BARE COPPER CONDUCTORS, SHIELDED WITH AN OVERALL JACKET	BELDEN	9760	0.222	BLUE	N/A
UTP6AS	23 AWG- 4 PAIR SOLID BARE COPPER CONDUCTORS, SHIELDED WITH AN OVERALL JACKET, 750MHZ	BELDEN	10GXS2F	0.275	BLACK	300'
UTP6A	RISER RATED CAT6A 10G UTP CABLE	BELDEN	10GXS12	0.275	BLUE	300'
UTP6RS	RISER RATED SHIELDED CAT6 550MHZ STP CABLE	BELDEN	2412F	0.290	YELLOW	300'
UTP6	RISER RATED CAT6 550MHZ UTP CABLE	BELDEN	2412	0.224	GREEN	300'
SDI6-6G	75 OHM SDI COAX, RG-6, 18 AWG, SOLID BC, FOIL	BELDEN	1694A	0.274	BLACK	300'
SDI6-12G	4K UHD COAX FOR 12G-SDI, 75 OHM, RG-6, 18 AWG SOLID SC	BELDEN	4694R	0.274	BLACK	300'
SDI11-6G	75 OHM SDI COAX, RG-11, 14 AWG SOLID BC, FOIL	BELDEN	7731A	0.400	BLACK	600'
SDI11-12G	4K UHD COAX FOR 12G-SDI, 75 OHM, RG-11, 14 AWG SOLID SC	BELDEN	4731R	0.400	BLACK	600'
CATV6	RG6 CATV VIDEO COAX	BELDEN	1829R	0.275	BLACK	200'
CATV11	RG11 EXTENDED DISTANCE 4.5GHZ HD/SDI COAX	BELDEN	1523R	0.400	BLACK	400'
ANT	MINIATURE RG8 50 OHM COAX	BELDEN	7808A	0.240	BLACK	N/A
SMF6	SINGLE-MODE 9 /125 UM INDOOR RISER RATED DISTRIBUTION FIBER 6 FIBERS	BELDEN	FISD006R9	0.220	YELLOW	6500' (10GbE)
MMF6	MULTI-MODE 50 UM OM4 RISER RATED DISTRIBUTION FIBER 6 FIBERS	BELDEN	FISD006R9	0.220	AQUA	1800' (10GbE)
HYBIRDF2	SMPTE 311M RISER RATED HYBRID FIBER CAMERA CABLE	BELDEN	7804R	0.357	AQUA	600' (10GbE)
HYBIRDF3	SMPTE 311M THREE CHANNEL RISER RATED HYBRID FIBER CAMERA CABLE	BELDEN	7824R	0.525	GREEN	600' (10GbE)
CONTROL1	18/4 STRANDED BARE COPPER CONDUCTORS, UNSHIELDED WITH AN OVERALL JACKET.	BELDEN	5302UE	0.184	GRAY	N/A
CONTROL2	24/2 STRANDED TINNED COPPER CONDUCTORS, SHIELDED WITH AN OVERALL JACKET.	BELDEN	9841	0.232	GRAY	N/A
RGBHV	MINIATURE 25AWG COAX SNAKE 5 CONDUCTOR	BELDEN	1279R	0.362	BLACK	N/A
HDMI	FOR RUNS 3'-22': PRE-TERMINATED HIGH-SPEED HDMI CABLE	BELDEN	HDEXXXMB	1.125	BLACK	22'
	FOR RUNS EXCEEDING 22' - HD BASE-T TX & RX UNITS REQUIRED	N/A	N/A	N/A	N/A	N/A

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JOB INFO

CITY OF WEST MEMPHIS
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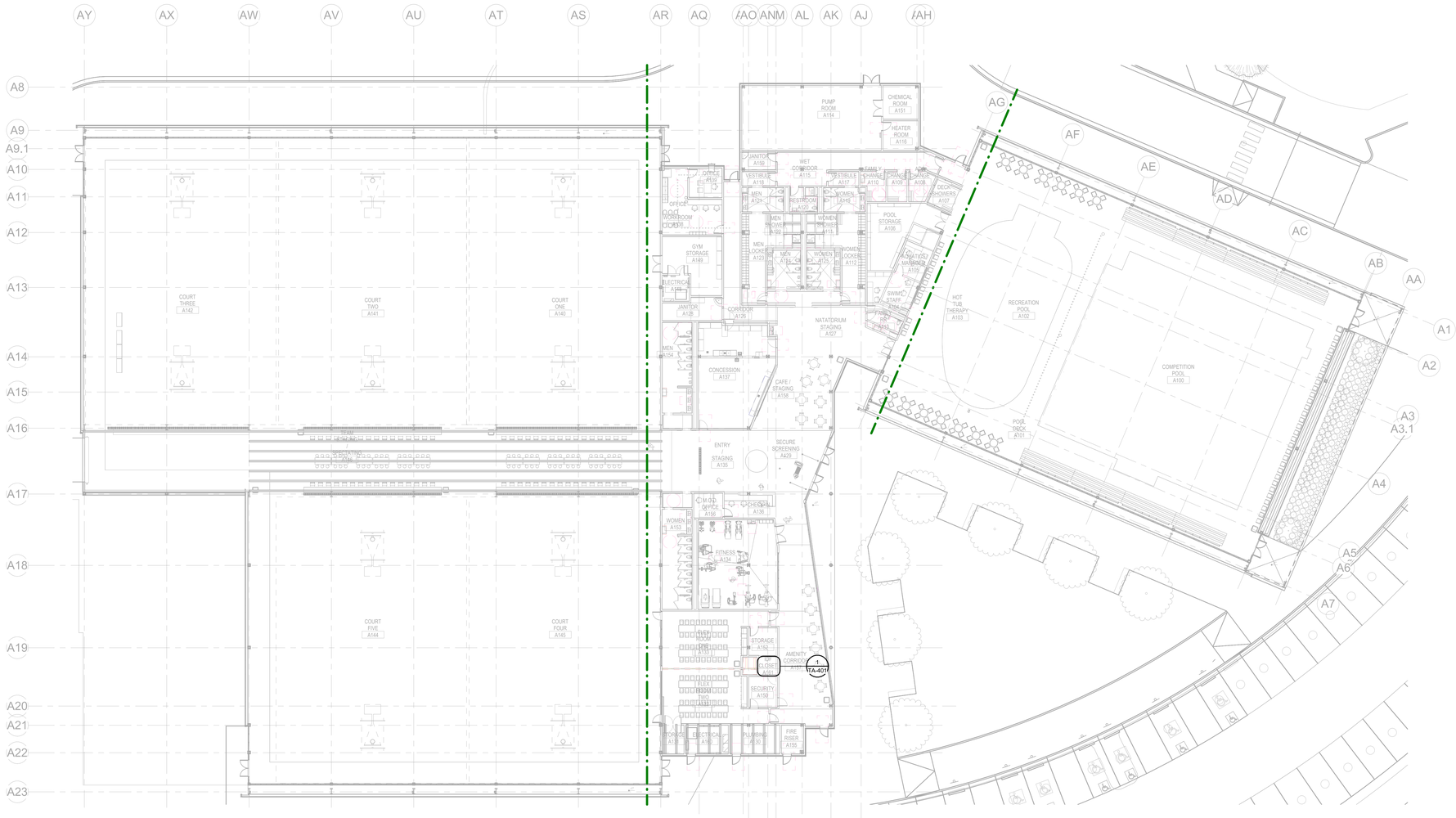
ST HWY 191/I-40 SERV.
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE
AUDIO-VIDEO GENERAL NOTES AND LEGEND

SHEET NUMBER
TA-000

CERTIFICATE OF AUTHORIZATION
HENDERSON ENGINEERS, INC.
No. 484
ARKANSAS - ENGINEERS



1 AUDIO-VIDEO LEVEL 01 PLAN - OVERALL
1/16" = 1'-0"

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SHEET TITLE
AUDIO-VIDEO LEVEL 01 PLAN - OVERALL

SHEET NUMBER
TA-101

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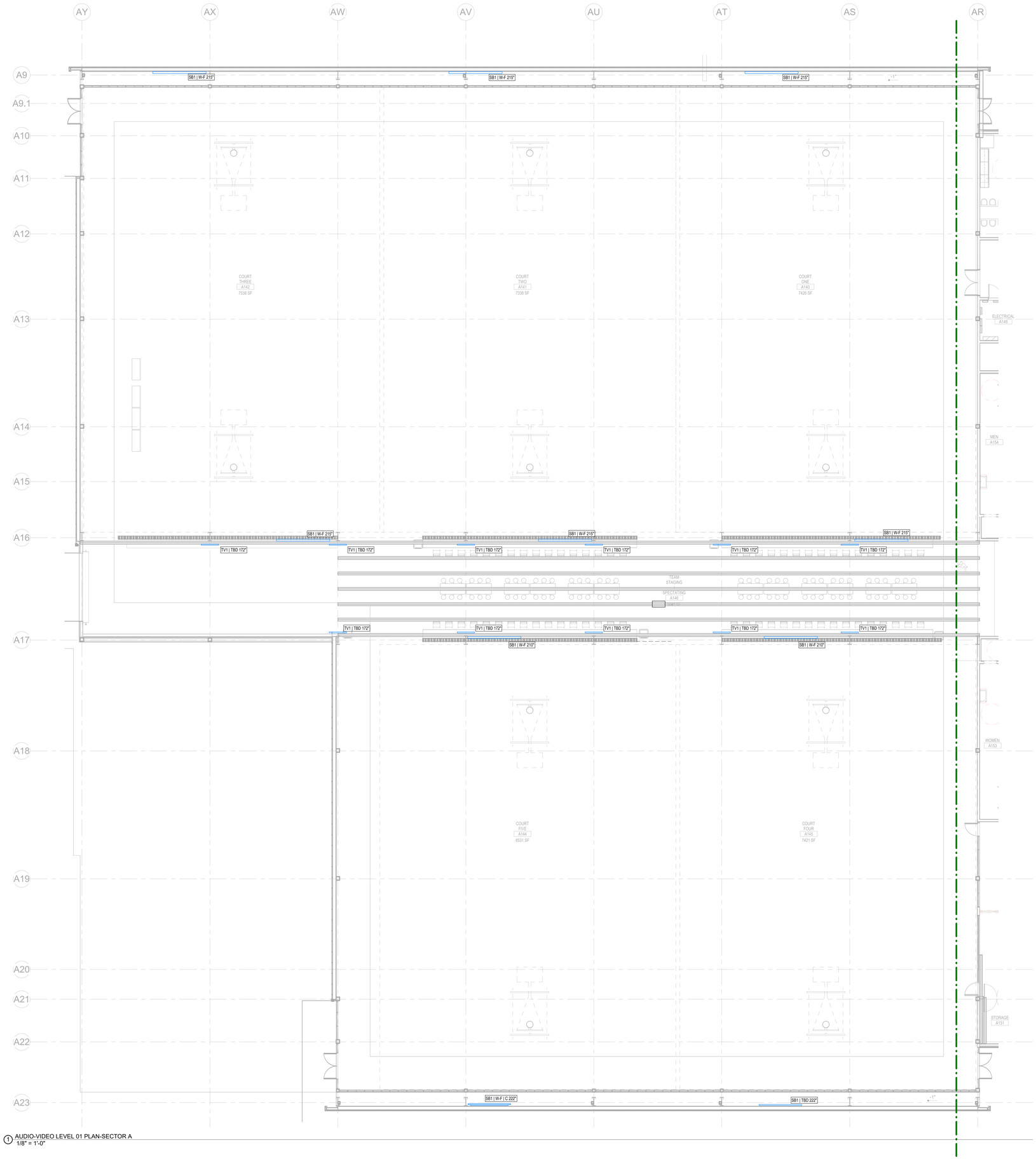

1 AUDIO-VIDEO LEVEL 01 PLAN-SECTOR A
1/8" = 1'-0"

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AUDIO-VIDEO LEVEL 01 PLAN - SECTOR A

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AUDIO-VIDEO LEVEL 01 PLAN - SECTOR B

SHEET NUMBER

TA-101.B

1 AUDIO-VIDEO LEVEL 01 PLAN-SECTOR B
1/8" = 1'-0"

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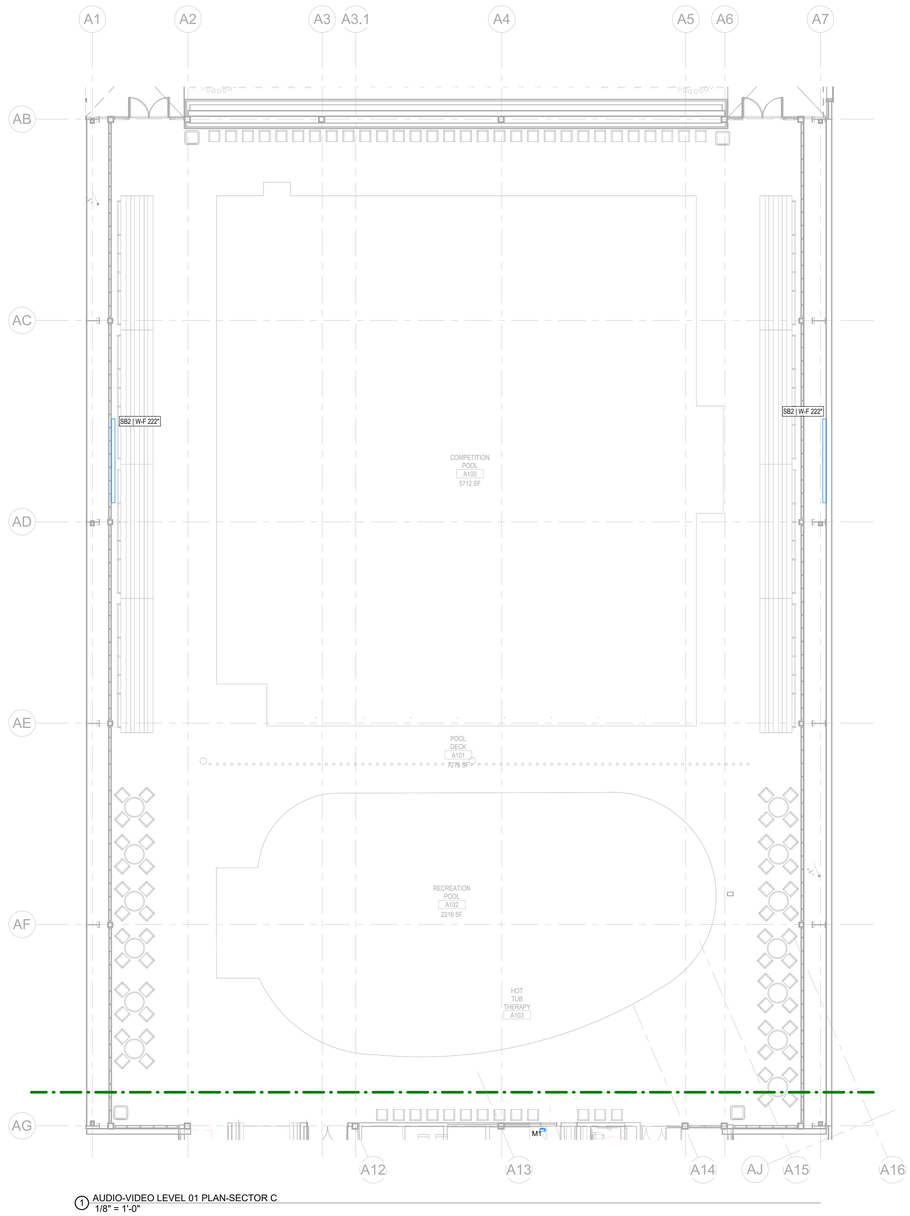

1 AUDIO-VIDEO LEVEL 01 PLAN-SECTOR C
1/8" = 1'-0"

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AUDIO-VIDEO LEVEL 01 PLAN - SECTOR C

SHEET NUMBER

TA-101.C

1 AUDIO-VIDEO LEVEL 01 RCP-SECTOR A
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SHEET TITLE

AUDIO-VIDEO RCP - SECTOR A

SHEET NUMBER

TA-102.A

1 AUDIO-VIDEO LEVEL 01 RCP-SECTOR B
1/8" = 1'-0"

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AUDIO-VIDEO RCP - SECTOR B

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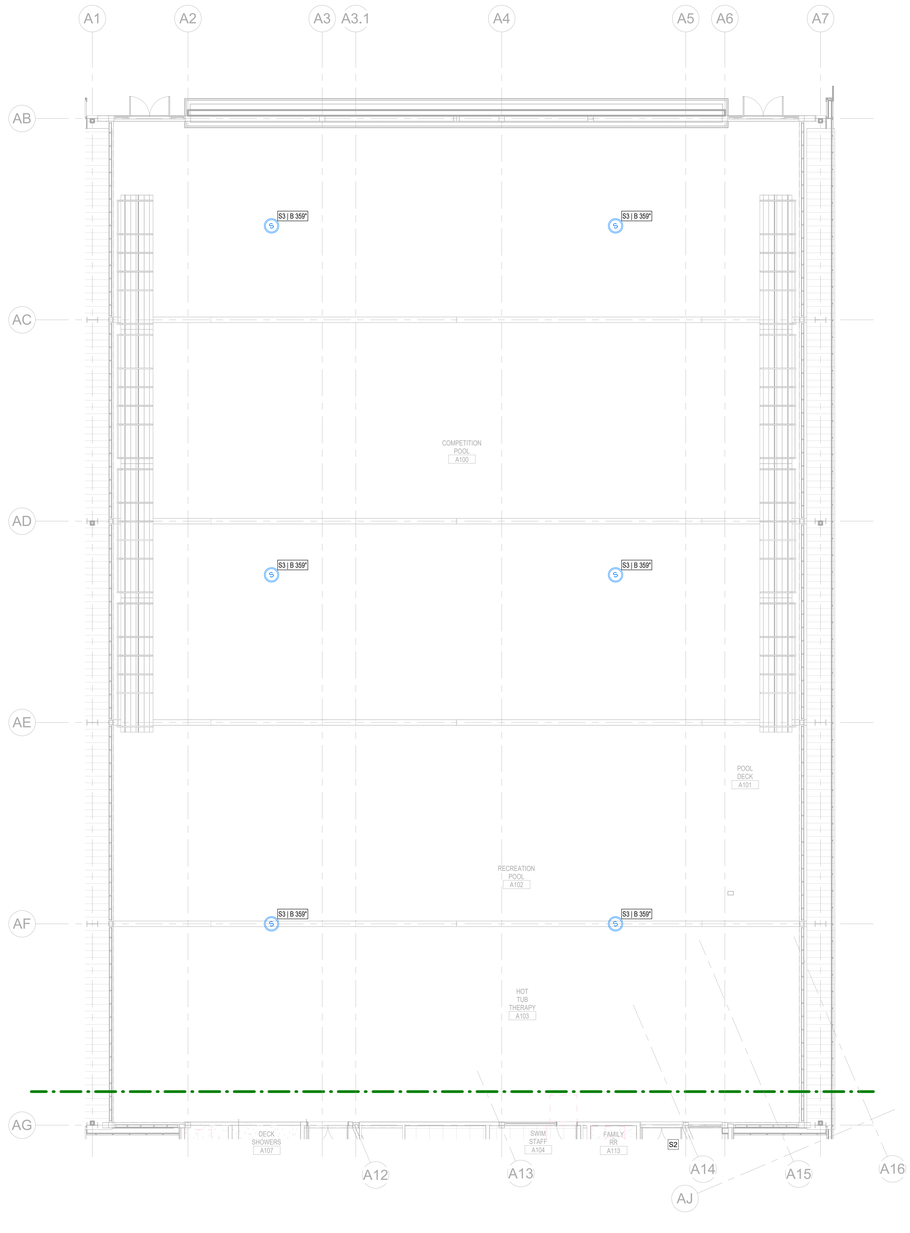
TA-102.B



1 AUDIO-VIDEO LEVEL 01 RCP-SECTOR C
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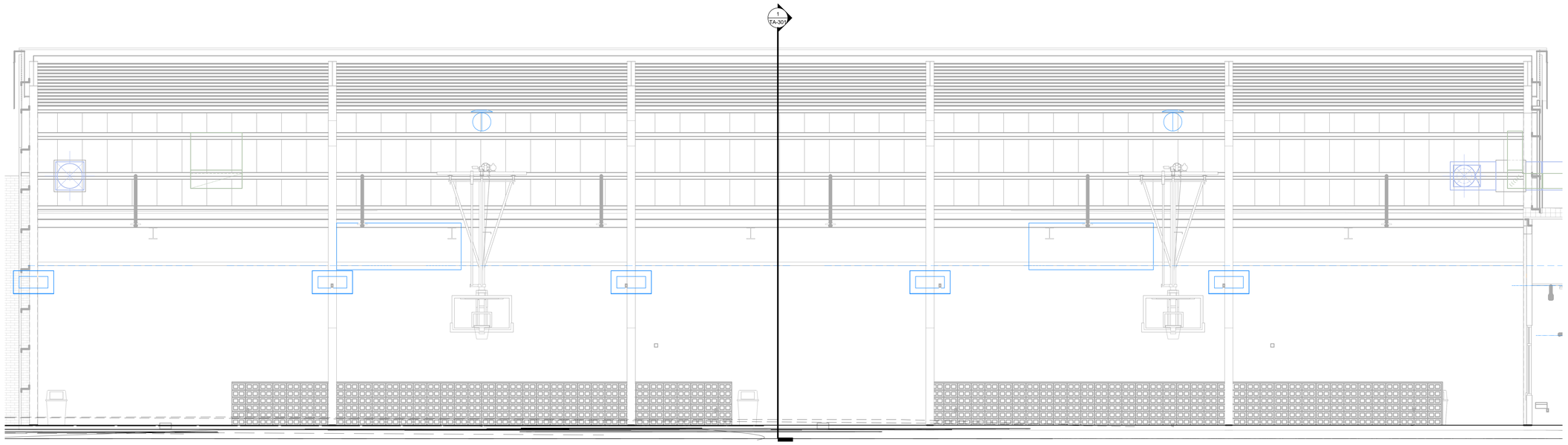
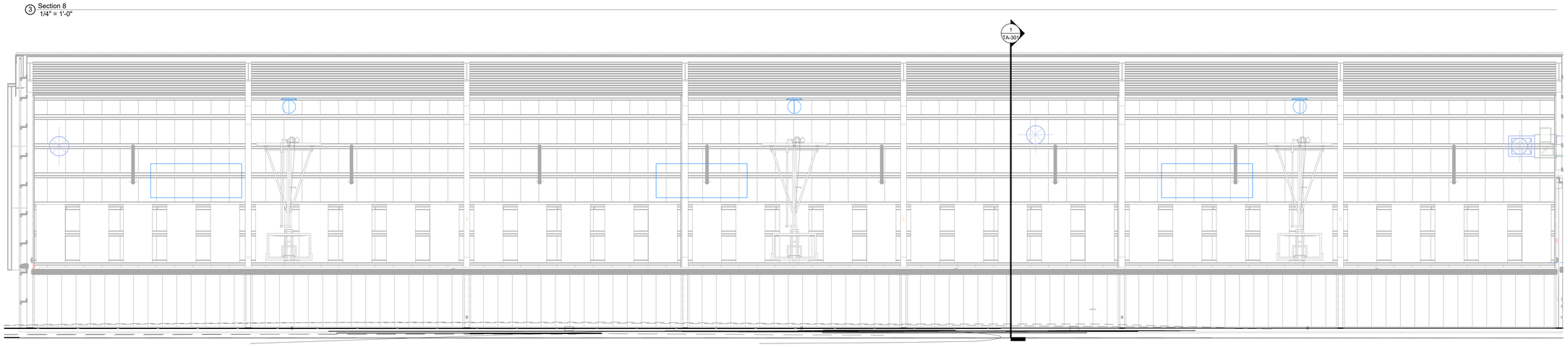
AUDIO-VIDEO RCP - SECTOR C

SHEET NUMBER

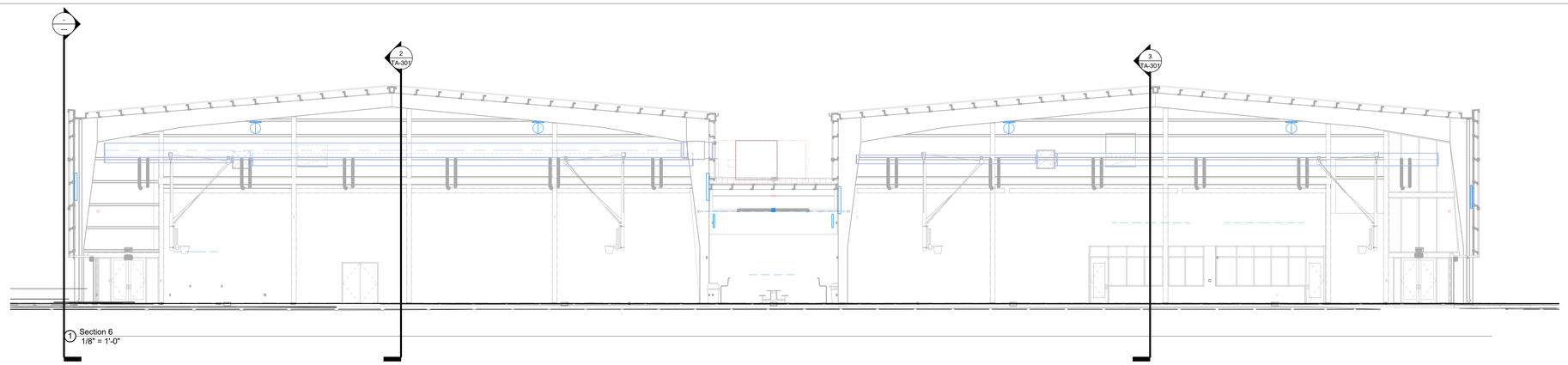
TA-102.C



3 Section 8
1/4" = 1'-0"



2 Section 7
3/16" = 1'-0"



1 Section 6
1/8" = 1'-0"

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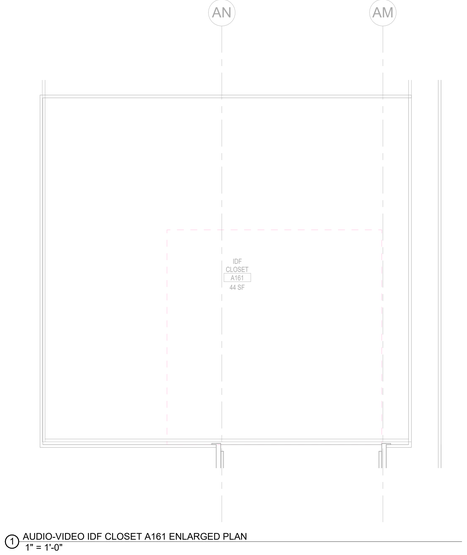
JOB No.: WESCIT00561

SHEET TITLE

AUDIO-VIDEO SECTIONS

SHEET NUMBER

TA-301



1 AUDIO-VIDEO IDF CLOSET A161 ENLARGED PLAN
1" = 1'-0"

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EXPIRES 12/31/2026

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

AUDIO-VIDEO ENLARGED PLANS

SHEET NUMBER

TA-401

AUDIO-VIDEO SYMBOLS LEGEND

v2.00

GENERAL NOTES

SPECIFICATION REFERENCES:

1. REFER TO DIVISION 27 SPECIFICATION SECTION "AUDIO-VIDEO SYSTEMS" AND RELATED DOCUMENTS AND SECTIONS FOR PRODUCT INFORMATION AND ADDITIONAL REQUIREMENTS.
2. CATEGORY AND FIBER CABLING SHALL BE INSTALLED, TERMINATED, AND TESTED PER DIVISION 27 SECTION "TELECOMMUNICATIONS REQUIREMENTS FOR AUDIO-VIDEO SYSTEMS".

CABLE TERMINATION NOTES:

1. ALL AUDIO TERMINATIONS SHOULD COMPLY WITH RANE CORPORATION RANENOTE 110 REFERENCE FOR SOUND SYSTEM INTERCONNECTION.

EQUIPMENT RACK NOTES:

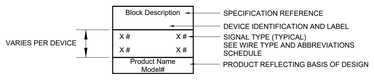
1. REFER TO SPECIFICATIONS FOR RACK LAYOUT SUBMITTAL REQUIREMENTS.
2. ANY RACK LAYOUTS OR INFORMATION RELATED TO EQUIPMENT RACKING CONTAINED IN THIS SET ARE FOR CONCEPT ONLY. VERIFY RACK LAYOUT FOR EQUIPMENT FURNISHED PRIOR TO SUBMITTAL OF SHOP DRAWINGS. REVISE AS REQUIRED FOR ALTERNATES ACCEPTED OR REJECTED.
3. IF THERE ARE DIFFERENCES IN EQUIPMENT RACKING INFORMATION TO THAT SHOWN ON THE SIGNAL FLOW DIAGRAMS, SIGNAL FLOWS SHALL TAKE PRECEDENCE.

WIRE TYPE AND ABBREVIATIONS

	ABBREVIATION DEFINITION OR SIGNAL TYPES	WIRE TYPE	(NOTE 2)
AB	AUDIO TRANSPORT OVER MANUF. PROPRIETARY (NON-IP) PROTO. - REQ. STP	CAT6 STP	90m
AEC	ACOUSTIC ECHO CANCELING SIGNAL	-	-
AES	DIGITAL AUDIO OVER AES FORMAT - BALANCED	22 AWG	100m
	UNBALANCED	RG-6	1000m
AN	AUDIO TRANSPORT OVER IP STANDARD PROTOCOL REQUIRING STP	CAT6 STP	90m
CC	RELAY OR CONTACT CLOSURE CONTROL SIGNAL	22 AWG	
Com	CONTROL SIGNAL (RS232, RS422, RS485)	22 AWG	
	LOW CAPACITANCE CONTROL CABLE FOR LONG RUNS	(NOTE 3)	
Ctl	CONTROL SIGNAL OVER MANUF. PROPRIETARY PROTOCOL	(NOTE 3)	
D	DVI VIDEO SIGNAL	PREMADE	25'
DM	DIGITAL MEDIA AUDIO/VIDEO/CONTROL SIGNAL	CAT6 STP	90m
DP	DISPLAY PORT SIGNAL	PREMADE	3m
FW	FIREWIRE IEEE 1394	PREMADE	4.5m
GPIO	GPI/GPO/GPIO - GENERAL PURPOSE INPUT AND/OR OUTPUT	(NOTE 4)	
H	HDMI VIDEO/AUDIO SIGNAL	(NOTE 3)	
HDSDI	HD-SDI PER SMPTE 292M	RG-59	300'
		RG-6	370'
		RG-11	580'
IC	INTERCOM (PRODUCTION)	22 AWG	
IR	INFRARED CONTROL SIGNAL	PREMADE	
I/O	VARIABLE VOLTAGE CONTROL SIGNAL	22 AWG	
L	LINE LEVEL AUDIO SIGNAL	22 AWG	
LAN	ETHERNET	CAT6	90m
LS	LOUDSPEAKER LEVEL AUDIO SIGNAL 2/4/8/16OHM	(NOTE 5)	
LS70	LOUDSPEAKER LEVEL AUDIO SIGNAL 70V	(NOTE 5)	
M	MICROPHONE LEVEL AUDIO SIGNAL	22 AWG	
MADI	MADI SIGNAL PROTOCOL	RG-6	100m
		SMF	40km
MIDI	MIDI CONTROL SIGNAL	PREMADE	
MMF	MULTI-MODE FIBER	(NOTE 3)	
Mono	MONO AUDIO SIGNAL	22 AWG	
Phone	TELEPHONE SIGNAL	CAT3	
R	RGBHV VIDEO SIGNAL	PREMADE	25'
Ref	REFERENCE/SYNC/BLACK - BLACK BURST OR TRI-LEVEL SYNCHRONIZATION	RG-59	
RF	RADIO FREQUENCY	RG-58	IN RACK
	RF WIRELESS MIC ANTENNA (-5dB @ 800MHz NO AMP)	RG-8X	40'
	RF WIRELESS MIC ANTENNA (-5dB @ 800MHz NO AMP)	RG-213	65'
	RF WIRELESS MIC ANTENNA (-5dB @ 800MHz NO AMP)	RG-8/U	120'
SAT IF	SATELLITE INTERMEDIATE FREQUENCY SIGNAL (TYPICALLY L-BAND)	RG-59	IN RACK
		RG-6	DROP
		RG-11	DISTRO
SDI	SERIAL DIGITAL INTERFACE PER SMPTE 259M	PREMADE	950'
		RG-6	1150'
		RG-11	1850'
SMF	SINGLE-MODE FIBER	(NOTE 3)	2.5Km
SPDIF	DIGITAL AUDIO OVER S/PDIF	PREMADE	10m
St	STEREO AUDIO SIGNAL	PREMADE	5m
		22 AWG	
TLY	TALLY	24 AWG	
TB	THUNDERBOLT SIGNAL	PREMADE	3m
TC	TIMECODE	RG-59	
TIE LINES	MICROPHONE LEVEL	22 AWG	
	LINE LEVEL	22 AWG	
	LOUDSPEAKER LEVEL	(NOTE 4)	
	VIDEO	(NOTE 4)	
TPA	AUDIO SIGNAL OVER TWISTED PAIR	CAT6	90m
TPC	CONTROL SIGNAL OVER TWISTED PAIR	CAT6	90m
TPT	TELEVISION SIGNAL OVER TWISTED PAIR	CAT6	90m
TPV	VIDEO SIGNAL OVER TWISTED PAIR	CAT6	90m
TRIAX	TRIAX VIDEO CAMERA CABLE	RG-59/U	IN ROOM
		RG-11/U	2950'
TV	CABLE TELEVISION DISTRIBUTION SIGNAL	RG-59	IN RACK
		RG-6	DROP
		RG-11	DISTRO
		1/2" HARDLINE	TRUNK
USB	UNIVERSAL SERIAL BUS SIGNAL	PREMADE	
USB1	USB VERSION 1.0	PREMADE	5m
USB2	USB VERSION 2.0	PREMADE	5m
USB3	USB VERSION 3.0	PREMADE	5m
V	COMPOSITE VIDEO SIGNAL	RG-59	750'
		RG-6	900'
		RG-11	1200'
Y	COMPONENT VIDEO SIGNAL	RG-59	125'
		RG-6	200'
3GSDI	3G-SDI PER SMPTE 424M	RG-59	200'
		RG-6	250'
		RG-11	390'
6GSDI	6G-SDI	(NOTE 4)	
*	DENOTES PORTION OF ITEM		

NOTES
1. COMPLY WITH ALL MANUFACTURER REQUIREMENTS.
2. SIGNAL FLOW SIGNAL TYPE ABBREVIATION.
3. CABLE DISTANCE LIMITATION. CONTACT CONSULTANT FOR CONDITIONS OUTSIDE PARAMETERS.
4. REFER TO SPECIFICATION FOR WIRE TYPE.
5. REFER TO SIGNAL FLOWS FOR WIRE TYPE.
6. REFER TO SCHEDULES FOR WIRE TYPE.

SIGNAL FLOW BLOCK LEGEND



AUDIO-VIDEO SYMBOLS

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ABBREVIATIONS, ETC. ARE NECESSARILY USED ON THE DRAWINGS.

AUDIO

SIGNAL FLOW	PANEL/PLATE	DESCRIPTION
F3	F3	FEMALE 3-PIN XLR PANEL MOUNT CONNECTOR
M3	M3	MALE 3-PIN XLR PANEL MOUNT CONNECTOR
C3	C3	FEMALE COMBO 3-PIN XLR AND 1/4" PANEL MOUNT CONNECTOR
F4	F4	FEMALE 4-PIN XLR PANEL MOUNT CONNECTOR
M4	M4	MALE 4-PIN XLR PANEL MOUNT CONNECTOR
F5	F5	FEMALE 5-PIN XLR PANEL MOUNT CONNECTOR
M5	M5	MALE 5-PIN XLR PANEL MOUNT CONNECTOR
F3		FEMALE XLR CABLE MOUNT CONNECTOR (NUMBER BELOW SYMBOL INDICATES NUMBER OF PINS)
M3		MALE XLR CABLE MOUNT CONNECTOR (NUMBER BELOW SYMBOL INDICATES NUMBER OF PINS)
		1/4" 3-CONDUCTOR PANEL MOUNT CONNECTOR
		1/4" 3-CONDUCTOR CABLE MOUNT CONNECTOR
		1/8" 3-CONDUCTOR MINI PANEL MOUNT CONNECTOR
		1/8" 3-CONDUCTOR MINI CABLE MOUNT CONNECTOR
4		SPEAKON JACK, 2-CONDUCTOR BLANK, 4-CONDUCTOR SHOWN
4		SPEAKON PLUG, SIMILAR TO ABOVE
		MALE DT12 PANEL MOUNT CONNECTOR
		FEMALE DT12 PANEL MOUNT CONNECTOR

AUDIO-VIDEO

SIGNAL FLOW	PANEL/PLATE	DESCRIPTION
		FEMALE RCA PANEL MOUNT CONNECTOR
		MALE RCA CABLE MOUNT CONNECTOR
		FEMALE PANEL MOUNT MULTIPIN CONNECTOR
		FEMALE CABLE MOUNT MULTIPIN CONNECTOR
		MALE CABLE MOUNT MULTIPIN CONNECTOR
		PATCH JACK PLUG

NOTE: PANEL & PLATE CONNECTORS ARE NOT SHOWN TO SCALE.

VIDEO

SIGNAL FLOW	PANEL/PLATE	DESCRIPTION
		BNC PANEL MOUNT CONNECTOR
		CABLE END BNC CONNECTOR
		75 OHM BNC TERMINATOR
		RGBHV HD-15 PANEL MOUNT CONNECTOR
		RGBHV HD-15 CABLE MOUNT CONNECTOR
		DVI PANEL MOUNT CONNECTOR
		DVI CABLE MOUNT CONNECTOR
		HDMI PANEL MOUNT CONNECTOR
		HDMI CABLE MOUNT CONNECTOR
		DISPLAYPORT PANEL MOUNT CONNECTOR
		DISPLAYPORT CABLE MOUNT CONNECTOR
		F-STYLE RF PANEL MOUNT CONNECTOR
		F-STYLE RF CABLE MOUNT CONNECTOR
		VIDEO PATCH PANEL JACK
M		TRIAX MALE
F		TRIAX FEMALE
M		SMPTE 304 SOCKET (MALE)
F		SMPTE 304 PLUG (FEMALE)

DEVICES AND CONNECTIONS

SIGNAL FLOW	DESCRIPTION
	CONNECTION TO CHASSIS GROUND
	RUBBER JACKETED EXTENSION CABLE
	PARALLEL CONNECTION OR CHANGE IN WIRE TYPE
	ANTENNA
	PATCH POINT. CONNECT TO PATCH PANEL PER SPECIFICATION REQUIREMENTS
A1 700	CONNECTION BUBBLE UPPER DESIGNATION REFERS TO CONNECTION LABEL. LOWER DESIGNATION REFERS TO THE SHEET NUMBER ON WHICH THE CONNECTION IS CONTINUED.
	EQUIPMENT / TERMINATIONS WITHIN A COMMON LOCATION AS LABELED.
	ALTERNATE OUTLINE

DATA

SIGNAL FLOW	PANEL/PLATE	DESCRIPTION
		ST FIBER PANEL MOUNT CONNECTOR
		ST FIBER CABLE MOUNT CONNECTOR
		LC FIBER PANEL MOUNT CONNECTOR
		LC FIBER CABLE MOUNT CONNECTOR
		HYBRID FIBER PANEL MOUNT CONNECTOR
		HYBRID FIBER CABLE MOUNT CONNECTOR
		UTP PANEL MOUNT (ETHERCON) CONNECTOR
		UTP CABLE MOUNT (ETHERCON) CONNECTOR
		RJ-45 STANDARD PANEL MOUNT CONNECTOR
		RJ-45 STANDARD CABLE MOUNT CONNECTOR
		RJ-11 PANEL MOUNT CONNECTOR
		RJ-11 CABLE MOUNT CONNECTOR

NOTE: REFER TO DIVISION 27 SECTION "TELECOMMUNICATIONS REQUIREMENTS FOR AUDIO-VIDEO SYSTEMS" FOR ADDITIONAL INFORMATION

CONTROL

SIGNAL FLOW	PANEL/PLATE	DESCRIPTION
		COM (DB-9) PANEL MOUNT CONNECTOR
		COM (DB-9) CABLE MOUNT CONNECTOR
		IR EMITTER
		USB TYPE A PANEL MOUNT CONNECTOR
		USB TYPE A CABLE MOUNT CONNECTOR
		USB TYPE B PANEL MOUNT CONNECTOR
		USB TYPE B CABLE MOUNT CONNECTOR
		USB TYPE C PANEL MOUNT CONNECTOR
		USB TYPE C CABLE MOUNT CONNECTOR

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JOB No.: WESCIT00561

SHEET TITLE
AUDIO-VIDEO DETAIL & SIGNAL FLOW LEGEND

SHEET NUMBER
TA-500

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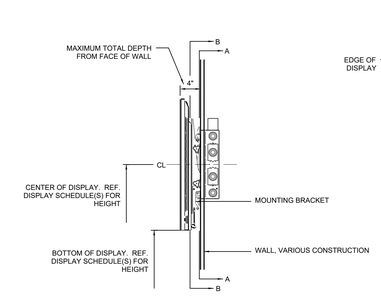

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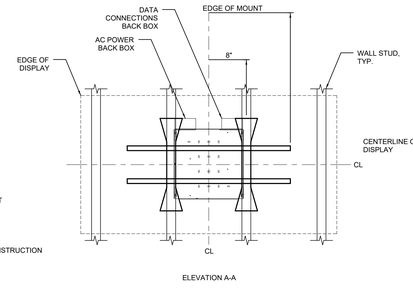
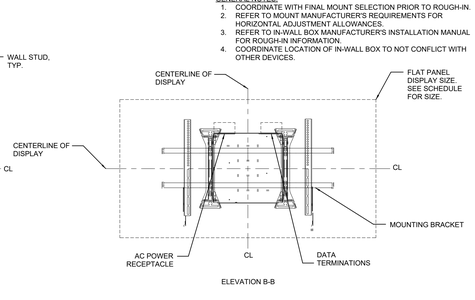


ELEVATION A-A



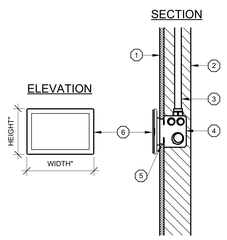
ELEVATION B-B

GENERAL NOTES:

1. COORDINATE WITH FINAL MOUNT SELECTION PRIOR TO ROUGH-IN.
2. REFER TO MOUNT MANUFACTURER'S REQUIREMENTS FOR HORIZONTAL ADJUSTMENT ALLOWANCES.
3. REFER TO IN-WALL BOX MANUFACTURER'S INSTALLATION MANUAL FOR ROUGH-IN INFORMATION.
4. COORDINATE LOCATION OF IN-WALL BOX TO NOT CONFLICT WITH OTHER DEVICES.

v1.00

④ FLAT PANEL DISPLAY DETAIL - IN-WALL BOX - WALL-FIXED OR -TILT
NTS



APPROXIMATE HEIGHTS FOR ADJACENT DEVICE CLEARANCE			
ID	NOMINAL SIZE	APPRX HEIGHT	APPRX WIDTH
C5	5"	4.5"	6.5"
C7	7"	5.5"	7.75"
C1	10"	7.25"	10.5"

1. NOTE CONTROL PANEL DIMENSIONS ARE TYPICALLY LARGER THAN BACK BOX DIMENSIONS. REFER TO TABLE ABOVE FOR APPROXIMATE DIMENSIONS OF TYPICAL CONTROL PANEL CONDITIONS. REFER TO SPECIFIC MANUFACTURER'S DOCUMENTATION FOR EXACT CONDITIONS.
2. ADJACENT DEVICES SUCH AS SWITCHES AND THERMOSTATS SHOULD BE SPACED TO ACCOMODATE THE CONTROL PANEL SIZE.

GENERAL NOTES:

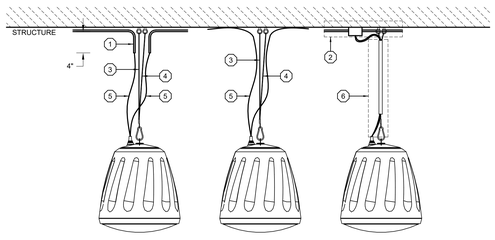
1. DETAIL APPLIES TO LOCATIONS WHERE CONTROL PANELS ARE WALL MOUNTED.
2. DETAIL SHOWN FOR CONCEPT ONLY. SHOP DRAWING REQUIRED SHOWING FINAL CONFIGURATION.
3. COMPLY WITH MANUFACTURER'S MOUNTING REQUIREMENTS.
4. MOUNTING HEIGHT, SPACING, ORIENTATION, AND CABLE/CONDUIT REQUIREMENT MAY VARY BY LOCATION. REFER TO PLANS AND SCHEDULES.
5. WALL CLADDING THICKNESS OVER 3/4" REQUIRES REVIEW WITH MANUFACTURER'S MOUNTING REQUIREMENTS AND MAY RESULT IN NEED FOR CUSTOM ADAPTOR INTERFACE.

KEYED NOTES:

1. WALL SURFACE, VARIES.
2. WALL STRUCTURE, VARIES.
3. CONDUIT TERMINATED DIRECTLY TO BOX AS SHOWN ON DRAWINGS AND SCHEDULES.
4. ENCLOSURE AS SCHEDULED.
5. MUD RING AS REQUIRED.
6. CONTROL PANEL WITH WALL MOUNT PLATE/KIT, AND CABLE AS SHOWN IN SIGNAL FLOW DIAGRAMS, PER MANUFACTURER'S REQUIREMENTS.

v1.00

③ CONTROL PANEL - WALL MOUNTED
NTS



GENERAL NOTES:

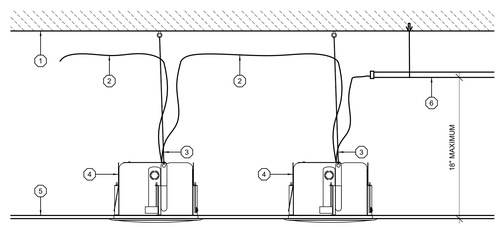
1. DETAIL SHOWN FOR CONCEPT ONLY. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS AND INSTALL ALL SAFETY CABLES WHERE APPLICABLE PER INSTRUCTIONS.
2. REFER TO MANUFACTURER'S GUIDELINES FOR MANUFACTURER-ENGINEERED HARDWARE MOUNTING CONDITIONS. WHERE MOUNTING CONDITION DEVIATES FROM PRE-ENGINEERED CONDITIONS, PROVIDE SHOP DRAWING OF FINAL CONFIGURATION WITH STRUCTURAL ENGINEER APPROVED MOUNTING SOLUTION.
3. MOUNTING HEIGHT, SPACING, AND CABLE LENGTH VARIES BY LOCATION. REFER TO PLANS AND SECTIONS.
4. WHERE PENDANT LOUDSPEAKERS ARE FILLING GAPS BETWEEN FLUSH MOUNTED LOUDSPEAKERS IN CEILING CLOUDS, MOUNT BOTTOM OF PENDANT HEIGHT EVEN WITH BOTTOM OF CEILING CLOUD HEIGHT.

KEYED NOTES:

1. CONDUIT AS SHOWN ON PLANS. TYPICALLY TO FIRST LOUDSPEAKER ONLY. ATTACH TO STRUCTURE, STUB DOWN AT LOUDSPEAKER LOCATION TO PROVIDE CLEAN CABLE EXIT. PROVIDE PULL STRING.
2. ALTERNATE CONDUIT STRATEGY SHALL UTILIZE A BOX MOUNTED ADJACENT TO THE LOUDSPEAKER.
3. PRIMARY SUPPORT CABLE.
4. SAFETY CABLE PER MANUFACTURER'S RECOMMENDED INSTALLATION PRACTICES. SHOWN LOOSE FOR CLARITY IN THIS PORTION OF THE DETAIL.
5. LOUDSPEAKER CABLE SHOWN LOOSE FOR CLARITY IN THIS PORTION OF DETAIL.
6. COVER SUPPORT CABLES AND WIRING WITH FLEXIBLE TUBING FOR A CLEAN APPEARANCE IN ALL CASES. COLOR AS SELECTED BY THE ARCHITECT.

v1.02

② LOUDSPEAKER MOUNTING DETAIL - PENDANT SPEAKER
NTS



GENERAL NOTES:

1. DETAIL APPLIES TO LOCATIONS WHERE LOUDSPEAKERS ARE MOUNTED WITHIN ACCESSIBLE CEILING.
2. DETAIL SHOWN FOR CONCEPT ONLY. REFER TO MANUFACTURER'S INSTALLATION REQUIREMENTS AND INSTALL ALL SAFETY CABLES WHERE APPLICABLE PER INSTRUCTIONS.
3. REFER TO MANUFACTURER'S GUIDELINES FOR MANUFACTURER-ENGINEERED HARDWARE MOUNTING CONDITIONS. WHERE MOUNTING CONDITION DEVIATES FROM PRE-ENGINEERED CONDITIONS, PROVIDE SHOP DRAWING OF FINAL CONFIGURATION WITH STRUCTURAL ENGINEER APPROVED MOUNTING SOLUTION.
4. MOUNTING HEIGHT, SPACING, AND CABLE/CONDUIT LENGTH VARIES BY LOCATION. REFER TO PLANS AND SECTIONS.
5. LOCATE CONDUIT SUCH THAT WIRE MAY BE PULLED AFTER FINISHED CEILING IS IN PLACE.

KEYED NOTES:

1. STRUCTURE
2. CABLE PATHWAY AS SHOWN ON PLANS. ATTACH TO STRUCTURE.
3. SAFETY CABLE PER MANUFACTURER'S RECOMMENDED INSTALLATION PRACTICES.
4. CEILING LOUDSPEAKER MOUNTED WITHIN ACCESSIBLE CEILING. REFER TO DRAWINGS AND SPECS FOR ADDITIONAL INFORMATION.
5. FINISHED CEILING AS SCHEDULED.
6. TRANSITION TO CONDUIT FOR CONTINUATION OF CABLING ENTERING INACCESSIBLE LOCATIONS OR THRU WALLS.

v1.02

① LOUDSPEAKER MOUNTING DETAIL - CEILING SPEAKER - ACCESSIBLE CEILING
NTS

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JOB No.: WESCIT00561

SHEET TITLE

AUDIO-VIDEO DETAILS

SHEET NUMBER

TA-501

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JOB No.: WESCIT00561

SHEET TITLE

AUDIO-VIDEO SIGNAL FLOW

SHEET NUMBER

TA-701

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TELECOMMUNICATIONS SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

V2.08

STANDARD MOUNTING HEIGHTS

LADDER RACK IN TELECOM ROOMS (BOTTOM OF DEVICE)	6" ABOVE RACK
CABLE TRAY / CONDUIT AFC (BOTTOM OF PATHWAY)	3"(MIN)
LIGHT FIXTURE IN TELECOM ROOMS (BOTTOM OF DEVICE)	108"(MIN)
TELEPHONE WALL OUTLET (TOP OF DEVICE)	46"
DATA WALL OUTLET	SAME AS ADJACENT DEVICE, UNO
TELEVISION OUTLET	REFER TO ARCH DRAWINGS
PBB/SBB (CENTERLINE)	84"

INSTALL DEVICES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ARE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG) TO TOP OF OUTLET BOX. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ABBREVIATIONS

A	AMPERES	JB	JUNCTION BOX
ADA	AMERICANS WITH DISABILITIES ACT	J-BOX	JUNCTION BOX
AFC	ABOVE FINISHED CEILING	LAN	LOCAL AREA NETWORK
AFF	ABOVE FINISHED FLOOR	LCC	LIMITED COMBUSTIBLE CABLE
AFG	ABOVE FINISHED GRADE	LEC	LOCAL EXCHANGE CARRIER
AHJ	AUTHORITY HAVING JURISDICTION	LED	LIGHT-EMITTING DIODE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	LF	LINEAR FEET
AP	ACCESS POINT	MAN	METROPOLITAN AREA NETWORK
ARCS	AREA OF RESCUE CALL STATION	MATV	MASTER ANTENNA TELEVISION
ARMS	AREA OF RESCUE MASTER CONTROL STATION	MC	MAIN CROSS-CONNECT
AV	AUDIO-VIDEO	MDF	MAIN DISTRIBUTION FRAME
AWG	AMERICAN WIRE GAUGE	MFR	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MH	MAINTENANCE HOLE
BBC	BACKBONE BONDING CONDUCTOR	MM	MULTIMODE
BD	BUILDING DISTRIBUTOR	MPOE	MAIN POINT OF ENTRANCE
BDF	BUILDING DISTRIBUTION FRAME	MPOP	MAIN POINT OF PRESENCE
BFC	BELOW FINISHED CEILING	MTD	MOUNTED
C	CONDUIT	N/A	NOT APPLICABLE
CAT	CATEGORY	NEC	NATIONAL ELECTRICAL CODE
CATV	COMMUNITY ANTENNA TELEVISION	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CCTV	CLOSED CIRCUIT TELEVISION	NIC	NOT IN CONTRACT
CD	CAMPUS DISTRIBUTOR	nm	NANOMETER
CMP	COMMUNICATIONS PLENUM JACKET	NRTL	NATIONALLY RECOGNIZED TESTING LAB
CMR	COMMUNICATIONS RISER JACKET	OC	ON CENTER
(D)	REMOVE DEVICE	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
DAS	DISTRIBUTED ANTENNA SYSTEM	OSP	OUTSIDE PLANT
dB	DECIBELS	PBB	PRIMARY BONDING BUSBAR
DEMO	DEMOLITION	PBX	PRIVATE BRANCH EXCHANGE
(E)	EXISTING	POE	POWER OVER ETHERNET
EC	ELECTRICAL CONTRACTOR	PON	PASSIVE OPTICAL NETWORK
ECIA	ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION	POTS	PLAIN OLD TELEPHONE SERVICE
EMI	ELECTROMAGNETIC INTERFERENCE	PSTN	PUBLIC SWITCHED TELEPHONE NETWORK
EMS	ENERGY MANAGEMENT SYSTEM	QTY	QUANTITY
EMT	ELECTRICAL METALLIC TUBING	(R)	RELOCATED EXISTING DEVICE
ER	EQUIPMENT ROOM	(RE)	REMOVE EXISTING DEVICE AND INSTALL AT ANOTHER LOCATION, SEE (R)
ETR	EXISTING TO REMAIN	RCDD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
FAAP	FIRE ALARM ANNUNCIATOR PANEL	RMC	RIGID METAL CONDUIT
FACP	FIRE ALARM CONTROL PANEL	RU	RACK UNIT
FD	FLOOR DISTRIBUTOR	SBB	SECONDARY BONDING BUSBAR
FMC	FLEXIBLE METAL CONDUIT	SCS	STRUCTURED CABLING SYSTEM
FS	FIRE STOP SYSTEM	SF	SQUARE FEET
FLR	FLOOR	SM	SINGLEMODE
F/UTP	SCREEN TWISTED PAIR (SHIELDED)	SPECS	SPECIFICATIONS
GC	GENERAL CONTRACTOR	TBB	TELECOMMUNICATIONS BONDING BACKBONE
GYP	GYPSUM BOARD	TBD	TO BE DETERMINED
HC	HORIZONTAL CROSS-CONNECT	TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
HCM	HORIZONTAL CABLE MANAGER	TR	TELECOMMUNICATIONS ROOM
HH	HAND HOLE	TYP	TYPICAL
Hz	HERTZ	UNO	UNLESS NOTED OTHERWISE
IDF	INTERMEDIATE DISTRIBUTION FRAME	UL	UNDERWRITER LABORATORIES, INC.
IMC	INTERMEDIATE METAL CONDUIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
IP	INTERNET PROTOCOL	U/UTP	UNSHIELDED TWISTED PAIR
ISP	INTERNET SERVICE PROVIDER	V	VOLT(S)
ISP	INSIDE PLANT CABLE	VCM	VERTICAL CABLE MANAGER
		W	WIRE
		WAN	WIDE AREA NETWORK
		WAO	WORK AREA OUTLET
		WAP	WIRELESS ACCESS POINT
		WP	WEATHER PROOF
		WR	WEATHER RESISTANT
		WT	WATERTIGHT
		XP	EXPLOSION-PROOF

ANNOTATION

- (1) TECHNOLOGY PLAN NOTE CALLOUT
- <1> UNIVERSAL PLAN NOTE CALLOUT
- [1] EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED)
- CONNECTION POINT OF NEW WORK TO EXISTING
- 1 / T1 DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER. LOWER NUMBER INDICATES SHEET NUMBER
- 1 / T1 SECTION CUT DESIGNATION
- DEDICATED EQUIPMENT ACCESS TILE
- ACCESS PANEL

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINE-TYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF THE NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	NEW
DEMOLISH	FUTURE

CABLE TYPES

A	CATEGORY 6 CABLE
B	CATEGORY 6A CABLE
C	SINGLE MODE FIBER CABLE

PATHWAYS

SYMBOL	DESCRIPTION	DETAIL
W"xH"	CABLE TRAY (REFER TO PLAN NOTES AND SPECS FOR TRAY TYPE) (W"=WIDTH, "H"=HEIGHT)	-
D"	UNDERGROUND CONDUIT ("D"=CONDUIT DIAMETER, REFER TO KEYNOTE FOR SIZE)	-
D"	CONDUIT ("D"=CONDUIT DIAMETER, REFER TO KEYNOTE FOR SIZE)	-
	CABLE SUPPORTS OR J-HOOKS	10/TN500
D"	CONDUIT SLEEVE ("D"=CONDUIT DIAMETER, REFER TO KEYNOTE FOR SIZE)	-
FS	UL FIRESTOP SYSTEM ASSEMBLY	-
	PULL BOX (REFER TO KEYNOTE FOR SIZE)	-

TELECOMMUNICATIONS ROOM

SYMBOL	DESCRIPTION	DETAIL
	LADDER RACK	-
	VERTICAL CABLE TRAY	-
	PBB/SBB - PLAN VIEW	2/TN500 3/TN500
	TELECOM BACKBOARD	-
	TWO-POST EQUIPMENT RACK	-
	FOUR-POST EQUIPMENT RACK	-

RISER DIAGRAMS

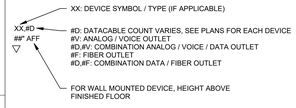
SYMBOL	DESCRIPTION
	FIBER OPTIC CROSS CONNECT
	COPPER UTP CROSS CONNECT
P	110-TYPE PROTECTOR BLOCK
PATCH PANEL	PATCH PANEL
SBB	SECONDARY BONDING BUSBAR (SBB)
PBB	PRIMARY BONDING BUSBAR (PBB)
	TELECOMMUNICATIONS BACKBONE CABLING (REFER TO RISER DIAGRAM FOR MORE INFORMATION)

DEVICE LABELING SCEME

AV DEVICE (TYPICAL)

SEE MATCHING SCHEDULES ON THIS SHEET (IF APPLICABLE)

TELECOMMUNICATIONS DEVICE (TYPICAL)



SEE MATCHING SCHEDULES ON THIS SHEET (IF APPLICABLE)

TELECOMMUNICATIONS OUTLETS

SYMBOL	DESCRIPTION	CABLE(S) A	B	C	DETAIL
W,1D	TELEPHONE, VoIP WALL OUTLET	1	0	0	7/TN-500
#D	DATA WALL OUTLET	#	0	0	8/TN-500
#D	DATA WALL OUTLET, ABOVE COUNTER	#	0	0	8/TN-500
#F	SINGLE MODE FIBER, WALL OUTLET	0	0	#	--
#D	SYSTEMS FURNITURE DATA OUTLET	#	0	0	5/TN-500
#D, "X"	MULTI-SERVICE FLOOR BOX WITH DATA AND POWER OUTLETS, REFER TO SCHEDULE FOR FLOOR BOX TYPE "X"	#	0	0	1/TN-500
#D	DATA CEILING OUTLET	#	0	0	11/TN-500
WAP	DATA CEILING OUTLET, FOR WIRELESS ACCESS POINT	0	1	0	6/TN-500
WAP	DATA WALL OUTLET, FOR WIRELESS ACCESS POINT	0	1	0	6/TN-500
#D,BAS	DATA OUTLET, FOR BUILDING AUTOMATION SYSTEM PANEL	#	0	0	4/TN-500
#D,ELEC	DATA OUTLET, FOR ELECTRICAL METERING, LIGHTING CONTROL PANEL	#	0	0	4/TN-500
#D,POS	DATA OUTLET, FOR POINT OF SALE	#	0	0	8/TN-500

HATCHING LEGEND

ENLARGED PLAN	
NOT IN SCOPE (NIS)	
DEMOLITION	

SECURITY IP END-POINT DEVICES

REFER TO TY-SERIES DRAWINGS FOR SECURITY DEVICES

SYMBOL	DESCRIPTION	CABLE(S) A	B	C	DETAIL
	DATA OUTLET FOR SECURITY CAMERA - REFER TO TY-SERIES DRAWINGS FOR MOUNTING SPECIFICS/HEIGHTS	1	0	0	REFER TO TY-SERIES
IC / IC	INTERCOM - DESK, WALL MOUNT	1	0	0	REFER TO TY-SERIES
BR	BIOMETRIC CARD READER	1	0	0	REFER TO TY-SERIES
EP	WALL MOUNT EMERGENCY PHONE	1	0	0	REFER TO TY-SERIES
EP	PEDESTAL STYLE EMERGENCY PHONE	1	0	0	REFER TO TY-SERIES

AUDIO-VIDEO IP END-POINT DEVICES

REFER TO TA-SERIES DRAWINGS FOR AV DEVICES

SYMBOL	DESCRIPTION	CABLE(S) A	B	C	DETAIL
	AUDIO-VIDEO CONTROL PANEL OUTLET	0	1	0	REFER TO TA-SERIES
	MP3 OUTLET	0	1	0	REFER TO TA-SERIES
	AUDIO-VIDEO INPUT OUTLET	0	1	0	REFER TO TA-SERIES
	TELEVISION WALL OUTLET, UNO	0	2	0	REFER TO TA-SERIES
	TELEVISION WALL OUTLET	0	3	0	REFER TO TA-SERIES
T#	TELEVISION CEILING OUTLET	0	2	0	REFER TO TA-SERIES
AV	AUDIO-VIDEO CEILING OUTLET	0	1	0	REFER TO TA-SERIES
#D	MISC. AV / BROADCAST OUTLET (CABLE COUNT VARIES, SEE PLANS)	0	#	0	REFER TO TA-SERIES

ROUGH-IN OUTLETS

ROUGH-IN ONLY SCHEDULE

SYMBOL	DESCRIPTION	BACK BOX	CONDUIT
R | FF	FURNITURE FEED, WALL BOX ROUGH-IN	2-GANG BACKBOX WITH 2" GROMMET	(2) 1-1/4" EMT
FF	FURNITURE FEED, FLOOR BOX ROUGH-IN	REFER TO SCHEDULE	(2) 1-1/4" EMT
FF	FURNITURE FEED, POKE THROUGH ROUGH-IN	REFER TO SCHEDULE	EMT TO ACCESS CEILING
R | D	DATA, CEILING ROUGH-IN	2-GANG BACKBOX WITH 2-GANG COVER PLATE	(1) 1" EMT
R | D	DATA, WALL ROUGH-IN	2-GANG BACKBOX WITH 2-GANG COVER PLATE	(1) 1" EMT
R | TV	AUDIO-VIDEO TELEVISION, CEILING ROUGH-IN	2-GANG BACKBOX WITH 2-GANG COVER PLATE	(2) 1-1/2" EMT
R | TV	AUDIO-VIDEO TELEVISION, WALL ROUGH-IN	2-GANG BACKBOX WITH 2-GANG COVER PLATE	(2) 1-1/2" EMT
R | AV	AUDIO-VIDEO PLATE, CEILING ROUGH-IN	2-GANG BACKBOX WITH 2-GANG COVER PLATE	(2) 1-1/2" EMT
R | AV	AUDIO-VIDEO PLATE, WALL ROUGH-IN	2-GANG BACKBOX WITH 2-GANG COVER PLATE	(2) 1-1/2" EMT
R | BR	SECURITY BIOMETRIC READER, WALL ROUGH-IN	1-GANG BACKBOX WITH 1-GANG COVER PLATE	(1) 1" EMT
R | CAM	SECURITY CAMERA, CEILING ROUGH-IN	INSTALL SECURITY PROVIDER'S BACKBOX	(1) 1" EMT
R | CAM	SECURITY CAMERA, WALL ROUGH-IN	1-GANG BACKBOX WITH 1-GANG COVER PLATE	(1) 1" EMT

TECHNOLOGY CONDUIT FILL TABLE

EMT TRADE SIZE	CABLE TYPE AND QUANTITY CAT 6 UTP	CAT 6A UTP	RG-11	RG-6
1	7	5	2	5
1.25	12	8	6	8
1.5	16	11	8	13
2	27	19	13	22
2.5	47	33	24	36
3	72	50	36	53
3.5	94	65	47	73
4	120	83	60	95

TECHNOLOGY CONDUIT FILL TABLE NOTES:

1. MINIMUM CONDUIT SIZE SHALL BE 1 INCH, UNO.
2. CONDUIT FILL TABLE CABLE QUANTITIES ASSUME CABLE TYPES ARE NOT SHARED WITHIN THE SAME CONDUIT. CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATING CONDUIT SIZE PER NEC WHEN MULTIPLE CABLES TYPES ARE WITHIN THE SAME CONDUIT.
3. CONTRACTOR SHALL VERIFY CONDUIT SIZE REQUIREMENTS WITH EXACT CABLE SPECIFICATIONS PRIOR TO ROUGH-IN. THE TECHNOLOGY CONDUIT FILL TABLE IS PROVIDED FOR REFERENCE ONLY AND IS BASED ON AVERAGE INDUSTRY STANDARD CABLES AND NEC CONDUIT FILL REQUIREMENTS.

PULL BOX SIZING PER ANSI / TIA-569-E

CONDUIT TRADE SIZE	WIDTH (in)	LENGTH (in)	DEPTH (in)	WIDTH INCREASE FOR ADDITIONAL CONDUIT (in)
1	4	16	3	2
1.25	6	20	3	3
1.5	8	27	4	4
2	8	36	4	5
2.5	10	42	5	6
3	12	48	5	6
3.5	12	54	6	6
4	15	60	8	8

GENERAL NEW WORK NOTES

1. READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS.
2. ALL WORK SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS (DIVISION 26, DIVISION 27, DIVISION 28, ETC.) AND THE CUSTOMER PRE-ESTABLISHED STRUCTURED CABLING STANDARDS; SHOULD DIFFERENCES EXIST IN THE SPECIFICATIONS RELATING TO TECHNOLOGY AND THE CLIENT'S PRE-ESTABLISHED STANDARDS THE CONTRACTOR SHALL CONTACT THE LOW VOLTAGE ENGINEER FOR CLARIFICATION THROUGH THE RFI PROCESS.
3. FULLY COORDINATE ALL CABLE TRAY, FIRE STOP CONDUITS / SLEEVES, AND CONDUIT ROUTING WITH STRUCTURAL ELEMENTS. COORDINATE CABLE TRAY AND CONDUIT INSTALLATIONS WITH ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR, AND GENERAL CONTRACTOR PRIOR TO INSTALLATION. ROUTING IN CONCRETE SLAB OR UNDER SLAB (WHERE CONDUIT WOULD BE ON GRADE) REQUIRES THE USE OF WET LOCATION RATED CABLES.
4. ALL TELECOMMUNICATIONS CONTINUOUS PATHWAYS SHALL BE BONDED TO THE TELECOMMUNICATIONS BONDING BACKBONE; FOR CONDUITS, INSULATION BUSHINGS SHALL BE USED AT THE END OF THE CONDUIT THE FARTHEST AWAY FROM THE SERVING TR. A BONDING BUSHING SHALL BE USED AT THE END CLOSEST TO THE SERVING TR. CONTRACTOR TO REFER TO THE ANSI-STD-J 607 STANDARD FOR ADDITIONAL INFORMATION AS TO THE INSTALLATION OF THE TELECOMMUNICATIONS BONDING BACKBONE.
5. ALL FIRE RATED WALL / FLOOR ASSEMBLIES PENETRATED FOR TELECOMMUNICATIONS CABLING PATHWAYS SHALL BE FIRE STOPPED WITH THE APPROVED FIRE STOP SYSTEMS (F/S). ALL FIRESTOP SYSTEMS SHALL BE INSTALLED AS DIRECTED BY THE MANUFACTURER AND AS SPECIFIED IN DIVISION 07 07 84 00 - "FIRESTOPPING". FIRE STOP ASSEMBLY LOCATIONS ARE TO BE COORDINATED WITH CABLE TRAY PATHWAY TO TELECOMMUNICATIONS ROOM.
6. BACK BOXES AND CONDUIT LOCATIONS IN PRECAST CONCRETE WALLS SHALL BE COORDINATED WITH ARCHITECT, STRUCTURAL ENGINEER, AND GC PRIOR TO ORDERING THE PRECAST WALLS.
7. ROUTING OF CABLES SHALL BE CONCEALED. CABLES SHALL BE ROUTED IN CONDUIT IN EXPOSED AREAS. MINIMIZE AMOUNT OF EXPOSED CONDUIT BY EMBEDDING CONDUIT IN SLAB WHEN POSSIBLE. EMBEDDED CONDUITS AND PENETRATIONS OF STRUCTURE SHALL FOLLOW DETAILS IN STRUCTURAL DRAWINGS. WHEN CONDUITS CAN ONLY BE INSTALLED EXPOSED, NOTIFY ARCHITECT PRIOR TO START OF INSTALLATION OF CONDUITS. CABLES SHALL BE ROUTED IN CONDUIT WHEN ABOVE HARD CEILINGS. CONDUITS FOR ELEVATOR PHONES AND FIRE ALARM CONTROL PANEL SHALL BE CONTINUOUS (HOMERUN) FROM THE TELECOMMUNICATIONS ROOM TO THE APPLICABLE BOX / CABINET. CONTRACTOR SHALL SIZE AND PROVIDE CONDUITS TO MEET TIA-569.
8. TELECOMMUNICATIONS ROOMS SHALL BE DEDICATED FOR INFORMATION TECHNOLOGY USE (I.E. NO SHARED SPACE WITH A JANITOR, FIRE ALARM SYSTEM, ETC.) NO SERVICES SHALL PASS THROUGH THE SPACE UNLESS DEDICATED TO THE SPACE (NO PLUMBING, MECHANICAL, ELECTRICAL, FIRE, ETC.)
9. LOCATIONS AND QUANTITIES SHOWN ON THE DRAWINGS FOR WIRELESS ACCESS POINTS ARE DIAGRAMMATIC IN NATURE AND INTENDED TO BE USED TO ESTIMATE COST OF INSTALLATION OF SYSTEM.

TELECOMMUNICATIONS RESPONSIBILITY MATRIX

Description	Not applicable to project	Furnish: General Contractor	Furnish: Low Voltage Contractor	Furnish: Owner	Install: General Contractor	Install: Low Voltage Contractor	Install: Owner	Comments
General Communications								
Grounding and Bonding		■			■			
Hangers and Supports		■			■			
Conduits and Backboxes		■			■			
Cable Trays		■			■			
Surface Raceways		■			■			
Underground pathways for utility entrance and floor boxes		■			■			
Firestops, Conduit Sleeves, and Sleeve Seals		■			■			
Vibration and Seismic Controls		■			■			
Structured Cabling								
Telecom Room Cabinets, Racks, Frames, and Enclosures		■			■			
Telecom Room Buildout (ex. backboard and ladder rack)		■			■			
Telecom Room Uninterruptible Power Supply (UPS)		■			■			
Telecom Room Power Strips		■			■			
Optical Fiber Backbone Cable and Connectivity			■			■		
Copper Backbone Cable and Connectivity			■			■		
Coaxial Backbone Cable and Connectivity			■			■		
Optical Fiber Horizontal Cable and Connectivity			■			■		
Copper Horizontal Cable and Connectivity			■			■		
Coaxial Horizontal Cable and Connectivity			■			■		
Data Communications								
Router / Firewall				■				
Core Switch / Edge Switch				■				
Wireless Access Points				■				
Servers / Storage and Backup				■				
Laptops / Desktops / Copiers / Printers / Scanners				■				
Software				■				
Voice Communications								
VoIP Gateway / Analog handsets				■	■			
VoIP handset wall mount kit		■			■			
VoIP handsets				■	■			
VoIP Network licensing					■			
Cellular Elevator Phones		■						
Audio-Video Communications								
Conduits and Backboxes for AV systems		■			■			Refer to AV drawings for AV Scope
Master Antenna Television Distribution System		■			■			
Distributed & Monitoring Communications								
Overhead Analog/IP Paging		■			■			
Paging through Fire Alarm System		■			■			
Emergency Phone Systems		■			■			
Wireless Clock Systems		■			■			
Analog/IP Clock Systems		■			■			
Electronic Safety and Security								
Conduits and Backboxes for Security systems		■			■			Refer to Security drawings for Security Scope
Outside Plant								
Free Space Optics								
MH/HH/CEV and Ductbanks								
Tunnels								

SEAL

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CLIENT

City of West Memphis

DRAWING ISSUE

DESCRIPTION	DATE
200% CS, 50 75% CONSTRUCTION DOCUMENT PROGRESS	

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EXPIRES 12/31/2026

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
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West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

TELECOM GENERAL NOTES AND LEGENDS

SHEET NUMBER

TN-000

CERTIFICATE OF AUTHORIZATION
HENDERSON ENGINEERS, INC.
No. 484
ARKANSAS ENGINEER

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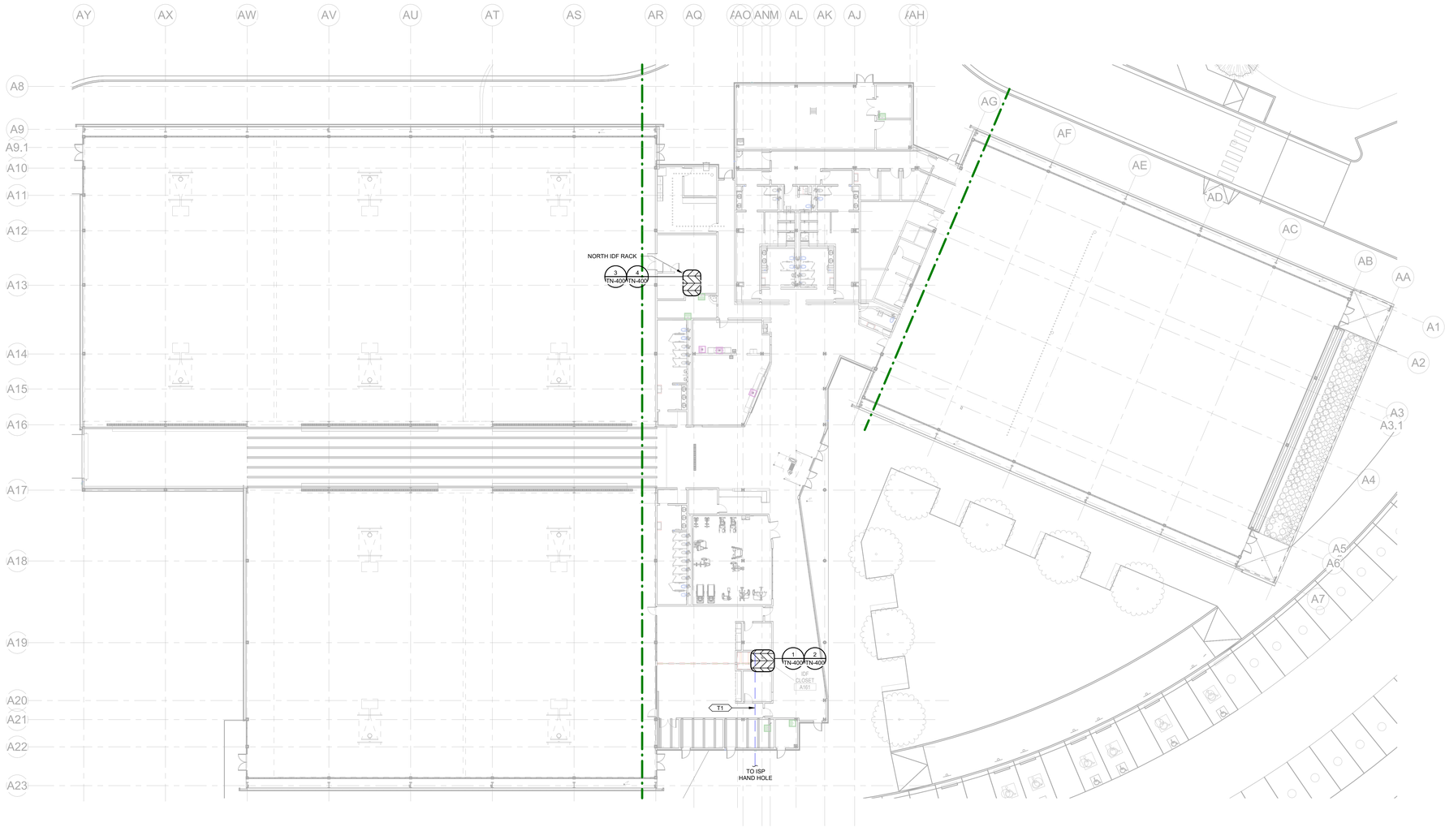

1 TELECOM LEVEL 01 PLAN - OVERALL
1/16" = 1'-0"

TELECOM GENERAL OVERALL PLAN NOTES:

1. REFER TO LEGEND FOR SYMBOLS AND GENERAL NEW WORK NOTES.
2. PATHWAYS SHOWN ON OVERALL PLANS ARE FOR REFERENCE ONLY. REFER TO SECTOR PLANS FOR ADDITIONAL INFORMATION.
3. REFER TO SECTOR PLANS FOR DEVICE PLACEMENT.

TELECOM PLAN NOTES

T1 PROVIDE (4) 4" CONDUITS ROUTED FROM ISP HAND HOLE TO MDF CLOSET A161. TELECOM CONDUITS SHALL ROUTE BELOW ELECTRICAL CONDUITS WHERE CONDUIT PATHWAYS INTERSECT. PROVIDE HAND HOLE PER DIVISION 27 SPECIFICATIONS. COORDINATE FINAL ROUTING WITH ALL OTHER TRADES PRIOR TO INSTALLATION. REFER TO 1/TN400 FOR CONDUIT STUB UP LOCATIONS IN MDF CLOSET A161.

SEAL

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	2025-05-16	75% CONSTRUCTION DOCUMENT PROGRESS

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JOB No.: WESCIT00561

SHEET TITLE

TELECOM LEVEL 01 PLAN - OVERALL

SHEET NUMBER

TN-101

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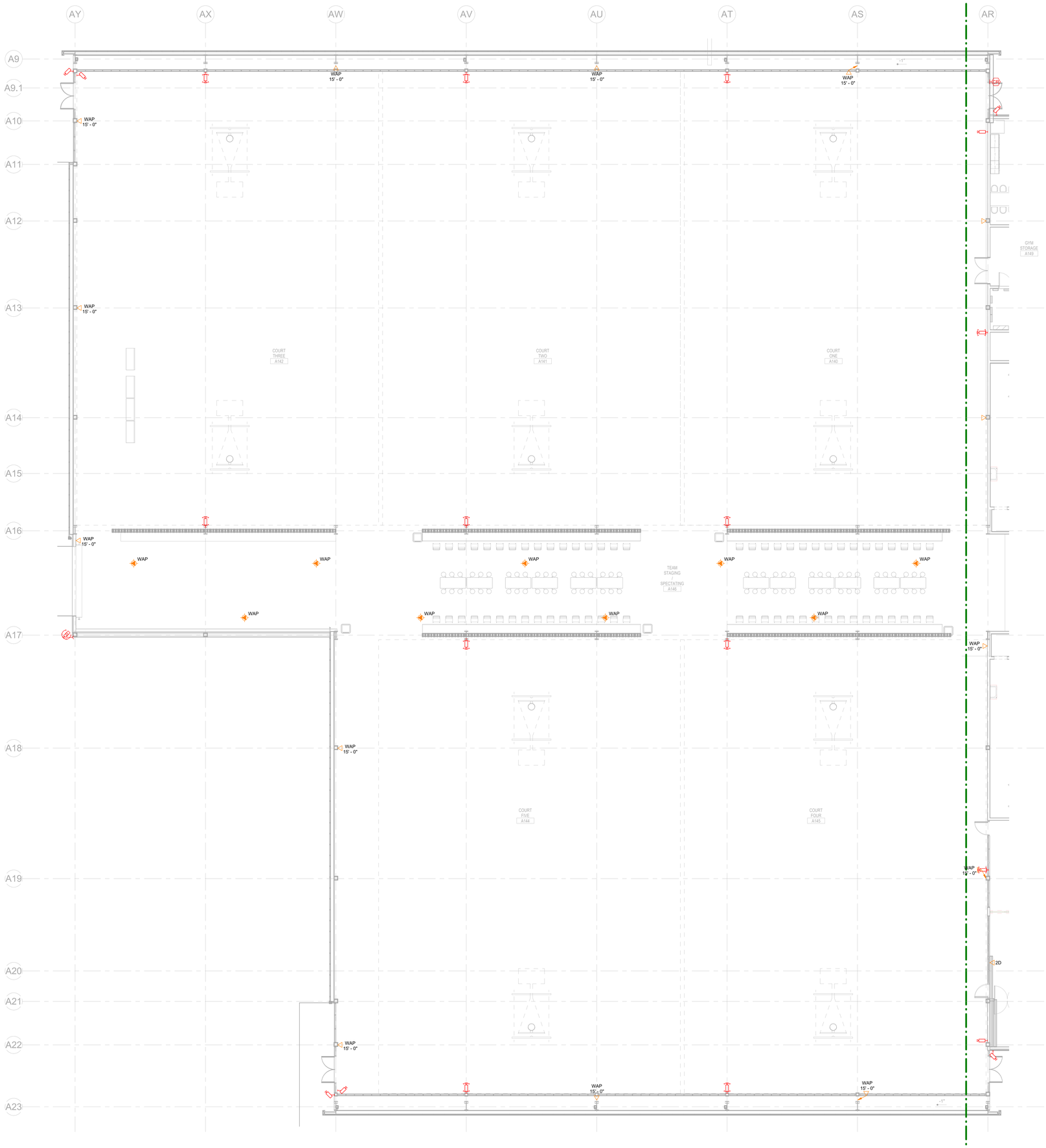

1 TELECOM LEVEL 01 PLAN - SECTOR A
1/8" = 1'-0"

TELECOM GENERAL PLAN NOTES:

1. REFER TO LEGEND FOR SYMBOLS AND GENERAL NEW WORK NOTES.
2. REFER TO TA-SERIES SHEETS FOR MOUNTING HEIGHTS AND ADDITIONAL DETAILS FOR AV DEVICES.
3. REFER TO TY-SERIES SHEETS FOR MOUNTING HEIGHTS AND ADDITIONAL DETAILS FOR SECURITY DEVICES.
4. REFER TO E-SERIES SHEETS FOR ADDITIONAL MULTI-SERVICE FLOOR BOX / POKE-THROUGH REQUIREMENTS. COORDINATE FINAL LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.
5. REFER TO TN-400 FOR PATHWAY RISER AND BACKBONE REQUIREMENTS.
6. COORDINATE FINAL LOCATIONS OF WIRELESS ACCESS POINTS (WAP) WITH ARCHITECT PRIOR TO INSTALLATION.
7. CONTRACTOR TO VERIFY ALL CABLE ROUTES ARE WITHIN 90 METER (295 FEET) DISTANCE LIMITATION PER DIVISION 27 SPECIFICATIONS.
8. PATHWAY SIZES ARE ESTIMATES BASED ON CURRENT DESIGN. CONTRACTOR SHALL VERIFY ACTUAL SIZE AND QUANTITY NEEDED BASED ON DIVISION 27 SPECIFICATIONS PRIOR TO INSTALLATION. ANY ADDITIONAL PATHWAYS REQUIRED SHALL BE PROVIDED AT NO COST TO OWNER.

TELECOM PLAN NOTES

SEAL

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TBAE REG. No. BR 4215

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2550004284
AR. CORPORATE NO. 484
EXPIRES 12/31/2026

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

TELECOM LEVEL 01 PLAN - SECTOR A

SHEET NUMBER

TN-101.A

FILE PATH: Autodesk Docs://City of West Memphis Recreation Center/WR_BIM/A_R&C_MEPFS.rvt
DATE PRINTED: 5/16/2025 5:01:17 PM

1 TELECOM LEVEL 01 PLAN - SECTOR B
1/8" = 1'-0"

TELECOM GENERAL PLAN NOTES:

1. REFER TO LEGEND FOR SYMBOLS AND GENERAL NEW WORK NOTES.
2. REFER TO TA-SERIES SHEETS FOR MOUNTING HEIGHTS AND ADDITIONAL DETAILS FOR AV DEVICES.
3. REFER TO TY-SERIES SHEETS FOR MOUNTING HEIGHTS AND ADDITIONAL DETAILS FOR SECURITY DEVICES.
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JOB INFO

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RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

TELECOM LEVEL 01 PLAN - SECTOR B

SHEET NUMBER

TN-101.B

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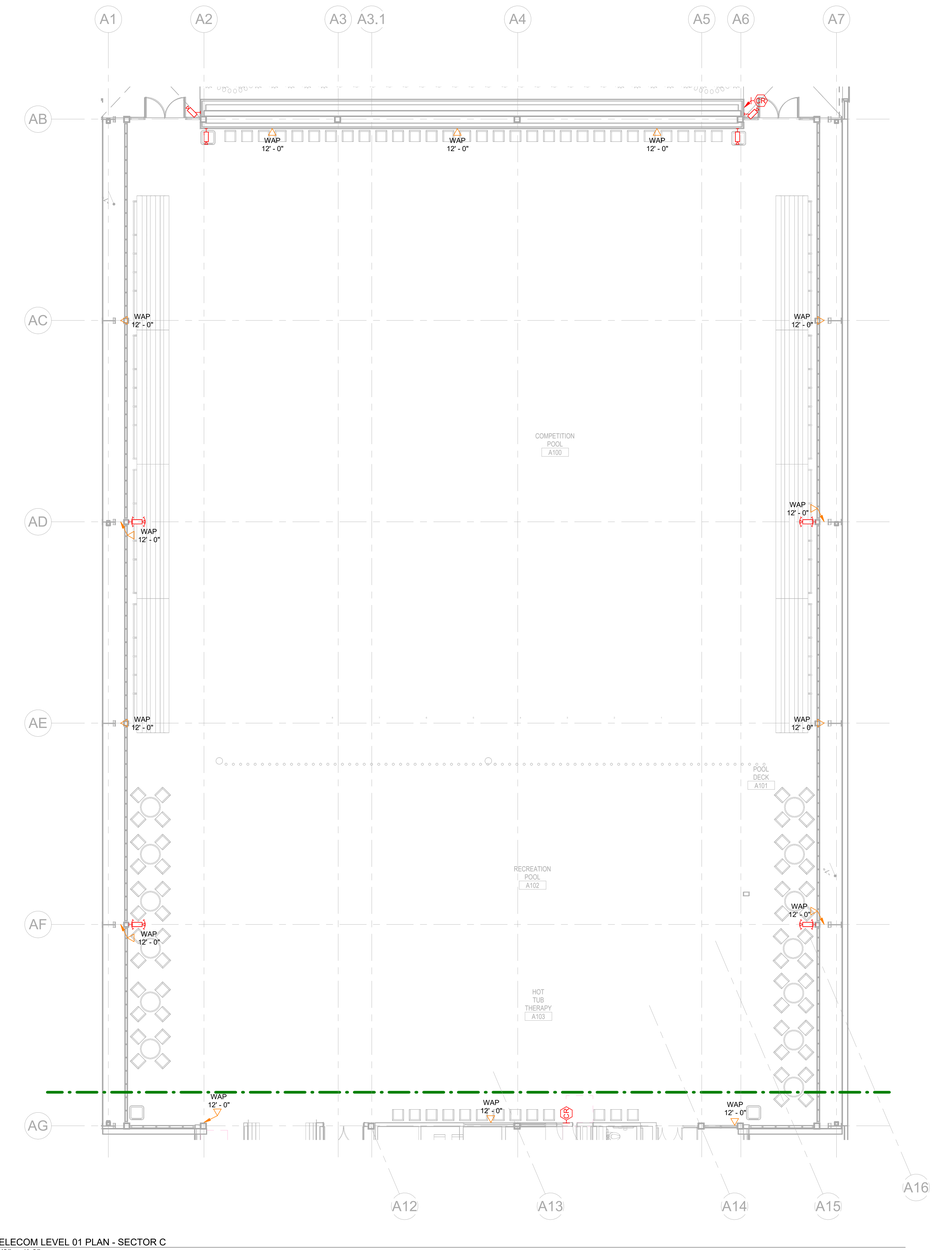

1 TELECOM LEVEL 01 PLAN - SECTOR C
1/8" = 1'-0"

TELECOM GENERAL PLAN NOTES:

1. REFER TO LEGEND FOR SYMBOLS AND GENERAL NEW WORK NOTES.
2. REFER TO TA-SERIES SHEETS FOR MOUNTING HEIGHTS AND ADDITIONAL DETAILS FOR AV DEVICES.
3. REFER TO TY-SERIES SHEETS FOR MOUNTING HEIGHTS AND ADDITIONAL DETAILS FOR SECURITY DEVICES.
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5. REFER TO TN-400 FOR PATHWAY RISER AND BACKBONE REQUIREMENTS.
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TELECOM PLAN NOTES

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JOB INFO

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ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

TELECOM LEVEL 01 PLAN - SECTOR C

SHEET NUMBER

TN-101.C

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DATE PRINTED: 3/18/2025 3:07:31 PM

TELECOM GENERAL ENLARGED PLAN NOTES:

1. REFER TO LEGEND FOR SYMBOLS AND GENERAL NEW WORK NOTES.
2. REFER TO SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION ON VARIOUS EQUIPMENT WITHIN THE TELECOM ROOMS.
3. [RACK LAYOUTS SHOWN FOR REFERENCE ONLY. VERIFY EQUIPMENT QUANTITIES AND COORDINATE LAYOUT OF ALL RACKS AND COMPONENTS WITH OWNER PRIOR TO ORDERING EQUIPMENT AND FINALIZING ROOM LAYOUT.]
4. PATHWAY SIZES ARE ESTIMATES BASED ON CURRENT DESIGN. CONTRACTOR SHALL VERIFY ACTUAL SIZE AND QUANTITY NEEDED BASED ON DIVISION 27 SPECIFICATIONS PRIOR TO INSTALLATION. ANY ADDITIONAL PATHWAYS REQUIRED SHALL BE PROVIDED AT NO COST TO OWNER.

TELECOM PLAN NOTES

T2 PROVIDE (4) 4" CONDUITS FOR INTERNET SERVICE PROVIDER (ISP) CABLING. REFER TO TN101 FOR FURTHER INFORMATION.

T7 PRIMARY BONDING BUS BAR (PBB) MOUNTED AT 7'-0" AFF. SHOWN FOR REFERENCE ONLY. PROVIDED BY DIVISION 26 CONTRACTOR.

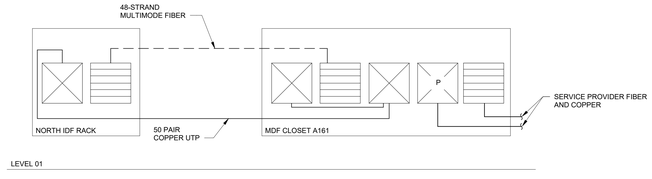
T8 PROVIDE TELECOMMUNICATIONS BACKBOARD. GRADE A/C 3/4" PLYWOOD BACKBOARD FIRE RATED (UNPAINTED) STARTING AT 4" AFF AND EXTEND UPWARDS 8'-0" ON ALL WALLS AS INDICATED ON DRAWINGS. THE A SIDE SHALL BE EXPOSED TO THE INTERIOR OF THE ROOM AND THE C SIDE PLACED AGAINST THE BUILDING STRUCTURE.

T9 12" LADDER RUNWAY TO BE TRAPEZE AND WALL MOUNTED WITH 6" CABLE RETAINER POSTS. CENTER HUNG RUNWAY IS NOT PERMITTED.

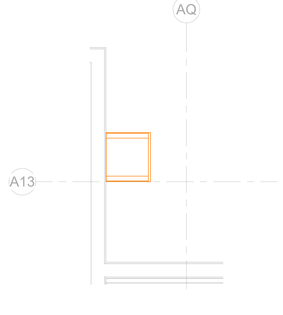
T11 PROVIDE #RU WALL-MOUNTED IT RACK. REFER TO TELECOMMUNICATIONS DIVISION 27 SPECIFICATIONS FOR APPROVED MANUFACTURERS.

T17 SECURITY PANEL SHOWN FOR REFERENCE ONLY. PROVIDED BY DIVISION 28 CONTRACTOR.

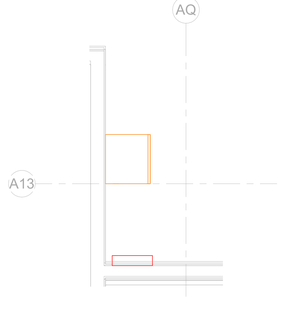
T22 PROVIDE DATA CONNECTION FOR SECURITY CONTROL PANEL. REFER TO TY-SERIES FOR FURTHER INFORMATION.



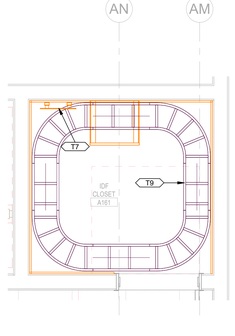
5 RISER DIAGRAM - BACKBONE CABLES
NTS



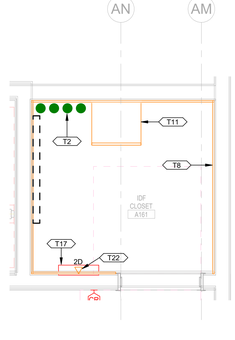
4 TELECOM ENLARGED RCP - NORTH IDF
1/2" = 1'-0"



3 TELECOM ENLARGED PLAN - NORTH IDF
1/2" = 1'-0"



2 TELECOM ENLARGED RCP - IDF CLOSET A161
1/2" = 1'-0"



1 TELECOM ENLARGED PLAN - IDF CLOSET A161
1/2" = 1'-0"

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AR. CORPORATE NO. 484
EXPIRES 12/31/2026

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

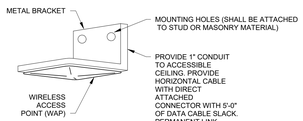
JOB No.: WESCIT00561

SHEET TITLE

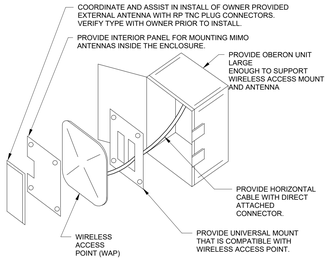
TELECOM ENLARGED PLANS

SHEET NUMBER

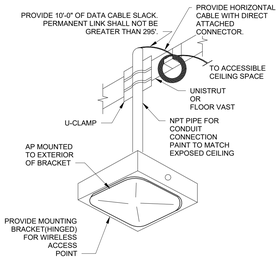
TN-400



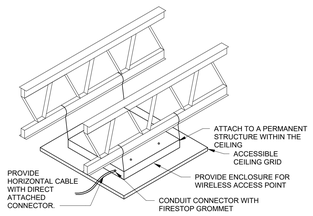
SURFACE MOUNT FOR WALL



WAP ENCLOSURE FOR WALL



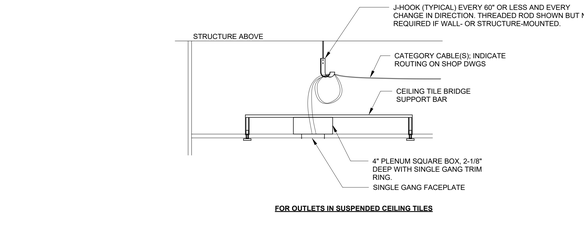
WAP MOUNTING BRACKET FOR EXPOSED CEILING



WAP ENCLOSURE FOR ACCESSIBLE CEILING

SURFACE MOUNTED WAP FOR HARD CEILING

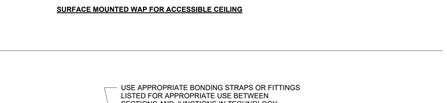
SURFACE MOUNTED WAP FOR EXPOSED CEILING



SURFACE MOUNTED WAP FOR ACCESSIBLE CEILING

6 WIRELESS ACCESS POINT INSTALLATION
NTS

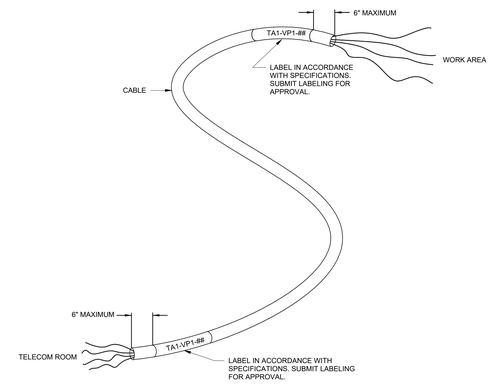
FOR OUTLETS IN SUSPENDED CEILING TILES



FOR OUTLETS IN GYPSUM BOARD CEILINGS

11 CEILING COMM OUTLET
NTS

FOR OUTLETS IN EXPOSED TO STRUCTURE AREAS



10 LABELING OF HORIZONTAL CABLE
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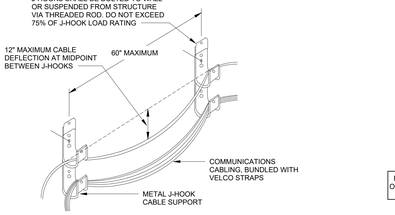

9 J-HOOK PATHWAYS
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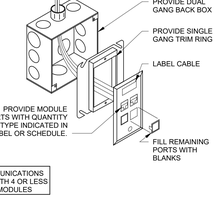

8 SINGLE GANG COMM OUTLET
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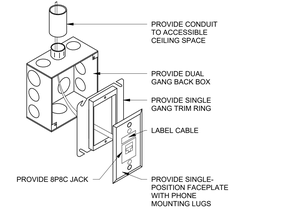

7 WALL PHONE OUTLET
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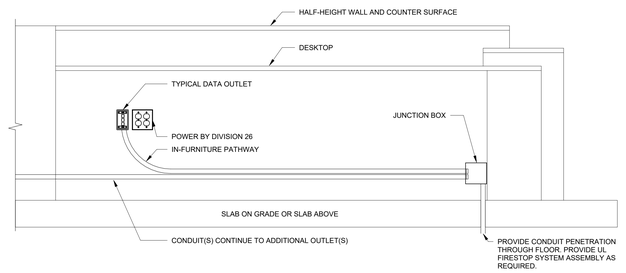

5 SYSTEMS FURNITURE
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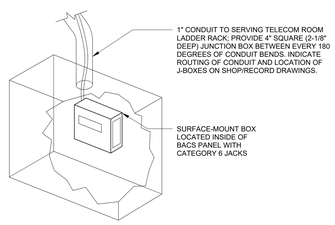
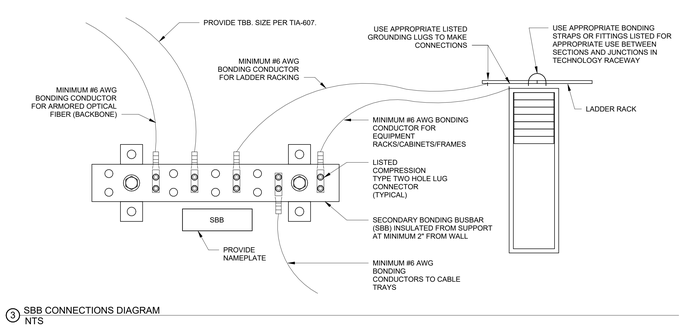
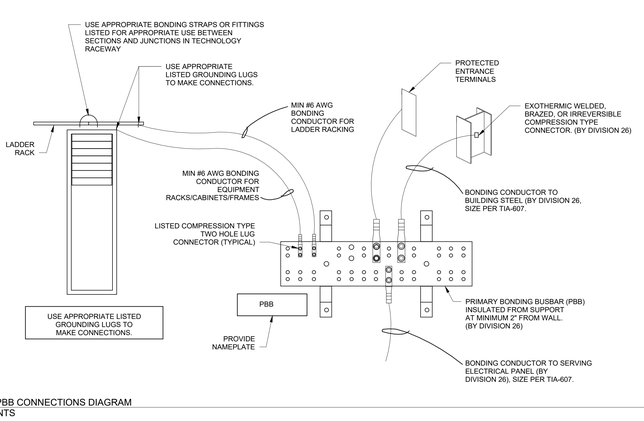


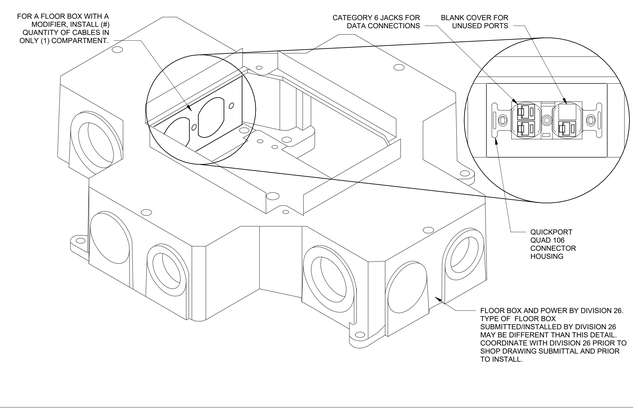
4 COMM OUTLET FOR CONTROL PANEL ENCLOSURE
NTS



3 SBB CONNECTIONS DIAGRAM
NTS



2 PBB CONNECTIONS DIAGRAM
NTS



1 FLOOR BOX
NTS

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JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

TELECOM DETAILS

SHEET NUMBER

TN-500

Division 27: GENERAL COMMUNICATIONS REQUIREMENTS

1. GENERAL INSTRUCTIONS

A. GENERAL REQUIREMENTS

All requirements under Division 01 and the general and supplementary conditions of these specifications apply to this section and division. Where the requirements of this section and division exceed those of Division 01, this section and division take precedence. Become thoroughly familiar with all its contents as to requirements that affect this division, section, or both. Work required under this division includes all material, equipment, appliances, transportation, services, and labor required to complete the entire system as required by the drawings and specifications, or reasonably inferred to be necessary to facilitate the function of each system as implied by the design and the equipment specified.

The specifications and drawings for the project are complementary, and any portion of work described in one shall be provided as if described in both. In the event of discrepancies, notify the Engineer and request clarification prior to proceeding with the Work involved.

Drawings are graphic representations of the work upon which the contract is based. They show the materials and their relationship to one another, including sizes, shapes, locations, and connections. They convey the scope of work, indicating the intended general arrangement of the systems without showing all of the exact details as to elevations, offsets, control lines, and other installation requirements. Use the drawings as a guide when laying out the work and to verify that materials and equipment will fit into the designated spaces, and which when installed per manufacturers' requirements, will ensure a complete, coordinated, satisfactory, and properly operating system.

B. DEFINITIONS

Division: References contained in this specification follow the numbering system defined in the Construction Specifications Institute (CSI) MasterFormat 2004 Edition, Specification Divisions 01 through 13 provided with this project may reference the CSI MasterFormat 1995 Edition. The corresponding division references between the 2004 Edition and 1995 Edition are as follows:

2004 Edition	1995 Edition
1. Division 21 – Fire Suppression	Division 15
2. Division 22 – Plumbing	Division 15
3. Division 23 – HVAC	Division 15
4. Division 26 – Electrical	Division 16
5. Division 27 – Communications	Division 16
6. Division 28 – Electronic Safety and Security	Division 16

Furnish: "to supply and deliver to the project site, ready for unloading, unpacking, assembling, installing, and similar operations."

Install: "to perform all operations at the project site including, but not limited to, the actual unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, testing, commissioning, starting up and similar operations, complete, and ready for the intended use."

Provide: "to furnish and install,"

Furnished by Owner (or Owner-Furnished) or Furnished by Others: "an item furnished by the Owner or under other divisions or contracts, and installed under the requirements of this division, complete, and ready for the intended use, including all items and services incidental to the work necessary for proper installation and operation. Include the installation under the warranty required by this division.

Contract Administrator: Where referenced in this Division, "Contract Administrator" is the primary liaison between the Owner and the Contractor. Specifically, for this project this is "the Architect." "the Owner's Representative" "the Engineer" "the Construction Manager" "Henderson Building Solutions".

Design Consultant: Where referenced in this Division, "Design Consultant" is the Design Professional for the Work under this Division, and is a Consultant to, and an authorized representative of, the Contract Administrator, as defined in the General and/or Supplementary Conditions. When used in this Division, it means increased involvement by, and obligations to, the Design Professional, in addition to involvement by, and obligations to, the "Contract Administrator".

AHJ: The local code and/or inspection agency (Authority) Having Jurisdiction over the Work.

NRTL: Nationally Recognized Testing Laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA), and acceptable to the AHJ over this project. Nationally recognized testing laboratories operate under standards intended only to represent the characteristics required and are not intended to restrict the use of other NRTLs that are acceptable to the AHJ and standards that meet the specified criteria.

Substitution: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor. Substitutions include Value Engineering proposals.
1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

The terms "approved equal", "equivalent", or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified". The term "approved" shall mean labeled, listed, certified, or all three, by an NRTL, and acceptable to the AHJ over this project.

C. PRE-BID SITE VISIT

Prior to submitting bid, visit the site of the proposed work and become fully informed as to the conditions under which the work is to be done. Failure to comply with this requirement shall not be considered sufficient justification to request or obtain extra compensation over and above the contract price.

D. MATERIAL AND WORKMANSHIP

Provide new material, equipment, and apparatus under this contract unless otherwise stated herein, of best quality normally used for the purpose in good commercial practice, and free from defects. Model numbers listed in the specifications or shown on the drawings are not necessarily intended to designate the required trim, written descriptions of the trim govern model numbers.

Provide markings or a nameplate for all material and equipment identifying the manufacturer and providing sufficient reference to establish quality, size, and capacity. All workmanship shall be of the finest possible by experienced mechanics of the proper trade. In general, provide the following quality grade(s) for all materials and equipment.

Provide all hoists, scaffolds, staging, runways, tools, machinery, and equipment required for the performance of the communication work. Store and maintain material and equipment in clean condition, and protected from weather, moisture, and physical damage.

Furnish only material and equipment that are listed, labeled, certified, or all three, by an NRTL whenever any listing or labeling exists for the types of material and equipment specified.

E. MANUFACTURERS

In other articles where lists of manufacturers are introduced, subject to compliance with requirements, provide products by one of the manufacturers specified.

Where a list is provided, manufacturers are listed alphabetically and not in accordance with any ranking or preference.

Where manufacturers are not listed, provide products subject to compliance with requirements from manufacturers that have been actively involved in manufacturing the specified product for no less than 5 years.

F. COORDINATION

Coordinate all work with other divisions and trades so that various components of the systems are installed at the proper time, fit the available space, and allow proper service access to those items requiring maintenance. Components which are installed without regard to the above shall be relocated at no additional cost to the Owner.

Unless otherwise indicated, the General Contractor shall provide chases and openings in building construction required for installation of the systems specified herein. Contractor shall furnish the General Contractor with information where chases and openings are required. Contractor shall keep informed as to the work of other trades engaged in the construction of the project and shall execute work in a manner as to not interfere with or delay the work of other trades.

Figured dimensions shall be taken in preference to scale dimensions. Contractor shall take his own measurements at the building, as variations may occur. Contractor shall be held responsible for errors that could have been avoided by proper checking and inspection.

Provide materials with trim that will properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers listed in the specifications or shown on the drawings are not intended to designate the required trim.

Make all offsets required to clear equipment, beams, and other structural members, and to facilitate concealing raceways in the manner anticipated in the design. Provide materials with trim that will fit properly the types of ceiling, wall, or floor finishes actually installed.

G. ORDINANCES AND CODES

Work performed under this contract shall, at a minimum, be in conformance with applicable national, state and local codes having jurisdiction. Equipment furnished and associated installation work performed under this contract shall be in strict compliance with current applicable codes adopted by the local AHJ, including any amendments and standards as set forth by the following:
1. National Fire Protection Association (NFPA)
2. Underwriters Laboratories (UL)
3. Occupational Safety and Health Administration (OSHA)
4. American National Standards Institute (ANSI)
5. American Society of Testing Materials (ASTM)
6. Rules and regulations of public utilities and municipal departments affected by connection of services.
7. Other national standards and codes where applicable.

Where the contract documents exceed the requirements of the referenced codes, standards, etc., the contract documents shall take precedence. Where conflicts between various codes, ordinances, rules, and regulations exist, comply with the most stringent.

Promptly bring all conflicts observed between codes, ordinances, rules, regulations, referenced standards, and these documents to the attention of the Contractor Administrator and Engineer for final resolution. Contractor will be held responsible for any violation of the law.

Procure and pay for permits and licenses required for the accomplishment of the work herein described. Where required, obtain, pay for, and furnish certificates of inspection to Owner. Provide all safety lights, guards, and warning signs required for the performance of the work and for the safety of the public.

H. PROTECTION OF EQUIPMENT AND MATERIALS

Store and protect from damage equipment and materials delivered to job site. For materials and equipment susceptible to changing weather conditions, dampness, or temperature variations, store inside in conditioned space. For materials and equipment not susceptible to deterioration, cover with waterproof, tear-resistant, heavy tarp or polyethylene plastic as required to protect from plaster, dirt, paint, water, or physical damage. Equipment and material damaged by construction activities shall be rejected, and Contractor shall furnish new equipment and material of a like kind at his own expense.

Keep premises broom clean of foreign material created during work performed under this contract. Conduit, equipment, etc. shall have a neat and clean appearance at the termination of the work.

Plug or cap open ends of conduits while stored and installed during construction when not in use to prevent the entrance of debris into the systems.

I. SUBSTITUTIONS

Materials, products, equipment, and systems described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution. The bid shall include only the products from manufacturers specifically named in the drawings and specifications. To request a substitution, request the Substitution Request Form from the Contract Administrator Engineer. Complete and send the Substitution Request From for each material, product, equipment, or system that is proposed to be substituted. The burden of proof of the merit of the proposed substitution is upon the proposer.

Unless stated otherwise in writing to the Engineer by the Contractor, Contractor warrants to the Engineer, Contract Administrator, and Owner the following:
1. Proposed substitution has been fully investigated and determined to meet or exceed the specified Work in all respects unless stated otherwise in the substitution request.
2. Proposed substitution is consistent with the Contract Documents and will produce indicated results, including functional clearances, maintenance service, and sourcing of replacement parts.
3. Proposed substitution has received necessary approvals of authorities having jurisdiction.
4. Same warranty will be furnished for proposed substitution as for specified Work.
5. If accepted substitution fails to perform as required, Contractor shall replace substitute material or system with that originally specified and bear costs incurred thereby.
6. Coordination, installation and changes in the Work as necessary for accepted substitution will be complete in all respects.

No substitutions will be considered unless the Substitution Request Form is completed and attached with the appropriate substitution documentation. No substitution will be considered prior to receipt of bids unless written request for approval to bid has been received by the Engineer at least ten (10) calendar days prior to the date for receipt of bids.

If the proposed substitution is approved prior to receipt of bids, such approval will be stated in an addendum. Bidders shall not rely upon approvals made in any other way. Verbal approval will not be given. No substitutions will be considered after the contract is awarded unless specifically provided in the contract documents.

Provide factory generated point-by-point calculations for all exterior light fixtures (photometric files supplied so the engineer can generate a point-by-point do not suffice for the point-by-point calculations). Provide interior point-by-point calculations at the discretion of the engineer.

J. SUBMITTALS

Assemble and submit for review shop drawings, material lists, manufacturer product literature for equipment to be furnished, and items requiring coordination between contractors under this contract. Provide submittals in sufficient detail so as to demonstrate compliance with these Contract Documents and the design concept. Prior to transmitting submittals, verify that the equipment submitted is mutually compatible with and suitable for the intended use, will fit the available space, and maintain manufacturer recommended service clearances. If the size of equipment furnished makes necessary any change in location or configuration, submit a shop drawing showing the proposed layout.

Transmit submittals as early as required to support the project schedule. Allow two weeks for Engineer review time, plus to/from mailing time via the Contract Administrator, plus a duplication of this time for resubmittals, if required. Only resubmit those sections requested for resubmittal.

Submittals shall contain the project name, applicable specification section, submittal data, equipment identifications acronym as used on the drawings, and the Contractor's stamp. The stamp shall certify that the submittal has been checked by the Contractor, complies with the drawings and specifications, and is coordinated with other trades. Manufacturer product literature shall include shop drawings, product data, performance sheets, samples, and other submittals required by this division. Highlight, mark, list, or indicate the materials, performance criteria, and accessories that are being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.

Submittals and shop drawings shall not contain firm name, logo, the seal, or signature of the Engineer. They shall not be copies of the work product of the Engineer. If the Contractor desires to use elements of such product, refer to paragraph "Electronic Drawing Files" for procedures to be used.

Separate submittals according to individual specification sections. Illegible submittals will be rejected and returned without review. Catalog data shall be properly identified, indexed and tabbed. A hard copy format or a single PDF file for each specification section is acceptable.
Each item or model number shall be clearly marked, and accessories indicated. Label the catalog data with the equipment identification acronym or number as used on the drawings and include performance curves, capacities, sizes, weights, materials, finishes, wiring diagrams, electrical requirements and deviations from specified equipment or materials. Mark out inapplicable items. Shop drawings will be returned without review if the above mentioned requirements are not met.
Provide the quantity of submittals required by Division 01. If not indicated and hard-copy sets are provided, submit a minimum of six (6) copies. Refer to Division 01 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 01. Contractor shall notify the Contract Administrator and Engineer that the submittals have been posted. If electronic submittal procedures are not defined in Division 01, Contractor shall include the website, user name, and password information needed to access the submittals. For submittals sent by e-mail, Contractor shall copy the designated representatives of the Contract Administrator and Engineer. Contractor shall allow for the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the submittal.

The checking and subsequent acceptance of submittals by the Engineer and/or Contract Administrator shall not relieve the Contractor from responsibility for deviations from the drawings and specifications, errors in dimensions, details, sizes of equipment, or quantities, omissions of components or fittings, coordination of electrical requirements, and not coordinating items with actual building conditions and adjacent work. Contractor shall request and secure written acceptance from the Engineer and Contract Administrator prior to implementing any deviation.

K. ELECTRONIC DRAWING FILES

In preparation of shop drawings or record drawings, Contractor may, at his option, obtain electronic drawing files in AutoCAD or DXF format on CD-ROM disk, DVD disk, flash drive, or direct download, as desired, from the Engineer for a shipping and handling fee of $200 for a drawing set up to 12 sheets and $15 per sheet for each additional sheet. Contact the Contract Administrator for written authorization and Engineer for the necessary agreement form and to specify shipping method and drawing format. In addition to payment, the written authorization from the Contract Administrator and release agreement form from the Engineer must be received before electronic drawing files will be sent.

L. RECORD DRAWINGS (AS-BUILT DRAWINGS)

During progress of the work in this division, Contractor shall maintain an accurate record of all changes made during the installation of the system. Upon completion of the work, accurately transfer all record information to three identical sets of the approved shop drawings. Insert one set into each copy of the manual described below.

See Division 01 and General Conditions for additional information.

L. RECORD DRAWINGS (AS-BUILT DRAWINGS)

During progress of the work in this division, Contractor shall maintain an accurate record of all changes made during the installation of the system. Upon completion of the work, accurately transfer all record information to three identical sets of the approved shop drawings. Insert one set into each copy of the manual described below.

See Division 01 and General Conditions for additional information.

M. OPERATION AND MAINTENANCE INSTRUCTIONS

During the course of construction, collect and compile a complete brochure of equipment furnished and installed on this project. Include operational and maintenance instructions, manufacturer's catalog sheets, wiring diagrams, parts lists, approved submittals and shop drawings, warranties, and descriptive literature as furnished by the equipment manufacturer. Include an inside cover sheet that lists the project name, date, Owner, Contract Administrator, Engineer, General Contractor, Sub-Contractor, and an index of contents.

Submit three copies of literature bound in approved binders with index and tabs separating equipment types to the Contract Administrator, for Engineer's review, at the termination of the work. Paper clips, staples, rubber bands, loose-leaf binding, and mailing envelopes are not considered approved binders. Final approval of systems installed under this contract shall be withheld until this equipment brochure is received and deemed complete by the Contract Administrator and Engineer. Instruct workmen to save required literature shipped with the equipment itself for inclusion in this brochure.

Include Record Drawings as described above.

Refer to Division 01 for acceptance of electronic manuals for this project. For electronic manuals, refer to paragraph "Submittals" for requirements.

N. TRAINING

At a time mutually agreed upon between the Owner and Contractor, provide the services of a factory trained and authorized representative to train Owner's designated personnel on the operation and maintenance of the equipment provided for this project.

Provide training to include, but not be limited to, an overview of the system and/or equipment as it relates to the facility as a whole; operation and maintenance procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance and appropriate operator intervention; and review of data included in the operation and maintenance manuals.

Submit a certification letter to the Contract Administrator stating that the Owner's designated representative has been trained as specified herein. Letter shall include date, time, attendees and subject of training. The Contractor and the Owner's representative shall sign the certification letter indicating agreement that the training has been provided.

Schedule training with Owner with at least 7 days advance notice.

O. WARRANTIES

Warrant each system and each element thereof against all defects due to faulty workmanship, design, or material for a period of 12 months from date of Substantial Completion, unless specific items are noted to carry a longer warranty in these construction documents or manufacturer's standard warranty exceeds 12 months. Remedy all defects occurring within the warranty period(s) as stated in the General Conditions and Division 01.

Warranties shall include labor and material, including travel expenses. Make repairs or replacements without any additional costs to the Owner, and to the satisfaction of the Owner, Contract Administrator, and Engineer.

Perform the remedial work promptly, upon written notice from the Engineer or Owner.

At the time of Substantial Completion, deliver to the Owner all warranties, in writing and properly executed, including term limits for warranties extending beyond the one year period and any actions the Owner must take in order to maintain warranty status. Each warranty instrument shall be addressed to the Owner and state the commencement date and term.

2. GENERAL MATERIALS AND INSTALLATION

A. BUILDING OPERATION

Comply with the schedule of operations as outlined in the architectural portions of this specification. Building shall be in operation [at all times][during normal workday hours]. Accomplish work requiring interruption of building operation at a time when the building is not in operation and only with written approval of building Owner and/or tenant. Coordinate interruption of building operation with the Owner and/or tenant a minimum of seven (7) days in advance of work.

B. EXISTING EQUIPMENT REUSE AND REMOVAL

Provide all demolition of existing communications systems and new communications system modifications required because of building remodeling, as noted on the Drawings, or necessary for proper operation and new construction. Remove all abandoned cables and wiring and conduit above accessible ceilings and ventilation shafts.

Remove all existing cabling, exposed conduits, and other communications installations not reused prior to substantial completion of the work.

Existing raceways may be reused if their points of terminations are suitable; if they are clean inside with no evidence of rust or burrs; if free from cracks, flattened sections, or sharp bends; and, if suitably located to avoid conflicts with other trades or installations. Carefully "fish" all existing conduits reused under this contract to remove all debris and obstructions, and swab until all moisture is removed.

Cut, patch, and repair where required for new communications installations, and patch and repair all surface damage resulting from this work. Cut flush with the floor and plug at both ends raceways stubbed above the floor and not used at substantial completion of the work.

Relocate all existing communications systems required to be in operation at substantial completion of the contract, if required, as a result of work included under this contract, even if not specifically indicated in the drawings or specifications.

Existing service entrance conductors and feeder conductors may be reused if all of the following conditions are met:
1. Conductor sizes meet or exceed the sizes specified on the drawings.
2. Conductor insulation is in good or better condition.
3. Conductor insulation is the correct type for the conditions.

C. EXCAVATION AND BACKFILLING

Perform excavation and backfill required for installation of underground work under this contract. Trenches shall be of sufficient width. Crib or brace trenches to prevent cave-in or settlement. Do not excavate trenches close to columns and walls of new building without prior consultation with the Contract Administrator. Use pumping equipment if required to keep trenches free of water. Backfill trenches in maximum 6-inch layers of well tamped dry earth in a manner to prevent future settlement.

Excavation as specified herein shall be classified as common excavation. Common excavation shall comprise the satisfactory removal and disposition of material of whatever substances and of every description encountered, including rock, if any, within the limits of the work as specified and shown on the drawings. Excavation shall be performed to the lines and grades indicated on the drawings. Dispose of excavated materials that are considered unsuitable for backfill, and surplus of excavated material, which is not required for backfill, all to the satisfaction of the Engineer.

D. COINCIDENTAL DAMAGE

Repair streets, sidewalks, drives, paving, walls, finishes, and other facilities damaged in the course of this Work. Repair materials shall match existing construction. [Repair materials shall generally match existing construction.] Repair work shall meet all requirements of the Owner, local authorities having jurisdiction, and meet the satisfaction of the Contract Administrator. Repair work shall be thoroughly first class. [Conform to requirements of Division 02 of this specifications.]

E. CUTTING AND PATCHING

Conform to the requirements in Division 01. Cut walls, floors, ceilings, and other portions of the facility as required to install work under this division. Obtain permission of the Contract Administrator prior to cutting. Do not cut or disturb structural members without prior approval from the Contract Administrator. Cut holes as small as possible. Patch walls, floors, and other portions of the facility as required by work under this division. Patching shall match the original material and construction including fire ratings, if applicable. Repair and refinish areas disturbed by work to the condition of adjoining surfaces in a manner satisfactory to the Contract Administrator.

F. ROUGH-IN

Coordinate without delay all roughing-in with other divisions. Conceal all conduit and raceways except in unfinished areas and where otherwise indicated on the drawings.

G. CONCRETE BASES

Provide concrete bases (e.g., housekeeping pads) for equipment where indicated on the drawings and as specified herein. Concrete bases shall have chamfered edges. Size of base shall be a minimum of 4 inches greater than the footprint of the equipment that it is supporting and shall have a minimum height of 3-1/2 inches.

Construct equipment bases of a minimum 28-day, 4000-psi concrete conforming to American Concrete Institute Standard Building Code for Reinforced Concrete (ACI 318) and the latest applicable recommendations of the ACI standard practice manual. Concrete shall be composed of cement conforming to ASTM C 150 Type I, aggregate conforming to ASTM C33, and potable water. Exposed exterior concrete shall contain 5 to 7 percent air entrainment.

Unless otherwise specified or shown on the structural drawings, reinforce equipment bases with No. 4 reinforcing bars conforming to ASTM A615 or 6x6 – W2.9 x W2.9 welded wire mesh conforming to ASTM A185. Place reinforcing bars 24 inches on center with a minimum of two bars each direction.

Provide galvanized anchor bolts for equipment placed on concrete bases or on concrete slabs. Anchor bolts size, number, and placement shall be as recommended by the manufacturer of the equipment.

H. SUPPORT SYSTEMS

Steel Slotted Support Systems (Slotted Channel): Comply with MFMA-3, factory-fabricated components for field assembly; 12-gauge, 1-5/8-inch by 1-5/8-inch.

Finishes:
1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-3.
2. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane or polyester coating applied according to MFMA-3.
3. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-3.
4. Stainless Steel: Type 304, per ASTM A240.

Aluminum Slotted Support Systems (Slotted Channel): Comply with MFMA-3, Type 6063-T6, per ASTM B221; factory-fabricated components for field assembly; 12-gauge, 1-5/8-inch by 1-5/8-inch.

Manufacturers: Cooper B-Line, ERICO International, Hilti, Power-Strut, Thomas and Betts, or Unistrut.

Field Fabrication:

Where field cutting of standard lengths of channel are required, make cuts straight and perpendicular to manufactured surfaces.

For field-cut or damaged surfaces of coated channels, dress cut ends, damaged surfaces, or both, with an abrasive material (e.g., file, grinding stone, or similar) and cleanser to remove oils, rust, sharp edges, and shards.

For channel with a factory-applied coating, re-finish cut edges with a coating compatible with the factory finish and as recommended by the manufacturer (e.g., manufacturer's touch-up paint or zinc-rich cold-galvanizing compound, as applicable).

I. ACCESS DOORS

Provide access doors for all concealed equipment where indicated or as required, except where above lay-in ceilings. Access doors shall be adequately sized for the devices served with a minimum size of 18 inches x 18 inches. Access doors must be of the proper construction for the type of construction in which it is installed. Obtain Architect's approval of type, size, location and color before ordering. Provide factory-fabricated and assembled units, complete with attachment devices and fasteners ready for installation, concealed hinges, flush screwdriver-operated cam lock, and anchor straps. Provide access doors manufactured by: Bar-Co, J.L. Industries, Karp Associates, Milcor, Nystrom Building Products, Wade, or Zum.

J. PENETRATIONS

Coordinate sleeve selection and application with selection and application of fire-stopping specified in Division 07 section "Through-Penetration Firestop Systems."

Roofs:
1. Coordinate all roof penetrations with Engineer, Owner, and as applicable, the roofing contractor providing a roof warranty.

2. Keep all raceway penetrations within mechanical equipment curbs wherever possible. Coordinate with Division 01.

3. Flash and counterflash all openings through roof, and/or provide pre-fabricated molded seals compatible with the roof construction installed, or as required by the Engineer, Owner, or roofing contractor. All roof penetrations shall be leaktight at the termination of the work and shall not void any new or existing roof warranties.

Walls and Floors:
1. Steel Pipe Sleeves for Raceways and Cables: ASTM A53/A53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends, and drip rings.

2. Cast-Iron Pipe Sleeves for Raceways and Cables: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

3. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052 [0.138] inch thickness and of length to suit application.

B. FIRESTOPPING

Sealants and accessories shall have fire-resistance ratings indicated, as established by testing identical assemblies in accordance with UL 2079 or ASTM E 814, or other NRTL acceptable to AHJ.

Manufacturers: Hilti, RectorSeal, Specified Technologies Inc., United States Gypsum Company, or 3M corp.

Through and Membrane Penetration Firestopping Systems Product Schedule: Provide UL listing, location, wall or floor rating, and installation drawing for each penetration fire stop system.

Where project conditions require modification to qualified testing and inspecting agency's illustrations for a particular firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Include qualifications data for testing agency.

C. EQUIPMENT FURNISHED BY OTHERS

Provide necessary equipment and accessories that are not provided by the equipment supplier or Owner to complete installation of equipment furnished by others in locations as indicated on the drawings, specified herein, or both. Equipment and accessories not provided by the equipment supplier may include, but not be limited to, flexible cords and plugs as required for proper operation of the complete system, in accordance with the manufacturers' instructions.

Contractor shall be responsible for correct rough-in dimensions, and verify them with Contract Administrator and/or equipment supplier prior to rough-in and service installations.

D. SYSTEM TESTING AND ADJUSTING

Adjust, align, and test all communications equipment on this project provided under this division and all communications equipment furnished by others for installation or wiring under this division for proper operation.

Test all systems and equipment according to the requirements in NETA ATS (latest edition) and all additional requirements specified in following sections.

Maintain the following on the project premises at all times: a true RMS reading voltmeter, a true RMS reading ammeter, and a megohmmeter insulation resistance tester. Provide test data readings as requested or as required by the Engineer.

E. SEISMIC CONTROLS FOR MEPT SYSTEMS

Seismic Protection Criteria:
Risk/Occupancy Category:	I, II or III [IV]
Site Soil Category:	Contractor's Seismic Engineer To Determine.
Seismic Design Category:	Contractor's Seismic Engineer To Determine.
Component Importance Factor:	Determined From ASCE 7-2010.

The Contractor shall be responsible for determining the requirements for seismic bracing of mechanical, electrical, and plumbing systems. Seismic protection criteria used to determine seismic bracing requirements of all mechanical, electrical, and plumbing systems shall be determined by the applicable code adopted in the project jurisdiction. Where not already determined within the contract documents, the Contractor shall be responsible for contracting a licensed professional engineer to establish building site class, seismic design category, seismic zone, or any other criteria necessary to determine the requirements for seismic bracing on mechanical, electrical, and/or plumbing systems.

Seismic bracing of fire protection systems shall be installed in strict accordance with the provisions of NFPA 13 (2010 or later edition).

The Contractor shall determine the type and location of seismic bracing required for the mechanical, electrical, and plumbing elements shown on the drawings based on the established seismic criteria, the size and weight of the supported element, and the distance from structure of the supported element.

The Contractor shall submit the following shop drawing information to the AHJ and the Engineer for review and approval:
1. Seismic analysis listing all applicable seismic design criteria.
2. Descriptive catalog data of seismic bracing materials.
3. Shop drawings showing bracing type and location.
4. Installation details of all bracing used.
5. Calculations showing that the seismic restraints meet the seismic requirements.

Shop drawings and calculations shall be signed and sealed by a registered professional engineer, licensed in the state of the project and employed by the manufacturer of the seismic bracing products. Calculations shall include dead loads, static seismic loads, and capacity of materials utilized for connections.

Seismic bracing, restraints, isolators, and isolation materials shall be of the same manufacturer and shall be certified by the manufacturer. Approved manufacturers are: Amber/Booth Company, Inc., B-Line/Tolco, Kinetics Noise Control, Inc., Loos & Company, Inc., Mason Industries, Inc., Uni-strut, or Vibro-Acoustics. Each device shall have a pre-approval number from California OSHPD or other recognized government agency showing maximum restraint ratings.

Seismic bracing measures to be applied to mechanical, electrical, and plumbing equipment/systems and shall be installed in strict accordance with all applicable local, state, and/or federal codes as well as manufacturer's requirements. The most stringent criteria shall apply. All anchor connections to structure for support of mechanical and electrical equipment, regardless of the need for seismic restraints, shall be shown on shop drawings.

2. ALTERNATES

Refer to the architectural portion of the specifications for the list of alternates. Applicable sections of the base specifications apply to all work required by the alternates unless otherwise specified. Determine whether or not and how each alternate affects work. Include labor, materials, equipment, and transportation services necessary for and incidental to the completion of work under each particular alternate. Furnish separate bid for each alternate applicable to work, stating the amount to be added to or deducted from the base bid.

SECTION 27A: COMMON WORK FOR COMMUNICATIONS

1. GENERAL

A. WORK INCLUDED

Provide common work for the technology sub-systems for this construction project, consisting of the following components:
1. Firestopping
2. Cable tray
3. Conduit
4. Outlet boxes
5. Floor boxes and poke-throughs
6. Cable supports
7. Identification of these components

Provide all equipment, materials, labor, and services, not specifically mentioned or shown, which may be necessary to complete or perfect all parts of the installation. ensure that they are in compliance with the requirements stated or reasonably inferred by the contract documents.

B. REFERENCES

Contractor shall meet the following standards and guidelines (latest editions):
1. ANSI/TIA-569 "Commercial Building Standard for Telecommunications Pathways and Spaces
2. BICSI TDMM "Telecommunications Distribution Methods Manual"
3. BICSI ITSIMM "Information Technology Systems Installation Methods Manual"

C. SUBMITTALS

Preconstruction submittals. Product cutsheets for firestopping, cable tray, floor boxes, poke-throughs, and cable support. Shop drawings indicating proposed conduit routing, pull box sizes and locations, dimensioned floor box and poke-thru locations, and all firestopping locations with product information and UL system called out at each firestop location.

Post construction submittals: As-built 'record drawings' – preconstruction shop drawings updated with any minor changes made in the field. Operation & maintenance instructions for firestopping, cable tray, and floor boxes/poke-throughs.

Regulatory Requirements: Provide products listed and classified by Underwriter's Laboratories, Inc. as suitable for the purpose intended.

2. PRODUCTS

Firestop Materials: Fire stop materials (fill void or cavity) - caulks, putty, composite sheets, restricting collars and strips used to seal penetrations of conduits through fire-rated floors, walls and partitions. Minimum performance requirements: shall meet testing requirements of ASTM E-814 or UL 1479; shall be installed in accordance with the NRTL fire stop system appropriate for the specific application and in accordance with manufacturer's instructions. Acceptable manufacturers: STI, Hilti, and 3m.

Firestop Devices: for sleeves through a single penetration (wall or floor): shall meet testing requirements of ASTM e-814 or UL. 1479; shall be installed in accordance with the NTRL fire stop system appropriate for the specific application and in accordance with manufacturer's instructions. Acceptable manufacturers: EZ-path family of products by STI; Hilti firestop system sleeve CP 653 series. On shop drawings, identify location of every fire- or smoke-rated wall and floor penetration for communications conduit or cabling, along with firestopping manufacturer, product, and ul listing for that particular type of penetration/system. For example: STI SSS intumescent sealant, UL CAJ1259. Acceptable manufacturers: STI, Hilti, and 3m.

Cable Tray: Flexible wire basket cable tray made of high strength steel wires formed into a standard 2 inch by 4 inch wire mesh pattern. The flexible cable tray system shall consist of straight sections, fittings, and accessories as necessary for a complete and continuously grounded system. Size identified on drawings indicate minimum width and depth size. Provide cable tray of sufficient size to accommodate a maximum calculate fill ratio of 50% for all division 27 and 28 cabling, to include all cables installed plus 25% growth. Acceptable manufacturers: Chatsworth, Cooper B-line, Cablofil, and Snake Tray.

Conduits for Communications: Conduit - minimum conduit size shall be trade size 1 inch; uon. Indicate location, size, and quantity of all conduits and sleeves on shop drawings, including through-floor penetrations for cable feeds to poke-through devices. Refer to Division 26 for approved conduit type and manufacturers.

Outlet Boxes for Communications: For new stud walls, telecommunications outlet boxes shall be double-gang, with a minimum size (uon) of 4-11/16 inch x 4-11/16 inch x 2-5/8 inch deep (including extension ring). Manufacturer shall be Raco 258/259, Randl T-55017, or equivalent from Emerson/Appleton or Thomas & Betts/Steel City.

For 6" or 8" deep masonry walls, telecommunications outlet boxes shall be 3-1/2" deep. Where drawings indicate single-gang faceplate, provide single-gang box, manufacturer Raco 695. Where drawings indicate dual-gang faceplate, provide dual-gang box, manufacturer Raco 696.

For ceiling telecommunications outlets (flush or above accessible ceiling as detailed on the drawings) – plenum-rated, dual-gang 4" square, 2-1/2" deep box, manufacturer shall be Raco 239, or equal from Emerson/Appleton or Thomas & Betts/Steel City.

For exterior locations, outlet boxes shall be aluminum die cast with 1" connection. Where drawings indicate single-gang faceplate, provide single-gang box, manufacturer Thomas & Betts ihd3-3 or equal from Emerson/Appleton or Hubbell/Raco. Where drawings indicate double-gang faceplate, provide double-gang box, manufacturer Thomas & Betts 2ihd5-3 or equal from Emerson/Appleton Hubbell/Raco.

Where in-use weatherproof cover is indicated, provide flush mount cover, manufacturer Hubbell WP826MPHI or approved equivalent.

For security devices, provide box sizes as detailed. Refer to division 26 specifications for manufacturer information.

For audio-video devices, refer to box sizes and manufacturers per plans, details, and/or av box schedule.

Floor boxes and Poke-throughs: General requirements – include a minimum of one normal 20a, 125v NEMA 5-20R duplex receptacle unless noted otherwise. Slab-on-grade floor boxes shall be watertight, class1, full adjustable, and cast iron with removable partition. Slab-above-grade floor boxes shall be concrete-tight, fully adjustable, stamped galvanized steel with removable partition. Coordinate cover type and finish with Architect.

1. Floor box Type A – multi-service for power and telecommunications; two compartments – one side plate with knockouts for communications faceplate and connectors and one side plate with provisions for one duplex power receptacle (coordinate with division 26). Manufacturer shall be: Cast Iron – Wiremold RFB2-OG or approved equal from Steel City or Hubbell; stamped steel – Wiremold RFB2-SS or approved equal from Steel City or Hubbell.

2. Floor box Type B – multi-service for power, telecommunications, and audio video; three or more compartments, with provisions for power, telecommunications, and audio-video connections required at each location. Manufacturer shall be: slab-on-grade – FSR FL-500P with pour pan; stamped steel – FSR FL-500P.

Cable Supports: Cable Supports (open-top hooks – a.k.a. j-hooks) used as horizontal pathways shall have a flat bottom and sufficient width to comply with the minimum bend radius of all cabling as required by the referenced standards and manufacturers recommendations. Manufacturer shall be B-line, Caddy, or pre-approved equal

Pull boxes: For interior applications only, communications pull boxes shall be NEMA 1 and sized per part 3 execution. Manufacturer shall be Hoffman, NEMA enclosures, Wiegmann, or approved equivalent.

Identification of Communications Systems: All firestopping locations shall have a custom adhesive label (approximately 3" x 5") on both sides of the penetration. Refer to Part 3 execution for more information. Conduit and pull box labels shall be mechanically-printed from a handheld labeler, with text 1/4" or 3/8" in height. Refer to Part 3 execution for more information.

3. EXECUTION

Installation Requirements: Unless otherwise stated, where installation requirements identified in drawings and specifications conflict with the manufacturer's recommendations, the more restrictive standard shall apply. Bring to the attention of the owner and engineer conflicts between manufacturer's instructions and construction documents.

Firestopping: Provide a label on both sides of all fire stop locations, indicating firestop manufacturer, installer and company, date installed, and UL system number with all relevant ratings indicated. Wherever cable tray routing encounters a rated wall, stop cable tray and provide firestop devices (sleeves) through rated wall. Capacity of firestop devices shall equal that of the cable tray. Wherever j-hook cable routing encounters a rated wall, provide firestop devices through rated wall. Capacity of firestop devices shall equal that of the installed cabling plus 25% spare capacity.

Cable Trays: Cable trays shall not extend through fire-rated walls. Cable trays shall not extend over 6 feet or greater lengths of inaccessible ceilings. Stop cable trays just before the inaccessible ceiling and provide overhead conduits so that conduit cable capacity is equal to that of the cable tray. Install cable trays a minimum of 6" above accessible ceiling and with a minimum of 12" of clear space above. Maintain a minimum separation of 12" from light fixtures and power conduits. Ensure electrical continuity of cable tray; provide bonding jumpers between through-wall sleeves.

Conduit Requirements: Ream all conduit ends and fit them with an insulated bushing.
Minimum bend radius for conduits is 6 times the diameter for

SECURITY SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

V3.2

STANDARD MOUNTING HEIGHTS

INTERCOM (TOP OF DEVICE)	46"
CARD READER (TOP OF DEVICE)	46"
EMERGENCY LOCK RELEASE (TOP OF DEVICE)	46"
EMERGENCY PHONE (TOP OF DEVICE)	46"
MOTION DETECTOR	90"
NOTIFICATION ALARM	90"
PANIC/DURESS BUTTON (TOP OF DEVICE)	46"

DEFAULT MOUNTING HEIGHTS SHOWN ABOVE WHERE NO CALL-OUT IS PROVIDED. MOUNTING HEIGHTS LISTED ARE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG) TO TOP OF DEVICE UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ABBREVIATIONS

A	AMPERES	ISP	INTERNET SERVICE PROVIDER
ACP	ACCESS CONTROL PANEL	J-BOX	JUNCTION BOX
ACS	ACCESS CONTROL SYSTEM	(K)	ELECTRICALLY OPERATED BY KEY
ADA	AMERICANS WITH DISABILITIES ACT	KP	KEY PAD
AFC	ABOVE FINISHED CEILING	KVM	KEYBOARD VIDEO MOUSE SWITCH
AFF	ABOVE FINISHED FLOOR	LAN	LOCAL AREA NETWORK
AFG	ABOVE FINISHED GRADE	LED	LIGHT-EMITTING DIODE
AHJ	AUTHORITY HAVING JURISDICTION	LF	LINEAR FEET
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MBS	MAINTENANCE BYPASS SWITCH
AV	AUDIO-VIDEO	MDF	MAIN DISTRIBUTION FRAME
AWG	AMERICAN WIRE GAUGE	MFR	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MH	MAINTENANCE HOLE
BD	BUILDING DISTRIBUTOR	MM	MULTIMODE
BDF	BUILDING DISTRIBUTION FRAME	MPOE	MAIN POINT OF ENTRANCE
BFC	BELOW FINISHED CEILING	MPOP	MAIN POINT OF PRESENCE
BR	BIOMETRIC READER	MTD	MOUNTED
C	CONDUIT	N/A	NOT APPLICABLE
CAT	CATEGORY	NEC	NATIONAL ELECTRICAL CODE
CC	CENTRAL CONTROL	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CCTV	CLOSED CIRCUIT TELEVISION	NIC	NOT IN CONTRACT
CD	CAMPUS DISTRIBUTOR	nm	NANOMETER
CMP	COMMUNICATIONS PLENUM JACKET	NRTL	NATIONALLY RECOGNIZED TESTING LAB
CMR	COMMUNICATIONS RISER JACKET	NVR	NETWORK VIDEO RECORDER
(D)	REMOTE DEVICE	OC	ON CENTER
DAS	DISTRIBUTED ANTENNA SYSTEM	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
dB	DECIBELS	OSP	OUTSIDE PLANT
DCS	DOOR CONTROL SYSTEM	POE	POWER OVER ETHERNET
DEMO	DEMOLITION	PON	PASSIVE OPTICAL NETWORK
DSP	DIGITAL SIGNAL PROCESSOR	QTY	QUANTITY
DVR	DIGITAL VIDEO RECORDER	(R)	RELOCATED EXISTING DEVICE
(E)	EXISTING DEVICE	(RE)	REMOVE EXISTING DEVICE AND INSTALL AT ANOTHER LOCATION, SEE (R)
EC	ELECTRICAL CONTRACTOR	RMC	RIGID METAL CONDUIT
ECIA	ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION	RMS	REMOTE MONITORING STATION
EMI	ELECTROMAGNETIC INTERFERENCE	RU	RACK UNIT
EMS	ENERGY MANAGEMENT SYSTEM	SCS	STRUCTURED CABLING SYSTEM
EMT	ELECTRICAL METALLIC TUBING	SF	SQUARE FEET
ER	EQUIPMENT ROOM	SM	SINGLEMODE
(ETR)	EXISTING TO REMAIN	SP	SCRAMBLE PAD
(F)	DOOR FRAME MOUNTED DEVICE	TBD	TO BE DETERMINED
FAAP	FIRE ALARM ANNUNCIATOR PANEL	TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
FACP	FIRE ALARM CONTROL PANEL	TGB	TELECOMMUNICATIONS GROUND BUS BAR
FD	FLOOR DISTRIBUTOR	TMGB	TELECOMMUNICATIONS MAIN GROUND BUS BAR
FMC	FLEXIBLE METAL CONDUIT	TR	TELECOMMUNICATIONS ROOM
FOR	FIBER OPTIC RACK	TYP	TYPICAL
FS	FIRE STOP SYSTEM	UNO	UNLESS NOTED OTHERWISE
FLR	FLOOR	UL	UNDERWRITER LABORATORIES, INC.
GC	GENERAL CONTRACTOR	UPS	UNINTERRUPTIBLE POWER SUPPLY
(GT)	GUARD TOUR	V	VOLT(S)
GYP	GYPSUM BOARD	VCM	VERTICAL CABLE MANAGER
HH	HAND HOLE	VMS	VIDEO MANAGEMENT SYSTEM
Hz	HERTZ	VSS	VIDEO SURVEILLANCE SYSTEM
IMC	INTERMEDIATE METAL CONDUIT	WAO	WORK AREA OUTLET
IDS	INTERCOM DETECTION SYSTEM	WP	WEATHER PROOF
IDP	INTRUSION DETECTION PANEL	WR	WEATHER RESISTANT
IP	INTERNET PROTOCOL	WT	WATERTIGHT
		XP	EXPLOSION-PROOF

( ) - INDICATES MODIFIER FOR SPECIAL OPERATION IN LABELING SCHEME

ANNOTATION

- SECURITY PLAN CALLOUT
- CONNECTION POINT OF NEW WORK TO EXISTING
- DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER. LOWER NUMBER INDICATES SHEET NUMBER
- SECTION CUT DESIGNATION
- DEDICATED EQUIPMENT ACCESS TILE
- ACCESS PANEL

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINE-TYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF THE NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	NEW
DEMOLISH	FUTURE

SECURITY SYMBOLS

- (AR) AREA OF REFUGE CALL BOX
- (BR) BIOMETRIC CARD READER
- (CR) CARD READER
- (CW)X CLIENT WORKSTATION WHERE X = NUMBER OF MONITORS (AC) ACCESS CONTROL (SM) SECURITY MANAGEMENT (TS) TOUCHSCREEN CONTROL (VS) VIDEO SURVEILLANCE
- (DA) DOOR ANNUCATOR
- (DB) DOOR BELL (PB) PUSH BUTTON (CH) CHIME
- (DM) DOOR POSITION SWITCH ONLY SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
- (DL) DOOR POSITION SWITCH AND LATCHBOLT MONITOR SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
- (DM) DOOR OPERATOR SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
- (EL) ELECTRIFIED LOCKING DEVICE. REQUEST TO EXIT, DOOR POSITION SWITCH, AND LATCH BOLT MONITOR SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
- (EO) ELECTRIFIED LOOKING DEVICE SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
- (EP) EMERGENCY PHONE
- (GB) GLASS BREAK DETECTOR
- (HS) LOCAL AUDIO/VISUAL NOTIFICATION ALARM
- (IC) INTERCOM (CR) WITH CARD READER (DS) DOOR STATION (RS) RECEIVING (MASTER) STATION (VS) VIDEO STATION
- (IP) INMATE PHONE
- (KP) KEYPAD (ID) INTRUSION DETECTION SYSTEM (AC) ACCESS CONTROL
- (LC) LIGHTING CONTROL RELAYS
- (MD) MOTION DETECTOR
- (PL) PANIC ALARM THREE-COLOR INDICATOR LIGHT
- (PB) PANIC/DURESS BUTTON
- (RE) REQUEST-TO-EXIT PUSH PAD
- (RO) REMOTE UNLOCK/OPEN BUTTON
- (ML) MICROPHONE STATUS LIGHT, WALL MOUNT
- (MP) MICROPHONE
- (MS) MICROPHONE MUTE ILLUMINATED SWITCH
- (S) SPEAKER (DOOR BELL)
- (SP) PAGING SPEAKER
- (VM) VAULT MONITOR
- (VR) VEHICLE READER
- (VC) WATER CONTROL VALVE VALVE BY DIVISION 22, CONTROL BY DIVISION 28
- (WT) WATCH TOUR

SECURITY CAMERAS

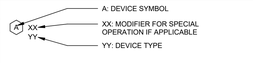
- FIXED CAMERA
- PTZ CAMERA
- 360 CAMERA
- 180 CAMERA
- TWO IMAGER CAMERA
- FOUR IMAGER CAMERA

MOUNTING TYPE SYMBOLS (APPLIES TO ANY SECURITY DEVICE SYMBOL)

- CEILING OR DESK MOUNT
- WALL MOUNT
- POLE / BOLLARD MOUNT
- CORNER MOUNT
- PENDANT MOUNT
- WALL MOUNT PENDANT ARM

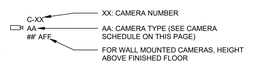
LABELING SCHEME

SECURITY DEVICES (TYPICAL)



SEE MATCHING SCHEDULES ON THIS SHEET (IF APPLICABLE)

SECURITY CAMERAS (TYPICAL)



SEE MATCHING SCHEDULES ON THIS SHEET (IF APPLICABLE)

CAMERA TYPE SCHEDULE

TYPE	FORM FACTOR	DESCRIPTION	LOCATIONS	LENS RESOLUTION	POWER	MODELS	COLOR	COMMENTS
01		FLUSH MOUNT COMPACT DOME CAMERA	INDOOR	2.8MM 2MP	CLASS 2 POE	XXXXX XXXXX XXXXX	MATCH CEILING	XXXXX XXXXX XXXXX
02		DOME CAMERA	INDOOR	2.8MM 2MP	CLASS 2 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
03		VANDAL DOME CAMERA	INDOOR	3MM 4MP	CLASS 2 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
04		FISHEYE CAMERA	INDOOR	1.8MM 12MP	CLASS 4 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
05		DUAL-SENSOR CAMERA	INDOOR/ OUTDOOR	2 X 2.3MM 10MP	CLASS 4 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
06		180 DEGREE MULTI-SENSOR CAMERA	INDOOR/ OUTDOOR	4 X 2.8MM 12MP	CLASS 4 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
07		360 DEGREE MULTI-SENSOR CAMERA	INDOOR/ OUTDOOR	4 X 2.8MM 12MP	CLASS 6 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
08		PTZ DOME NETWORK CAMERA	INDOOR/ OUTDOOR	2.8 - 50MM 1080P	CLASS 6 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
09		MODULAR HDTV DISCREET CAMERA	INDOOR/ OUTDOOR	2.8MM 720P	CLASS 2 POE	XXXXX XXXXX XXXXX	BLACK	XXXXX XXXXX XXXXX
10		IK10 RATING, STAINLESS STEEL, CORNER MOUNT	CELL	2.1MM 4MP	CLASS 4 POE	XXXXX XXXXX XXXXX	STAINLESS STEEL	XXXXX XXXXX XXXXX
11		BULLET CAMERA WITH IR	INDOOR/ OUTDOOR	2.8 - 22MM 4MP	CLASS 4 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
12		BOX CAMERA WITH EF LENS	SEATING BOWL	50 - 200MM 4MP	CLASS 6 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
13		360 DEGREE MULTI-SENSOR W/PTZ CAMERA	INDOOR/ OUTDOOR	4 X 2.8MM 20MP 1 X 2.8-50MM 1080P	CLASS 4 POE	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX

CARD READER TYPE SCHEDULE

TYPE	FORM FACTOR	DESCRIPTION	LOCATIONS	TECHNOLOGY	POWER	MODELS	COLOR	COMMENTS
01		CARD READER	INDOOR/ OUTDOOR	SEOS ICLASS PROX	AVG.75mA PEAK 250mA AT 12VDC	XXXXX XXXXX XXXXX	BLACK	XXXXX XXXXX XXXXX
02		MULLION MOUNT CARD READER	INDOOR/ OUTDOOR	SEOS ICLASS PROX	AVG.70mA PEAK 250mA AT 12VDC	XXXXX XXXXX XXXXX	BLACK	XXXXX XXXXX XXXXX
03		CARD READER W/KEYPAD	INDOOR/ OUTDOOR	SEOS ICLASS PROX	AVG.80mA PEAK 250mA AT 12VDC	XXXXX XXXXX XXXXX	BLACK	XXXXX XXXXX XXXXX
04		LONG RANGE CARD READER	INDOOR/ OUTDOOR	ICLASS MIFARE PROX	AVG.110mA PEAK 300mA AT 12VDC	XXXXX XXXXX XXXXX	BLACK	XXXXX XXXXX XXXXX
05		WIRELESS LOCK WITH CARD READER	BY DOOR HARDWARE PROVIDER	BY DOOR HARDWARE PROVIDER	BY DOOR HARDWARE PROVIDER	XXXXX XXXXX XXXXX	BY DOOR HARDWARE PROVIDER	XXXXX XXXXX XXXXX
(BR)		BIOMETRIC CARD READER	INDOOR/ OUTDOOR	ICLASS MIFARE PROX	AVG.100mA PEAK 170mA AT 12VDC	XXXXX XXXXX XXXXX	BLACK	XXXXX XXXXX XXXXX
(VR)		865-868 MHz UHF VEHICLE READER	INDOOR/ OUTDOOR	ICLASS MIFARE PROX	1A AT 12VDC 5A AT 24VDC	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX

INTERCOM TYPE SCHEDULE

TYPE	FORM FACTOR	DESCRIPTION	LOCATIONS	SPEAKER	POWER	MODELS	COLOR	COMMENTS
01		MULLION VIDEO DOOR STATION	INDOOR/ OUTDOOR	HANDS-FREE	CLASS 2 POE	XXXXX XXXXX XXXXX	STAINLESS STEEL	XXXXX XXXXX XXXXX
02		DUAL-GANG VIDEO DOOR STATION	INDOOR/ OUTDOOR	HANDS-FREE	CLASS 3 POE	XXXXX XXXXX XXXXX	STAINLESS STEEL	XXXXX XXXXX XXXXX
03		MULTI-TENANT VIDEO DOOR STATION	INDOOR/ OUTDOOR	HANDS-FREE	CLASS 4 POE	XXXXX XXXXX XXXXX	STAINLESS STEEL	XXXXX XXXXX XXXXX
04		IP ADDRESSABLE VIDEO MASTER STATION	INDOOR	HANDS-FREE OR HANDSET	CLASS 2 POE	XXXXX XXXXX XXXXX	BLACK	XXXXX XXXXX XXXXX

MOTION DETECTOR TYPE SCHEDULE

TYPE	FORM FACTOR	DESCRIPTION	LOCATIONS	COVERAGE AREA	POWER	MODELS	COLOR	COMMENTS
01		CEILING MOUNT MIRROR OPTIC PIR	INDOOR	60 FOOT DIAMETER 360 DEGREES	12VDC	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
02		CEILING MOUNT MIRROR OPTIC PIR	INDOOR	60 FOOT DIAMETER 180 DEGREES	12VDC	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX
03		WALL MOUNT MIRROR OPTIC PIR	INDOOR	60 FOOT DIAMETER 90 DEGREES	12VDC	XXXXX XXXXX XXXXX	WHITE	XXXXX XXXXX XXXXX

SECURITY RESPONSIBILITY MATRIX

NTD: **SECURITY MATRIX TEMPLATE LOCATION:**

P:\SECURITY\7 Schedules

COPY TEMPLATE TO YOUR PROJECT'S SCHED FOLDER PRIOR TO MODIFYING.

DELETE THIS NOTE AFTER INSERTING MATRIX.

NTD: EDIT THIS LEGEND AS NEEDED TO SUIT PROJECT, (FOR EXAMPLE, DELETE GENERAL DEMOLITION NOTES SECTION IF UNUSED. MODIFY RESOLUTIONS, POWER, LOCATION, COMMENTS, ETC).

GENERAL NEW WORK NOTES

1. READ THE SPECIFICATIONS AND REVIEW THE DRAWINGS OF ALL DIVISION OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS.
2. ALL WORK SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS (DIVISION 26, DIVISION 27, DIVISION 28, ETC.) AND THE CUSTOMER PRE-ESTABLISHED PHYSICAL SECURITY STANDARDS. SHOULD DIFFERENCES EXIST IN THE SPECIFICATIONS RELATING TO SECURITY AND THE CLIENT'S PRE-ESTABLISHED STANDARDS THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER FOR CLARIFICATION THROUGH THE RFI PROCESS.
3. CONTRACTOR SHALL SUPPORT ALL CABLE WITH APPROVED PATHWAY.
4. ALL CABLES SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO THE BUILDING STRUCTURE, UNLESS OTHERWISE NOTED.
5. ALL CABLING SHALL BE INSTALLED COMPLETE AND UNSPLICED FROM THE SERVING EQUIPMENT TERMINATION TO DEVICE. LABEL EACH END OF EACH DEVICE CABLE.
6. CONTRACTOR SHALL COORDINATE ALL CABLING AND CABLING PATHWAYS WITH OTHER DIVISIONS (08, 21, 22, 23, 26, AND 27) PRIOR TO INSTALL OF DUCTWORK, PIPING, CONDUITS, AND ETC.
7. PROVIDE CONDUIT SLEEVE WITH NYLON BUSHINGS FOR NON-RATED WALL PENEINTRATIONS FOR CABLES. PATHWAYS SHALL BE SIZED FOR NO MORE THAN FORTY (40) PERCENT FILL.
8. PROVIDE CONDUIT SLEEVE WITH NYLON BUSHINGS FOR OVERHEAD CEILINGS THAT BLOCK ACCESS FOR MOVE/ADD/CHANGES TO CABLE PATHWAY, LIKE HARD GYPSUM CEILING. PATHWAYS SHALL BE SIZED FOR NO MORE THAN FORTY (40) PERCENT FILL.
9. PROVIDE UL LISTED FIRESTOP ASSEMBLY AT FIRE WALL PENETRATIONS OF CABLES. MATERIAL AND INSTALLATION SHALL MAINTAIN THE RATED CAPACITY OF WALL AND MEET ALL APPLICABLE CODES.
10. FULLY COORDINATE ALL CONDUIT ROUTING WITH STRUCTURAL ELEMENTS. COORDINATE CONDUIT INSTALLATIONS WITH ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR, AND GENERAL CONTRACTOR PRIOR TO INSTALLATION. ROUTING IN OR UNDER THE SLAB FLOOR REQUIRES THE USE OF CABLE RATED FOR A WET ENVIRONMENT.
11. EXISTING DOOR HARDWARE AND OPENING CONDITIONS SHALL BE EVALUATED PRIOR TO CONDUIT AND CABLING INSTALLATION AND COORDINATION WITH DIVISION 08.
12. VERIFY ALL CAMERA LOCATIONS PRIOR TO ROUGH-IN. CAMERA FIELD OF VIEW SHALL NOT BE OBSTRUCTED BY OTHER ELEMENTS INCLUDING, BUT NOT LIMITED TO, EXIT SIGNS, LIGHT FIXTURES, MILLWORK, SPRINKLERS, CURTAINS, OR SIGNAGE.
13. REFER TO TN _[TN LEGEND SHEET #]_ FOR TECHNOLOGY RESPONSIBILITY MATRIX THAT ALSO APPLY TO `SECURITY SCOPE.

GENERAL DEMOLITION NOTES

1. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE FACILITY, INCLUDING PATHWAY LOCATIONS AND ELEVATIONS. REVIEW THE GENERAL NOTES AND ALL OTHER TRADE DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS, INCLUDING ALL DEMOLITION AND NEW WORK DOCUMENTS. NOTIFY ARCHITECT, ENGINEER OR OWNER, AS SPECIFIED, OF ANY CONFLICTS OR DISCREPANCIES.
2. EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. FIELD VERIFY CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
3. AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN FOR NEW INSTALLATION. REPAIR DAMAGE CAUSED DURING WORK AT NO EXTRA COST TO OWNER.
4. REMOVE ALL PATHWAYS, CABLING AND ASSOCIATED DEVICES FOR ALL ITEMS INTENDED TO BE REMOVED. ABANDONING UNUSED PORTIONS WILL NOT BE ACCEPTABLE.
5. REMOVE EXISTING ITEMS AS REQUIRED TO ACCOMMODATE THE GENERAL DEMOLITION SCOPE. ANY SYSTEMS PASSING THROUGH THE SPACE INTENDED TO REMAIN IN SERVICE SHALL BE PROTECTED, OR RELOCATED AS REQUIRED TO MAINTAIN SERVICE AND ACCOMMODATE THE GENERAL DEMOLITION AND NEW SCOPE OF WORK.
6. REFER TO ARCHITECTURAL PLANS FOR SCOPE OF AREAS THAT ARE TO BE DEMOLISHED UNDER THIS PHASE OF CONSTRUCTION. NOTE THAT IN SOME CASES, MEPFT DEMOLITION WORK EXTENDS BEYOND SCOPE OF AREA IDENTIFIED DUE TO EXISTING SYSTEM DESIGN. NOTIFY ARCHITECT AND ENGINEER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO STARTING WORK.
7. COORDINATE THE INTERMEDIATE STORAGE, REMOVAL AND FINAL DISPOSITION OF TELECOMMUNICATIONS SCS COMPONENTS (PATHWAYS, CABLE, TERMINATION COMPONENTS, ETC.) AND THE REQUIRED PROTECTION OF EXISTING SPECIAL SYSTEMS EQUIPMENT WITH OWNER PRIOR TO IMPLEMENTATION THAT ARE TO BE REMOVED AS A RESULT OF THE DEMOLITION / RENOVATION WORK.
8. EXISTING TELECOMMUNICATIONS CABLES AND COMPONENTS THAT PASS THROUGH THE CONSTRUCTION ZONE SHALL BE PROTECTED AND REMAIN IN PLACE SO AS TO MAINTAIN SERVICE WHILE ALSO ACCOMMODATING THE GENERAL DEMOLITION AND NEW SCOPE OF WORK. CONTRACTOR SHALL COORDINATE ALL SUCH EFFORTS WITH THE CLIENT PRIOR TO IMPLEMENTATION. DAMAGE TO EXISTING AND TO REMAIN IN PLACE TELECOMMUNICATIONS CABLES AND COMPONENTS CAUSED BY THE CONTRACTOR SHALL BE REPAIRED IN A TIMELY MANNER AND TO THE WRITTEN SATISFACTION OF THE CLIENT AND AT NO ADDITIONAL COST TO THE CLIENT. CONTRACTOR SHALL PROVIDE CABLE SUPPORTS FOR ANY EXISTING CABLES THAT ARE NOT PROPERLY SUPPORTED.

HATCHING LEGEND

- ENLARGED PLAN
- NOT IN SCOPE (NIS)

NICHOLAS A. DECOSTER
FILE PATH: N:\Revit Docs\ City of West Memphis Recreation Center\ARP_BLDG A_INC_MEPFP.rvt
DATE PRINTED: 9/7/2018 10:53:20 AM

SEAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PRELIMINARY SUBMITTAL
NICHOLAS A. DECOSTER
LICENSE # 18231

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES

CLIENT

City of West Memphis

DRAWING ISSUE

#	DATE	DESCRIPTION
	2018-09-07	CONSTRUCTION DOCUMENT PROGRESS

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2550004264
AR_CORPORATE NO. 484
EXPIRES 12/31/2026

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

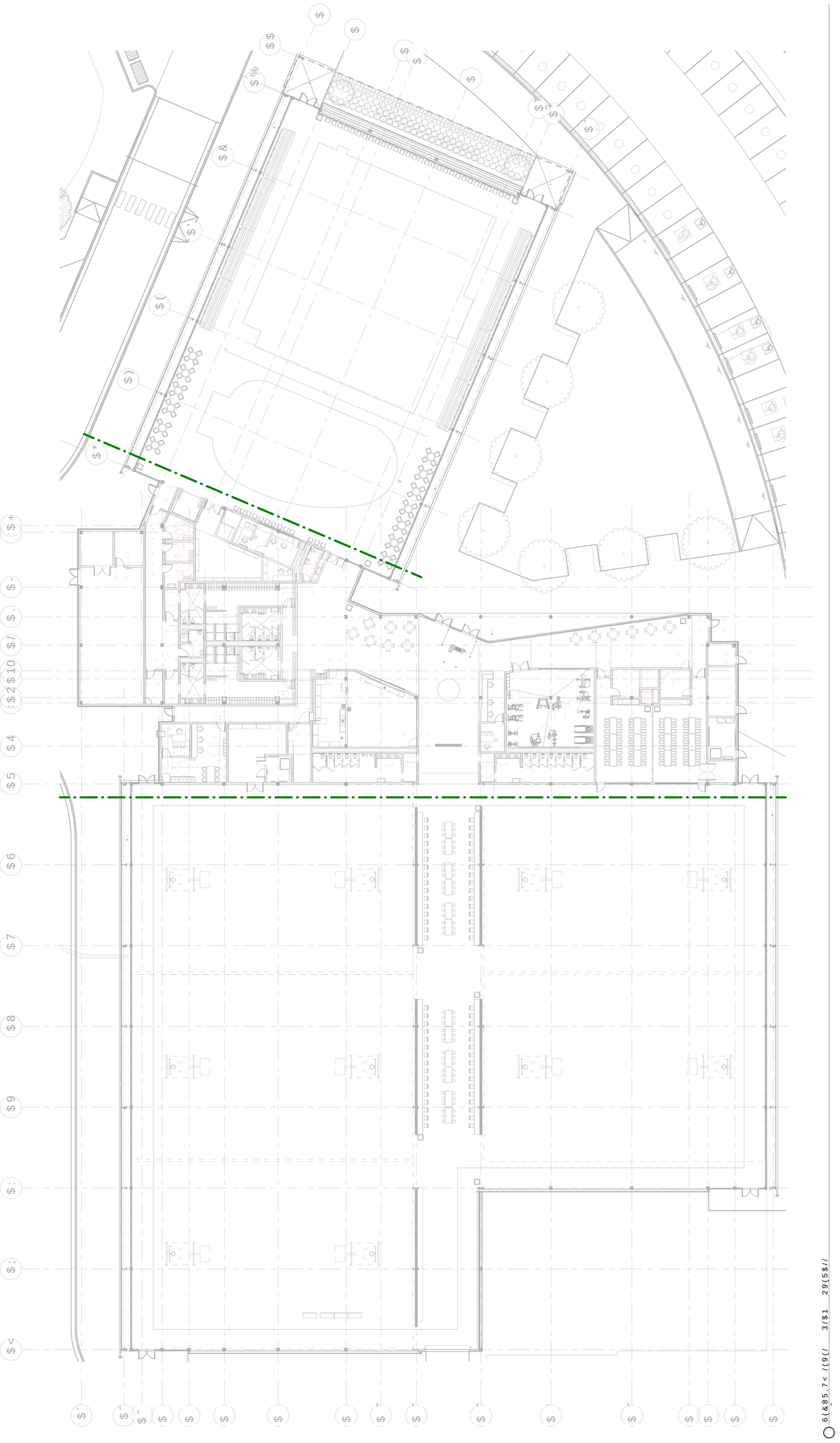
SHEET TITLE

SECURITY GENERAL NOTES AND LEGEND

SHEET NUMBER

TY-000

CERTIFICATE OF AUTHORIZATION
HENDERSON ENGINEERS, INC.
No. 484
ARKANSAS ENGINEER



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CITY OF WEST MEMPHIS
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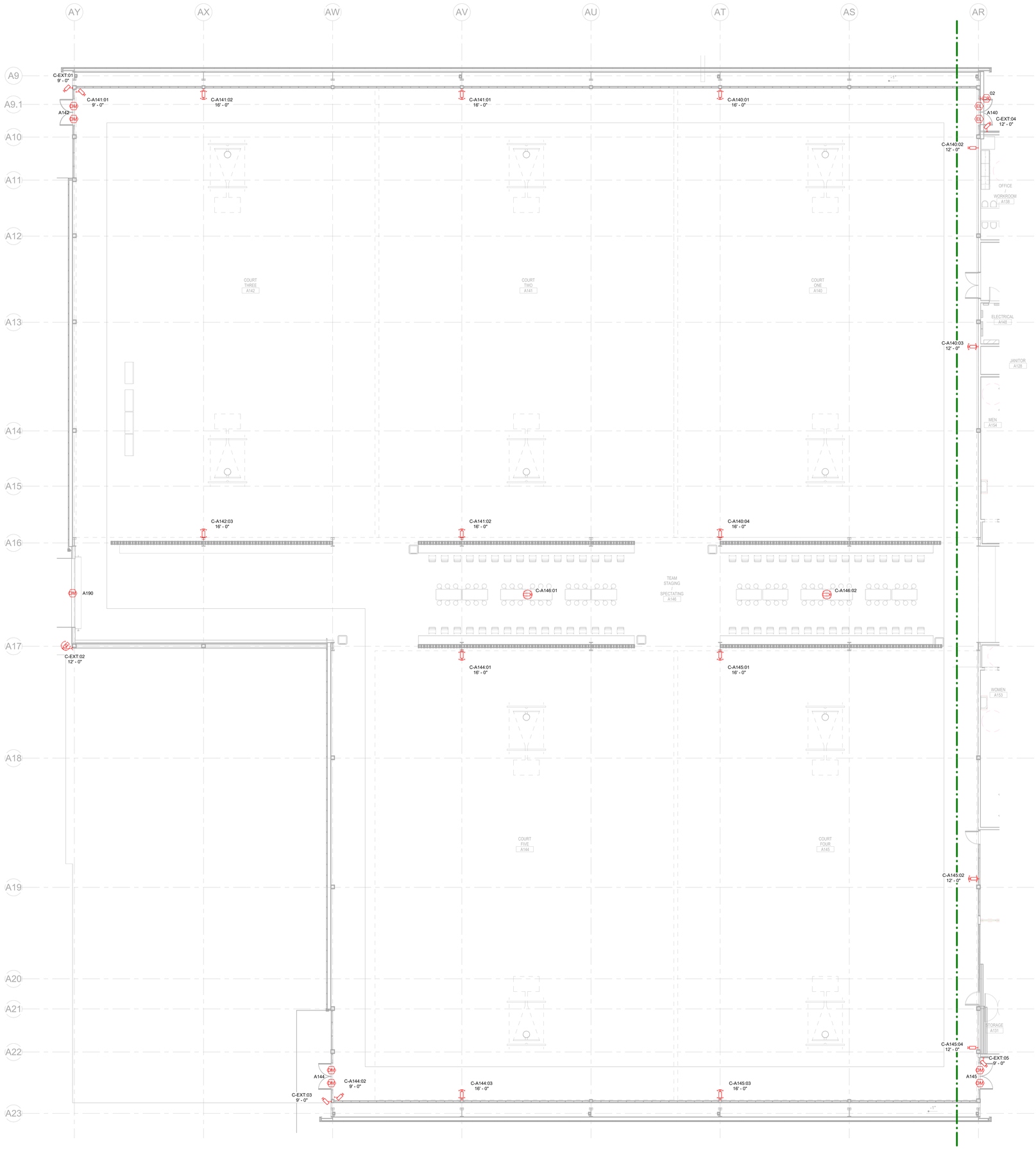

1 SECURITY LEVEL 01 PLAN - SECTOR A
1/8" = 1'-0"

GENERAL PLAN NOTES:

1. REFER TO SHEET TY000 FOR SYMBOLS, LEGEND, AND NEW WORK NOTES.
2. REFER TO TN-SERIES SHEETS FOR TELECOMMUNICATIONS CABLING AND PATHWAY INFORMATION THAT SUPPORTS SECURITY EQUIPMENT AND DEVICES.
3. REFER TO SECURITY DEVICE SCHEDULES ON SHEET TY600 FOR SERVING ROOM INFORMATION FOR SECURITY DEVICES ON THIS SHEET.

SECURITY PLAN NOTES

SEAL

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City of West Memphis

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JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

SECURITY LEVEL 01 PLAN - SECTOR A

SHEET NUMBER

TY-101.A

NICHOLAS A. DECOSTER

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1 SECURITY LEVEL 01 PLAN - SECTOR B
1/8" = 1'-0"

GENERAL PLAN NOTES:

1. REFER TO SHEET TY000 FOR SYMBOLS, LEGEND, AND NEW WORK NOTES.
2. REFER TO TN-SERIES SHEETS FOR TELECOMMUNICATIONS CABLING AND PATHWAY INFORMATION THAT SUPPORTS SECURITY EQUIPMENT AND DEVICES.
3. REFER TO SECURITY DEVICE SCHEDULES ON SHEET TY600 FOR SERVING ROOM INFORMATION FOR SECURITY DEVICES ON THIS SHEET.

SECURITY PLAN NOTES

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ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

SECURITY LEVEL 01 PLAN - SECTOR B

SHEET NUMBER

TY-101.B

NICHOLAS A. DECOSTER
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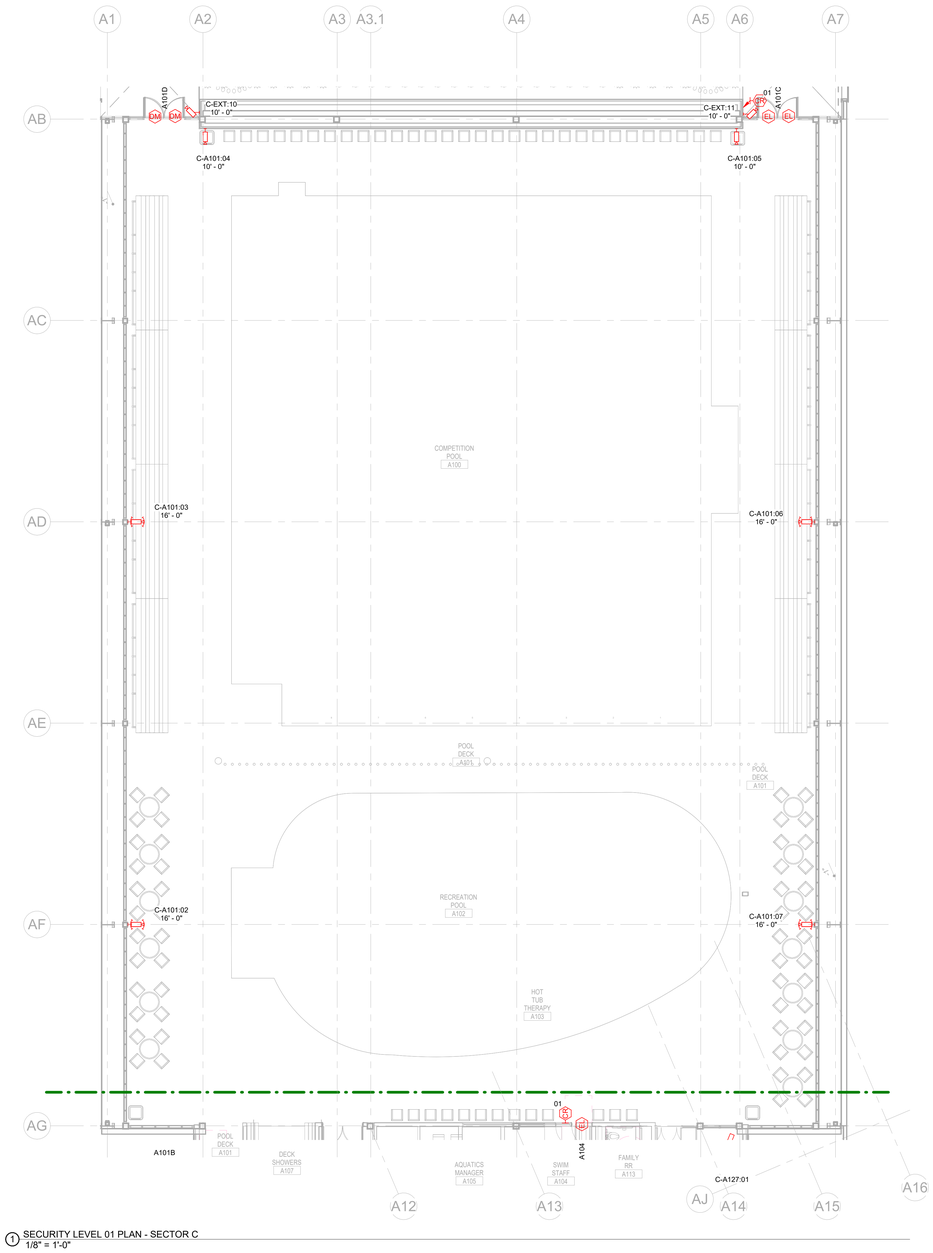

1 SECURITY LEVEL 01 PLAN - SECTOR C
1/8" = 1'-0"

GENERAL PLAN NOTES:

1. REFER TO SHEET TY000 FOR SYMBOLS, LEGEND, AND NEW WORK NOTES.
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3. REFER TO SECURITY DEVICE SCHEDULES ON SHEET TY600 FOR SERVING ROOM INFORMATION FOR SECURITY DEVICES ON THIS SHEET.

SECURITY PLAN NOTES

SEAL

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SECURITY LEVEL 01 PLAN - SECTOR C

SHEET NUMBER

TY-101.C

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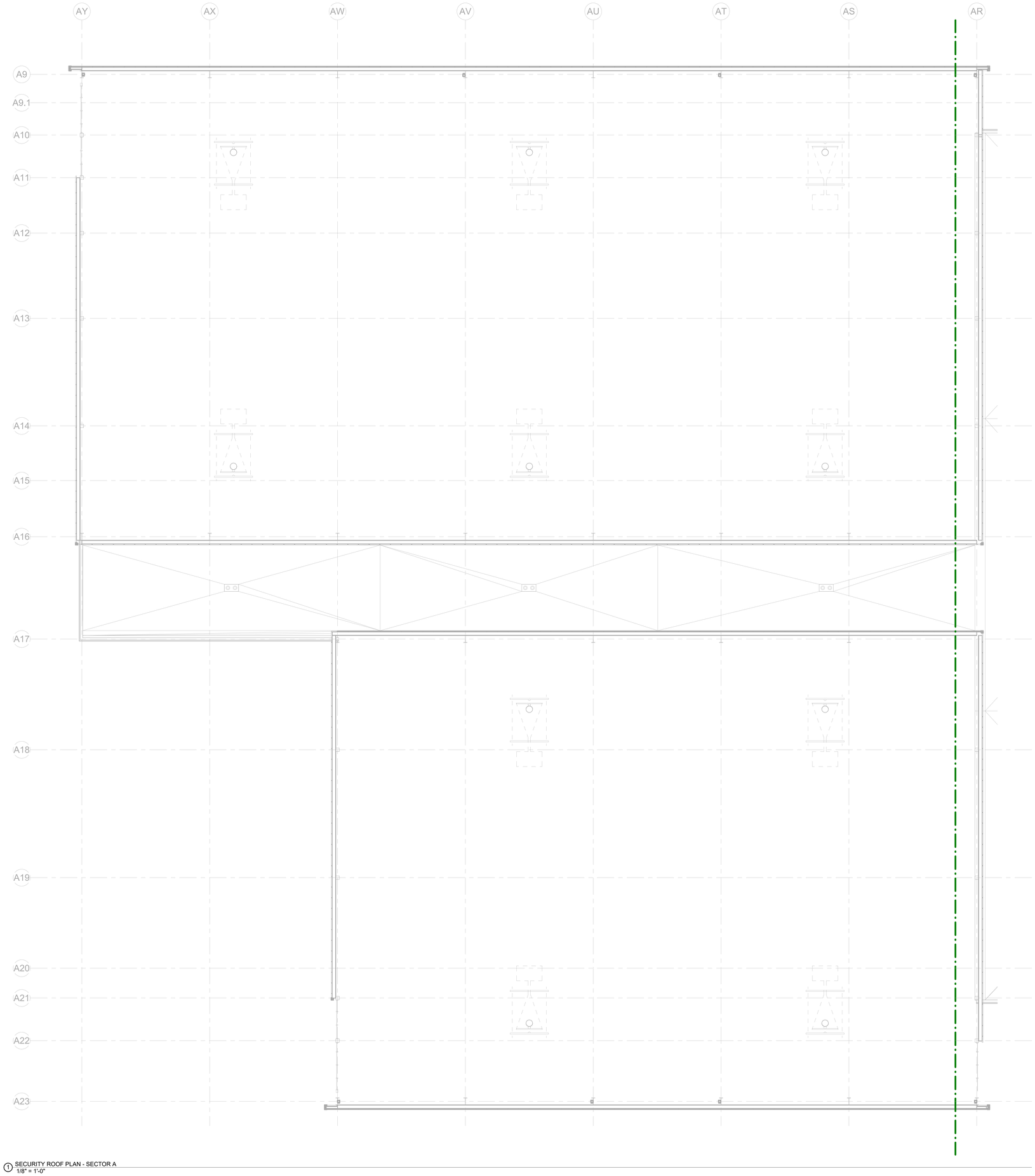

1 SECURITY ROOF PLAN - SECTOR A
1/8" = 1'-0"

GENERAL PLAN NOTES:

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SECURITY PLAN NOTES

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SHEET TITLE

SECURITY ROOF PLAN - SECTOR A

SHEET NUMBER

TY-102.A

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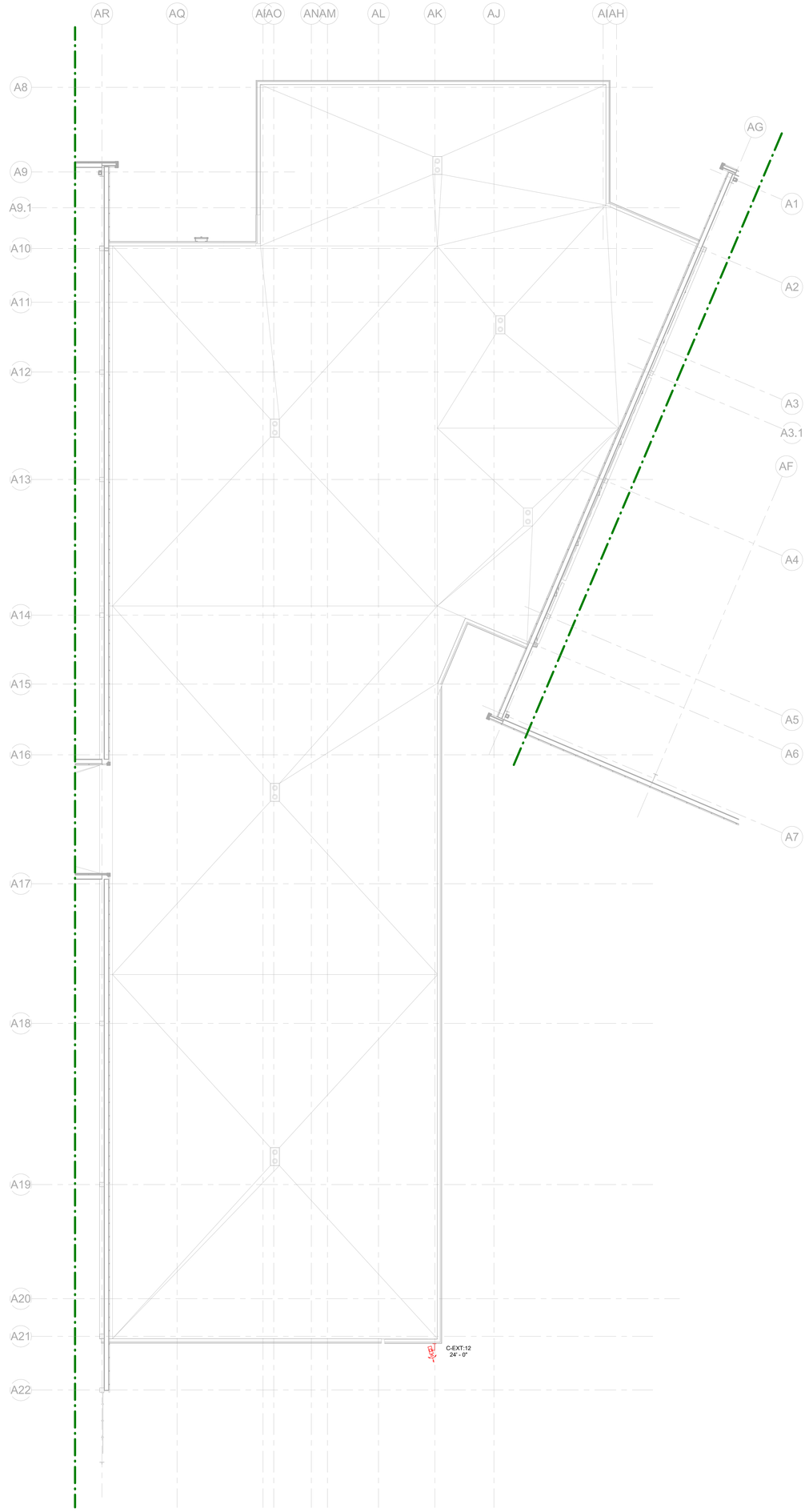

1 SECURITY ROOF PLAN - SECTOR B
1/8" = 1'-0"

GENERAL PLAN NOTES:

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SECURITY PLAN NOTES

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West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

SECURITY ROOF PLAN - SECTOR B

SHEET NUMBER

TY-102.B

NICHOLAS A. DECOSTER
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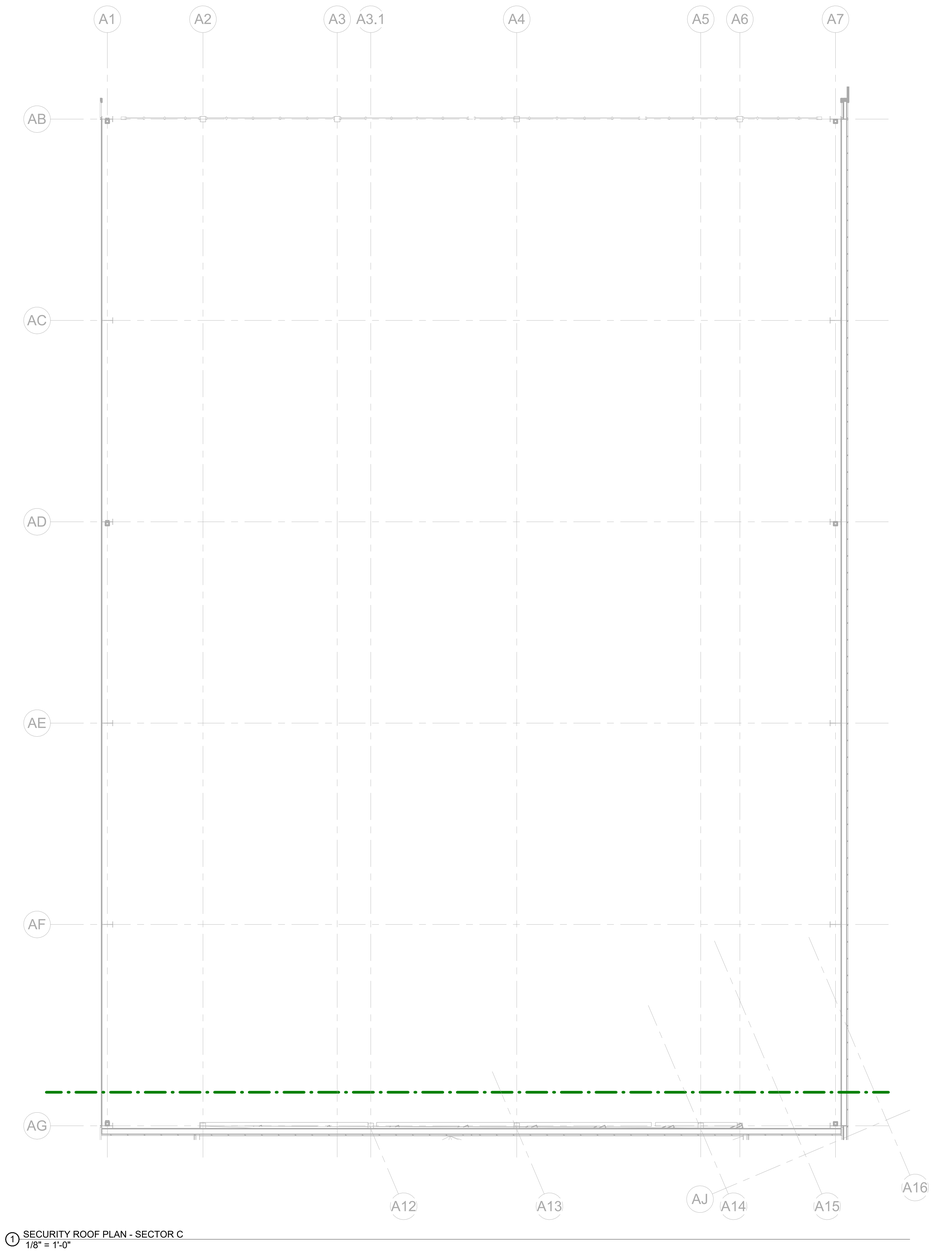

1 SECURITY ROOF PLAN - SECTOR C
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GENERAL PLAN NOTES:

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SECURITY PLAN NOTES

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SHEET TITLE

SECURITY ROOF PLAN - SECTOR C

SHEET NUMBER

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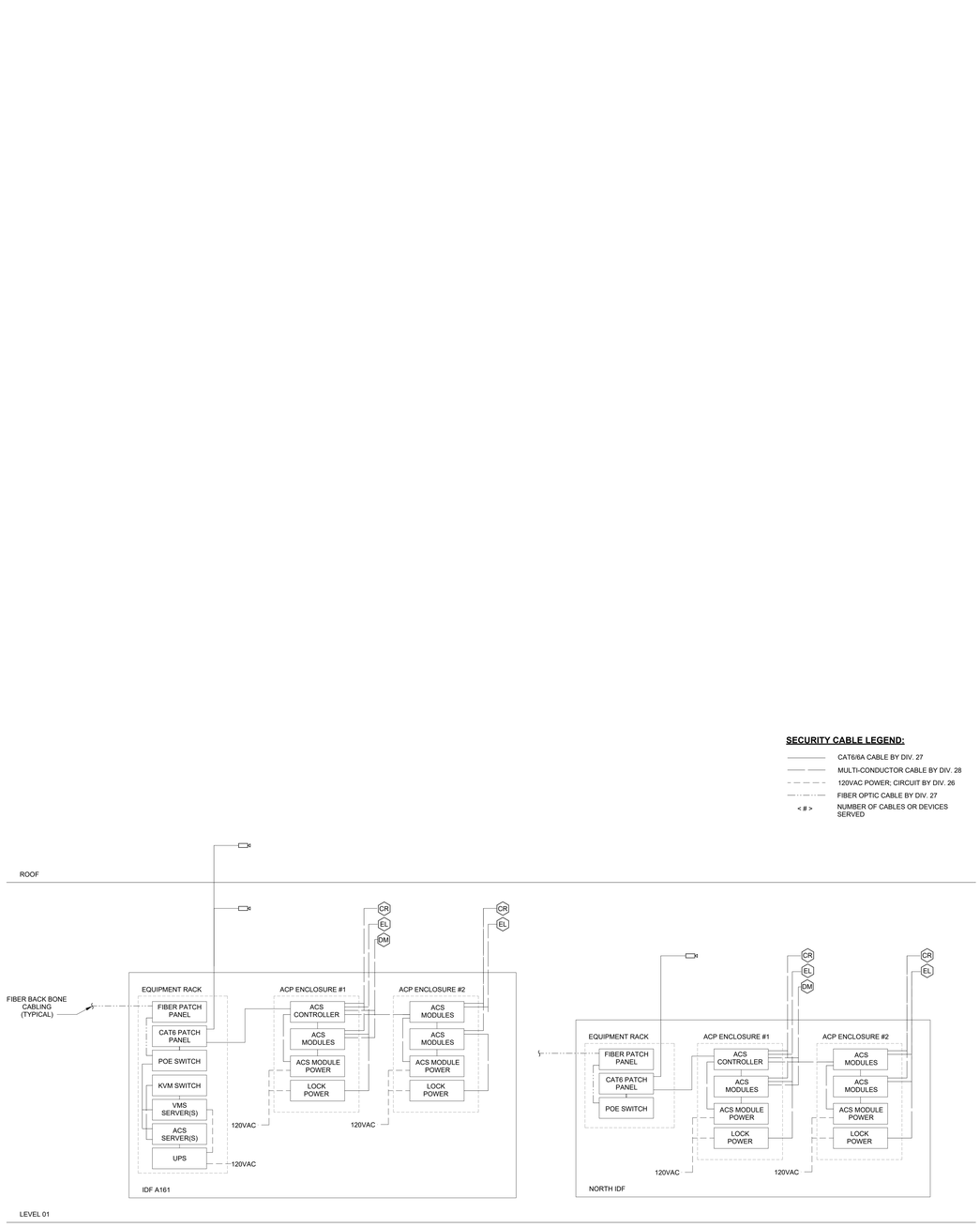
RISER DIAGRAM NOTES:

1. RISER DIAGRAM IS CONCEPTUAL AND SHOULD BE USED AS A GUIDELINE IN ENGINEERING THE FINAL SECURITY SYSTEM.
2. ELECTRONIC SECURITY CONTRACTOR SHALL MOUNT EQUIPMENT ENCLOSURES ON THE PLYWOOD BACKBOARD PROVIDED BY DIVISION 27 CONTRACTOR.
3. 120VAC CIRCUITS BY DVISION 26 CONTRACTOR. COORDINATE LOCATION(S) PRIOR TO INSTALLING EQUIPMENT ENCLOSURES.
4. ALL POWER SUPPLIES SHALL BE HARDWIRED AND OUTPUTS INDIVIDUALLY FUSED. NOT ALL POWER AND POWER SUPPLY CONNECTIONS ARE SHOWN ON THE RISER DIAGRAM FOR CLARITY.
5. EACH SYSTEM SERVER SHALL BE CONNECTED TO A UPS PER DIVISION 28 SPECIFICATIONS, AND EACH ENCLOSURE POWER SUPPLY SHALL BE EQUIPPED WITH (4) HOURS OF BATTERY BACKUP IF NOT CONNECTED TO STANDBY OR EMERGENCY POWER CIRCUIT.
6. PROVIDE END OF THE LINE RESISTORS FOR SECURITY INPUT DEVICES. REFER TO MANUFACTURER'S INSTRUCTIONS FOR RESISTOR REQUIREMENTS.
7. REFER TO SECURITY RESPONSIBILITY MATRIX ON SHEET TY-000 FOR LIST OF OWNER SUPPLIED EQUIPMENT AND DIVISION OF LABOR.

SECURITY CABLE LEGEND:

- CAT6/6A CABLE BY DIV. 27
- MULTI-CONDUCTOR CABLE BY DIV. 28
- 120VAC POWER; CIRCUIT BY DIV. 26
- FIBER OPTIC CABLE BY DIV. 27
- < # > NUMBER OF CABLES OR DEVICES SERVED



1 SECURITY SYSTEM RISER DIAGRAM
NTS

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JOB INFO

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West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

SECURITY RISERS

SHEET NUMBER

TY-400

NICHOLAS A. DECOSTER
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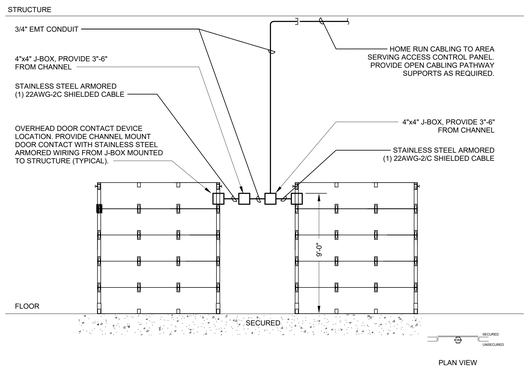
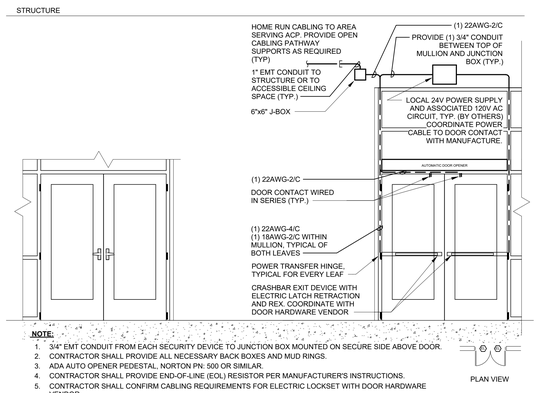
DETAIL NOTES:

1. DETAILS ARE TYPICAL AND DIAGRAMMATIC AND CONVEY GENERAL INSTALLATION REQUIREMENTS.
2. BACK BOXES AND CONDUITS IN STUD WALLS SHALL BE RECESSED AND CONCEALED.
3. POWER REQUIREMENTS SHOWN FOR REFERENCE ONLY. COORDINATE FINAL CIRCUITING WITH ELECTRICAL POWER DRAWINGS.
4. PROVIDE CABLE SIZED TO ENSURE A MAXIMUM VOLTAGE DROP OF 10% OR AS REQUIRED BY MANUFACTUER FROM POWER SUPPLY TO ELECTRIFIED LOCKING HARDWARE.
5. ADA AUTO OPERATOR SHALL BE INTERGRATED WITH THE ACCESS CONTROL SYSTEM AND SHALL ONLY OPEN UPON VALID CREDENTIAL READ OR IF DOOR IS SCHEDULED TO BE UNLOCKED.
6. PROVIDE CONNECTION TO FIRE ALARM SYSTEM FROM LOCK POWER SUPPLY WHERE REQUIRED BY AHJ OR DOOR HARDWARE SPECIFICATIONS.
7. FIELD COORDINATE SECURITY ENCLOSURE LAYOUT WITHIN EQUIPMENT ROOM WITH ALL TRADES. MAINTAIN WORKING CLEARANCES AT ADJACENT EQUIPMENT.
8. BACKUP BATTERIES SHALL BE PROVIDED AT THE BOTTOM WITHIN EACH ENCLOSURE. BATTERIES SHALL BE SIZED TO PROVIDE MINIMUM 4-HOUR BATTERY BACKUP RUNTIME FOR ALL CONNECTED SECURITY DEVICES UNO. PROVIDE LABEL FOR EACH BATTERY WITH THE BATTERY INSTALLATION DATE.

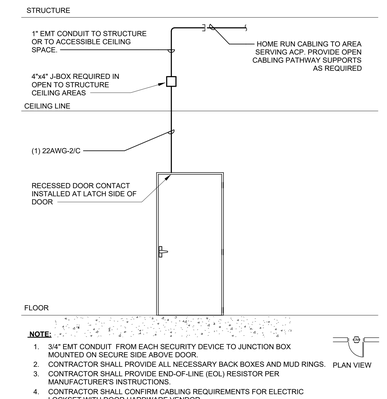


12 OVERHEAD DOOR - TYPICAL DEVICE ROUGH-IN
NTS



NOTE:
1. 3/4" EMT CONDUIT FROM EACH SECURITY DEVICE TO JUNCTION BOX MOUNTED ON SECURE SIDE ABOVE DOOR.
2. CONTRACTOR SHALL PROVIDE ALL NECESSARY BACK BOXES AND MUD RINGS.
3. ADA AUTO OPENER PEDESTAL, NORTON PN: 500 OR SIMILAR.
4. CONTRACTOR SHALL PROVIDE END-OF-LINE (EOL) RESISTOR PER MANUFACTURER'S INSTRUCTIONS.
5. CONTRACTOR SHALL CONFIRM CABLING REQUIREMENTS FOR ELECTRIC LOCKSET WITH DOOR HARDWARE VENDOR.

11 DOUBLE DOOR SCHEDULE CONTROL/REX-OUT PORTAL
NTS



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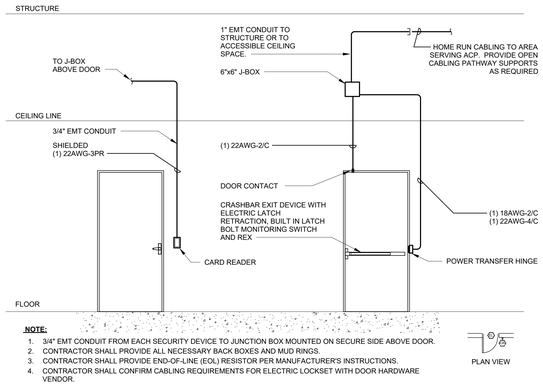
4. CONTRACTOR SHALL CONFIRM CABLING REQUIREMENTS FOR ELECTRIC LOCKSET WITH DOOR HARDWARE VENDOR.

10 SINGLE DOOR MONITORING ONLY
NTS



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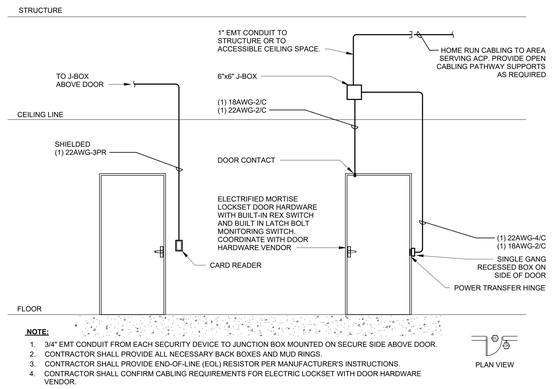
4. CONTRACTOR SHALL CONFIRM CABLING REQUIREMENTS FOR ELECTRIC LOCKSET WITH DOOR HARDWARE VENDOR.

9 SINGLE DOOR WITH ELECTRIC LATCH RETRACTION CARD-IN/REX-OUT WITH CRASH BAR
NTS



NOTE:
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2. CONTRACTOR SHALL PROVIDE ALL NECESSARY BACK BOXES AND MUD RINGS.
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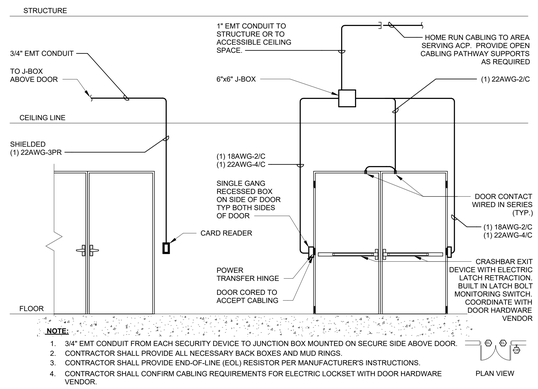
4. CONTRACTOR SHALL CONFIRM CABLING REQUIREMENTS FOR ELECTRIC LOCKSET WITH DOOR HARDWARE VENDOR.

8 SINGLE DOOR CARD-IN/REX-OUT ELEC. MORTISE
NTS



NOTE:
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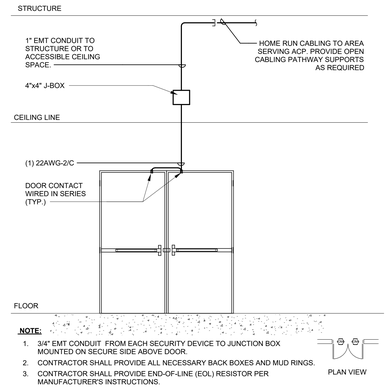
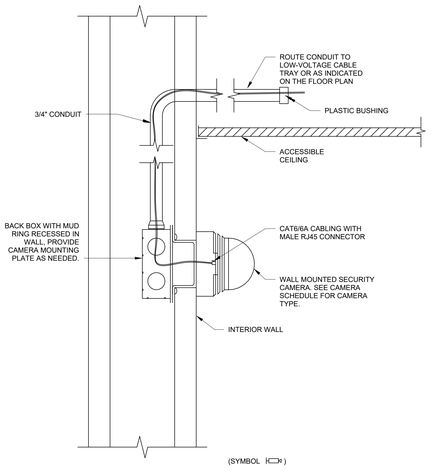
2. CONTRACTOR SHALL PROVIDE ALL NECESSARY BACK BOXES AND MUD RINGS.
3. CONTRACTOR SHALL PROVIDE END-OF-LINE (EOL) RESISTOR PER MANUFACTURER'S INSTRUCTIONS.
4. CONTRACTOR SHALL CONFIRM CABLING REQUIREMENTS FOR ELECTRIC LOCKSET WITH DOOR HARDWARE VENDOR.

7 DOUBLE DOOR CARD-IN/CARD-OUT WITH CRASH BAR
NTS

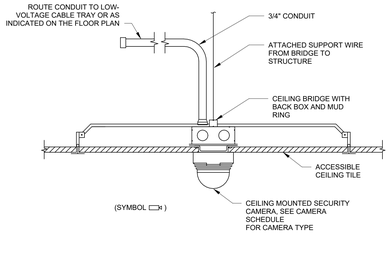


NOTE:
1. 3/4" EMT CONDUIT FROM EACH SECURITY DEVICE TO JUNCTION BOX MOUNTED ON SECURE SIDE ABOVE DOOR.
2. CONTRACTOR SHALL PROVIDE ALL NECESSARY BACK BOXES AND MUD RINGS.
3. CONTRACTOR SHALL PROVIDE END-OF-LINE (EOL) RESISTOR PER MANUFACTURER'S INSTRUCTIONS.

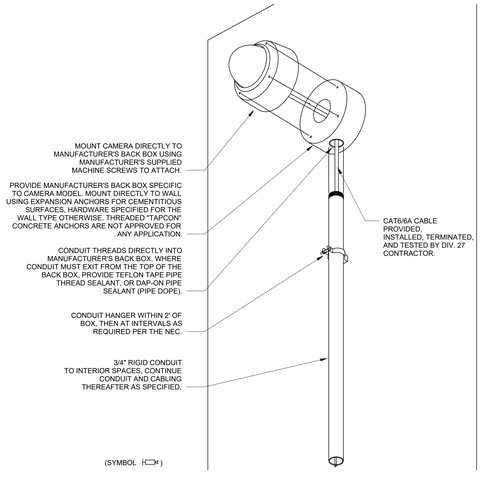
6 DOUBLE DOOR MONITORING ONLY
NTS



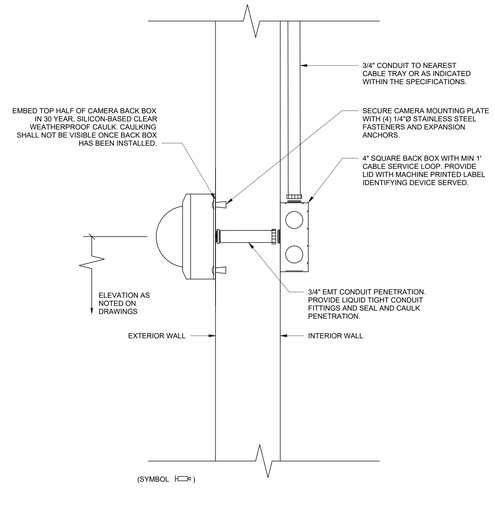
5 INTERIOR WALL MOUNTED CAMERA
NTS



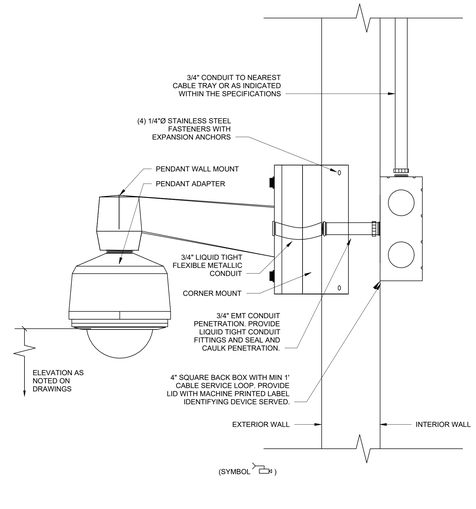
4 CEILING MOUNTED CAMERA - SURFACE
NTS



3 EXTERIOR WALL MOUNTED CAMERA - SURFACE (ISO)
NTS



2 EXTERIOR WALL MOUNTED CAMERA
NTS



1 EXTERIOR CORNER MOUNTED CAMERA - ARM
NTS

NICHOLAS A. DECOSTER
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CLIENT

City of West Memphis

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NO.	DATE	DESCRIPTION
	2023-09-15	75% CONSTRUCTION DOCUMENT PROGRESS

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Projectluong.com

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WWW.HENDERSONENGINEERS.COM
2550004264
AR_CORPORATE NO. 484
EXPIRES 12/31/2026

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV,
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

SECURITY DETAILS

SHEET NUMBER

TY-500

ACCESS CONTROL SCHEDULE		
DOOR NUMBER	DETAIL	SERVING ZONE
A129A	11/TY-500	IDF A161
A129B	7/TY-500	IDF A161
A144	6/TY-500	IDF A161
A145	6/TY-500	IDF A161
A150	8/TY-500	IDF A161
A156	8/TY-500	IDF A161
A157	10/TY-500	IDF A161
A161	8/TY-500	IDF A161
A190	12/TY-500	IDF A161
IDF A161: 12		
A101B	10/TY-500	NORTH IDF
A101C	7/TY-500	NORTH IDF
A101D	6/TY-500	NORTH IDF
A104	8/TY-500	NORTH IDF
A126	9/TY-500	NORTH IDF
A138	8/TY-500	NORTH IDF
A140	7/TY-500	NORTH IDF
A142	6/TY-500	NORTH IDF
NORTH IDF: 10		
Grand total: 22		

VIDEO SURVEILLANCE SCHEDULE				
LABEL	TYPE	MODEL	LEVEL	SERVING ZONE
C-A127:01		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	IDF A161
C-A135:01		Generic Four Imager Camera	MEP - LEVEL 01	IDF A161
C-A136:01		Generic Fisheye Camera	MEP - LEVEL 01	IDF A161
C-A140:04		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A141:02		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A142:03		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A144:01		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A144:02		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	IDF A161
C-A144:03		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A145:01		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A145:02		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A145:03		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A145:04		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	IDF A161
C-A146:01		Generic Four Imager Camera	MEP - LEVEL 01	IDF A161
C-A146:02		Generic Four Imager Camera	MEP - LEVEL 01	IDF A161
C-A157:01		Generic Two Imager Camera	MEP - LEVEL 01	IDF A161
C-A157:02		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	IDF A161
C-EXT:02		Generic Three Imager Camera	MEP - LEVEL 01	IDF A161
C-EXT:03		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	IDF A161
C-EXT:05		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	IDF A161
C-EXT:08		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	IDF A161
C-EXT:09		Generic Three Imager Camera	MEP - LEVEL 01	IDF A161
IDF A161: 22				
C-A101:01		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-A101:02		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A101:03		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A101:04		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-A101:05		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-A101:06		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A101:07		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A126:01		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A137:01		Generic Fisheye Camera	MEP - LEVEL 01	NORTH IDF
C-A140:01		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A140:02		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-A140:03		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A141:01		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-A141:01		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-A141:02		Generic Two Imager Camera	MEP - LEVEL 01	NORTH IDF
C-EXT:01		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-EXT:04		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-EXT:06		Generic Three Imager Camera	MEP - LEVEL 01	NORTH IDF
C-EXT:07		Generic Three Imager Camera	MEP - LEVEL 01	NORTH IDF
C-EXT:10		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
C-EXT:11		Generic Dome Camera - Surface Mount	MEP - LEVEL 01	NORTH IDF
NORTH IDF: 21				
C-EXT:12		Generic Dome PTZ Camera	MEP - ROOF	IDF A161
IDF A161: 1				
Grand total: 44				

NICHOLAS A. DECOSTER
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LICENSE # 18231

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CLIENT

City of West Memphis

DRAWING ISSUE

#	DATE	DESCRIPTION
	2025-05-16	75% CONSTRUCTION DOCUMENT PROGRESS

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WWW.HENDERSONENGINEERS.COM
2500042R4
AR. CORPORATE NO: 484
EXPIRES 12/31/2026

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV.
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

SECURITY SCHEDULES

SHEET NUMBER

TY-600

Division 28: GENERAL ELECTRONIC SECURITY REQUIREMENTS

1. GENERAL INSTRUCTIONS

A. GENERAL REQUIREMENTS

All requirements under Division 01 and the general and supplementary conditions of these specifications apply to this section and division. Where the requirements of this section and division exceed those of Division 01, this section and division take precedence. Become thoroughly familiar with all its contents as to requirements that affect this division, section, or both. Work required under this division includes all material, equipment, appliances, transportation, services, and labor required to complete the entire system as required by the drawings and specifications, or reasonably inferred to be necessary to facilitate the function of each system as implied by the design and the equipment specified.

The specifications and drawings for the project are complementary, and any portion of the work mentioned in one and not the other is carried and described in both. In the event of discrepancies, notify the Engineer and request clarification prior to proceeding with the Work involved.

Drawings are graphic representations of the work upon which the contract is based. They indicate the materials and the scope, which may or may not, including sizes, shapes, locations, and connections. They convey the scope of work, indicating the intended general arrangement of the systems without showing all of the exact details as to construction, offsets, control lines, and other installation requirements. Use the drawings as a guide when laying out the work and to verify that materials and equipment will fit into the designated spaces, and which when installed per manufacturers' requirements, will ensure a complete, coordinated, satisfactory, and properly operating system.

B. DEFINITIONS

Division: References contained in this specification follow the numbering system defined in the Construction Specifications Institute (CSI) Master Format Edition.
Furnish: "to supply and deliver to the project site, ready for unloading, unpacking, assembling, installing, and similar operations."

Install: "to perform all operations at the project site including, but not limited to, the actual unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, testing, commissioning, starting up and similar operations, complete, and ready for the intended use."

Provide: "to furnish and install."

Furnished by Owner (or Owner-Furnished) or Furnished by Others: "an item furnished by the Owner or under other divisions or contracts, and installed under the requirements of this division, complete, and ready for the intended use, including all items and services incidental to the work necessary for proper installation and operation. Include the installation under the warranty required by this division."

Contract Administrator: Where referenced in this Division, "Contract Administrator" is the primary liaison between the Owner and the Contractor. Specifically, for this project this is the Architect.

Design Consultant: Where referenced in this Division, "Design Consultant" is the Design Professional for the Work under this Division, and is a Consultant to, and an authorized representative of, the Contract Administrator, as defined in the General and/or Supplementary Conditions. Where used in this Division, it means increased responsibilities and obligations to, the Design Professional, in addition to involvement by, and obligations to, the Contract Administrator.

AHJ: The local code and/or inspection agency (Authority) Having Jurisdiction over the Work.

NRTL: Nationally Recognized Testing Laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA), and acceptable to the AHJ over this project. Nationally recognized testing laboratories and standards listed are used only to represent the characteristics required and are not intended to restrict the use of other NRTLs that are acceptable to the AHJ and standards that meet the specified criteria.

Substitution: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed in Contractor. Substitutions include Value Engineering proposals.
1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

The terms "approved equal", "equivalent", or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified". The term "approved" shall mean labeled, listed, certified, or all three, by an NRTL, and acceptable to the AHJ over this project.

C. PRE-BID SITE VISIT

Prior to submitting bid, visit the site of the proposed work and become fully informed as to the conditions under which the work is to be done. Failure to comply with this requirement shall not be considered sufficient justification to request or obtain extra compensation over and above the contract price.

D. MATERIAL AND WORKMANSHIP

Provide new material, equipment, and apparatus under this contract unless otherwise stated herein, of best quality or higher grade for the purpose in good commercial practice, and free from defects. Model numbers listed in the specifications are those of current manufacturer's product lines intended to designate the required trim, written descriptions of the trim govern model numbers.

Provide markings or a nameplate for all material and equipment identifying the manufacturer and providing sufficient reference to establish quality, size, and capacity. All workmanship shall be of the finest possible by experienced mechanics of the proper trade. In general, provide the following quality grade(s) for all materials and equipment.

Provide all hoists, scaffolds, staging, runways, tools, machinery, and equipment required for the performance of the communication work. Store and maintain materials and equipment in clean condition, and protected from weather, moisture, and physical damage.

Furnish only material and equipment that are listed, labeled, certified, or all three, by an NRTL where there is any listing or labeling exists for the types of material and equipment specified.

E. MANUFACTURERS

In other articles where lists of manufacturers are introduced, subject to compliance with requirements, provide products by one of the manufacturers specified.

Where a list is provided, manufacturers are listed alphabetically and not in order of preference.

Where manufacturers are not listed, provide products subject to compliance with requirements from manufacturers that have been actively involved in manufacturing the specified product for no less than 3 years.

F. COORDINATION

Coordinate all work with other divisions and trades so that various components of the systems are installed in the proper time, fit the available space, and allow proper service access to those items requiring maintenance. Components which are installed without regard to the above shall be relocated at no additional cost to the Owner.

Unless otherwise indicated, the General Contractor shall provide chases and openings in building construction required for installation of the systems specified herein. Contractor shall furnish the General Contractor with information where chases and openings are required. Contractor shall keep informed as to the work of other trades engaged in the construction of the project and shall execute work in a manner as to not interfere with or delay the work of other trades.

Figured dimensions shall be taken in preference to scale dimensions. Contractor shall take his own measurements at the building, as variations may occur. Contractor shall be held responsible for errors that could have been avoided by proper checking and inspection.

Provide materials with trim that will properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers listed in the specifications or shown on the drawings are not intended to designate the required trim.

Make all offsets required to clear equipment, beams, and other structural members, and to facilitate concealing raceways in the manner anticipated in the design. Provide materials with trim that will fit properly the types of ceiling, wall, or floor finishes actually installed.

G. ORDINANCES AND CODES

Work performed under this contract shall, at a minimum, be in conformance with applicable national, state and local codes having jurisdiction. Equipment furnished and associated installation work performed under this contract shall be in strict compliance with current applicable codes adopted by the local AHJ, including any amendments and standards as set forth by the following:
1. National Fire Protection Association (NFPA)
2. Underwriters Laboratories (UL)
3. Occupational Safety and Health Administration (OSHA)
4. American National Standards Institute (ANSI)
5. American Society of Testing Materials (ASTM)
6. Rules and regulations of public utilities and municipal departments affected by connection of services.
7. Other national standards and codes where applicable.

Where the contract documents exceed the requirements of the referenced codes, standards, etc., the contract documents shall take precedence. Where conflicts between various codes, ordinances, rules, and regulations exist, comply with the most stringent.

Promptly bring all conflicts observed between codes, ordinances, rules, regulations, referenced standards, and these documents to the attention of the Contractor Administrator and Engineer for final resolution. Contractor will be held responsible for any violation of the law.

Procure and pay for permits and licenses required for the accomplishment of the work herein described. Where required, obtain, pay for, and furnish certificates of inspection to Owner. Provide all safety lights, guards, and warning signs required for the performance of the work and for the safety of the public.

H. PROTECTION OF EQUIPMENT AND MATERIALS

Store and protect from damage equipment and materials delivered to job site. For materials and equipment susceptible to changing weather conditions, dampness, or temperature variations, store inside in conditioned spaces. For materials and equipment not susceptible to these conditions, cover with waterproof, tear-resistant, heavy tarp or polyethylene plastic as required to protect from plaster, dirt, paint, water, or physical damage. Equipment and material damaged by construction activities shall be rejected, and Contractor shall furnish new equipment and material of a like kind at his own expense.

Keep premises broom clean of foreign material created during work performed under this contract. Conduit, equipment, etc. shall have a neat and clean appearance at the termination of the work.

Plug or cap open ends of conduits while stored and installed during construction when not in use to prevent the entrance of debris into the systems.

I. SUBSTITUTIONS

Materials, products, equipment, and systems described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution. The base bid shall include only the products from manufacturers specifically named in the drawings and specifications. To request a substitution, request the Substitution Request Form from the Contract Administrator Engineer. Complete and send the Substitution Request Form for each material, product, equipment, or system that is proposed to be substituted. The burden of proof of the merit of the proposed substitution is upon the proposer.

Unless stated otherwise in writing to the Engineer by the Contractor, Contractor warrants to the Engineer, Contract Administrator, and Owner the following:
1. Proposed substitution has been fully investigated and determined to meet or exceed the specified Work in all respects unless stated otherwise in the substitution request.
2. Proposed substitution is consistent with the Contract Documents and will produce indicated results, including functional clearances, maintenance service, and sourcing of replacement parts.
3. Proposed substitution has received necessary approvals of authorities having jurisdiction.
4. Same warranty will be furnished for proposed substitution as for specified Work.
5. If accepted substitution fails to perform as required, Contractor shall replace substitute material or system with that originally specified and bear costs incurred thereby.
6. Coordination, installation and changes in the Work as necessary for accepted substitution will be complete in all respects.

No substitutions will be considered unless the Substitution Request Form is completed and attached with the appropriate substitution documentation. No substitution will be considered prior to receipt of bids unless written request for approval has been received by the Engineer at least ten (10) calendar days prior to the date for receipt of bids.

If the proposed substitution is approved prior to receipt of bids, such approval will be stated in an addendum. Bidders shall not rely upon approvals made in any other way. Verbal approval will not be given. No substitutions will be considered after the contract is awarded unless specifically provided in the contract documents.

Provide factory generated *point-by-point* calculations for all exterior light fixtures (photometric files supplied so the engineer can generate a point-by-point do not suffice for the point-by-point calculations). Provide interior point-by-point calculations at the discretion of the engineer.

J. SUBMITTALS

Assemble and submit for review shop drawings, material lists, manufacturer product literature for equipment to be furnished, and items requiring coordination between contractors under this contract. Provide submittals in sufficient detail so as to demonstrate compliance with these Contract Documents and the design concept. Prior to transmitting submittals, verify that the equipment submitted is mutually compatible with and suitable for the intended use, will fit the available space, and maintain manufacturer recommended service clearances. If the size of equipment furnished makes necessary any change in location or configuration, submit a shop drawing showing the proposed layout.

Transmit submittals as early as required to support the project schedule. Allow two weeks for Engineer review time, plus to/from mailing time via the Contract Administrator, plus a duplication of time for resubmittals, if required. Only resubmit those sections requested for resubmittal.

Submittals shall contain the project name, applicable specification section, submittal data, equipment identifications acronym as used on the drawings and the Contractor's stamp. The stamp shall certify that the submittal has been checked by the Contractor, complies with the drawings and specifications, and is coordinated with other trades. Manufacturer product literature shall include shop drawings, product data, performance sheets, samples, and other submittals required by this division. Highlight, mark, list, or indicate the materials, performance criteria, and accessories that are being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.

Submittals and shop drawings shall not contain firm name, logo, the seal, or signature of the Engineer. They shall not be copies of the electronic product of the Engineer. If the Contractor desires to use elements of such product, refer to paragraph "Electronic Drawing Files" for procedures to be used.

Separate submittals according to individual specification sections. Illegible submittals will be rejected and returned without review. Catalog data shall be properly identified, indexed, and tabbed. A hard copy format or a single PDF file for each specification section is acceptable.
Each item or model number shall be clearly marked, and accessories indicated. Label the catalog data with the equipment identification acronym or number as used on the drawings and include performance ratings, capacities, sizes, weights, materials, finishes, wiring diagrams, electrical requirements and deviations from specified equipment or materials. Mark out inapplicable items. Shop drawings will be returned without review if the above-mentioned requirements are not met.
Provide the quantity of submittals required by Division 01. If not indicated and hard-copy sets are provided, submit a minimum of six (6) copies. Refer to Division 01 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 01. Contractor shall notify the Contract Administrator and Engineer that the submittals have been posted. If electronic submittal procedures are not defined in Division 01, Contractor shall include the website, username, and password information needed to access the submittals. For submittals sent by e-mail, Contractor shall copy the design consultant and the Contract Administrator and Engineer. Contractor shall allow for the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the submittal.

The checking and subsequent acceptance of submittals by the Engineer and/or Contract Administrator shall not relieve the Contractor from responsibility for deviations from the drawings and specifications, errors in dimensions, details, sizes of equipment, or quantities, omission of components or fittings, coordination of electrical requirements, and not coordinating items with actual building conditions and adjacent work. Contractor shall request and secure written acceptance from the Engineer and Contract Administrator prior to implementing any deviation.

K. ELECTRONIC DRAWING FILES

In preparation of shop drawings or record drawings, Contractor may, at his option, obtain electronic drawing files in AutoCAD or DWF format on CD-ROM disk, DVD disk, flash drive, or direct download, as desired, from the Engineer for a shipping and handling fee of $200 for a drawing set up to 12 sheets and $15 per sheet for each additional sheet. Contact the Contract Administrator for written authorization and Engineer for the necessary agreement form and shipping method and drawing format. In addition to payment, the written authorization from the Contract Administrator and release agreement form from the Engineer must be received before electronic drawing files will be sent.

L. RECORD DRAWINGS (AS-BUILT DRAWINGS)

During progress of the work in this division, Contractor shall maintain an accurate record of all changes made during the installation of the system. Upon completion of the work, accurately transfer all record information to three identical sets of the applicable shop drawings. Insert one set into each copy of the manual described below.

See Division 01 and General Conditions for additional information.

M. OPERATION AND MAINTENANCE INSTRUCTIONS

During the course of construction, collect and compile a complete brochure of equipment furnished and installed on this project. Include operational and maintenance instructions, manufacturer's catalog sheets, wiring diagrams, parts lists, approved submittals and shop drawings, warranties, and descriptive literature as furnished by the equipment manufacturer. Include an inside cover sheet that lists the project name, date, Owner, Contract Administrator, Engineer, General Contractor, Sub-Contractor, and an index of contents.

Submit three copies of literature bound in approved binders with index and tabs separating equipment types to the Contract Administrator, for Engineer's review, at the termination of the work. Paper clips, staples, rubber bands, loose-leaf binding, and mailing envelopes are not considered approved binders. Final approval of systems installed under this contract shall be withheld until this equipment brochure is received and deemed complete by the Contract Administrator and Engineer. Instruct workmen to save required literature shipped with the equipment itself for inclusion in this brochure.

Include Record Drawings as described above.

Refer to Division 01 for acceptance of electronic manuals for this project. For electronic manuals, refer to paragraph "Submittals" for requirements.

N. TRAINING

At a time mutually agreed upon between the Owner and Contractor, provide the services of a factory trained and authorized representative to train Owner's designated personnel on the operation and maintenance of the equipment provided for this project.

Provide training to include, but not be limited to, an overview of the system and/or equipment as it relates to the facility as a whole; operation and maintenance procedures and schedules related to start-up, shutdown, troubleshooting, servicing, preventive maintenance, and appropriate operator intervention; and review of data included in the operation and maintenance manuals.

Submit a certification letter to the Contract Administrator stating that the Owner's designated representative has been trained as specified herein. Letter shall include date, time, and subject of training. The Contractor and the Owner's representative shall sign the certification letter indicating agreement that the training has been provided.

Schedule training with Owner with at least 7 days advance notice.

O. WARRANTIES

Warrant each system and each element thereof against all defects due to faulty workmanship, design, or material for a period of 12 months from date of Substantial Completion, unless specific items are noted to carry a longer warranty in these construction documents or manufacturer's standard warranty exceeds 12 months. Remedy all defects occurring within the warranty period(s) as stated in the General Conditions and Division 01.

Warranties shall include labor and material, including travel expenses. Make repairs or replacements without any additional costs to the Owner, and to the satisfaction of the Owner, Contract Administrator, and Engineer.

Perform the remedial work promptly, upon written notice from the Engineer or Owner.

At the time of Substantial Completion, deliver to the Owner all warranties, in writing and properly executed, including term lists for warranties extending beyond the one-year period and any actions the Owner must take in order to maintain warranty status. Each warranty instrument shall be addressed to the Owner and state the commencement date and term.

2. GENERAL MATERIALS AND INSTALLATION

A. BUILDING OPERATION

Comply with the schedule of operations as outlined in the architectural portions of this specification. Building shall be in operation during normal workday hours. Accomplish work requiring interruption of building operation at a time when the building is not in operation and only with written approval of building Owner and/or tenant. Coordinate interruption of building operation with the Owner and/or tenant a minimum of seven (7) days in advance of work.

C. COINCIDENTAL DAMAGE

Repair streets, sidewalks, drives, paving, walls, finishes, and other facilities damaged in the course of this Work. Repair materials shall match existing construction. Repair shall be in accordance with the requirements of the Owner, local authorities having jurisdiction, and meet the satisfaction of the Contract Administrator. Repair work shall be high-quality first class. Conform to requirements of Division 02 of these specifications.

D. CUTTING AND PATCHING

Conform to the requirements in Division 01. Cut walls, floors, ceilings, and other portions of the facility as required to install work under this division. Obtain permission of the Contract Administrator prior to cutting. Do not cut or disturb structural members without prior approval from the Contract Administrator. Cut holes as small as possible. Patch walls, floors, and other portions of the facility as required by work under this division. Patching shall match the original material and construction including fire ratings, if applicable. Repair and refinish areas disturbed by work to the condition of adjoining surfaces in a manner satisfactory to the Contract Administrator.

E. ROUGH-IN

Coordinate without delay all roughing-in with other divisions. Conceal all conduit and raceways except in unfinished areas and where otherwise indicated on the drawings.

F. SUPPORT SYSTEMS

Steel Slotted Support Systems (Slotted Channel): Comply with MFMA-3, factory-fabricated components for parts installed; 12-gauge, 1-5/8-inch by 1-5/8-inch.

Finishes:
1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-3.
2. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane or polyester coating applied according to MFMA-3.
3. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-3.

Aluminum Slotted Support Systems (Slotted Channel): Comply with MFMA-3, Type 6063-T6, per ASTM B221; factory-fabricated components for field assembly; 12-gauge, 1-5/8-inch by 1-5/8-inch.

Manufacturers: Cooper B-Line, ERICO International, Hilti, Power-Strut, Thomas and Betts, or Unistrut.

Field Fabrication:

Where field cutting of standard lengths of channel are required, make cuts straight and perpendicular to manufactured surfaces.

For field-cut or damaged surfaces of coated channels, dress cut ends, damaged surfaces, or both, with an abrasive material (e.g., file, grinding stone, or similar) and cleanser to remove oils, rust, sharp edges, and shards.

For channel with a factory-applied coating, re-finish cut edges with a coating compatible with the factory finish and as recommended by the manufacturer (e.g., manufacturer's touch-up paint or zinc-rich cold-galvanizing compound, as applicable).

G. ACCESS DOORS

Provide access doors for all concealed equipment where indicated or as required, except where lay-in ceilings. Access doors shall be adequately sized for the devices served with a minimum size of 18 inches x 18 inches. Access doors must be of the proper construction for the type of construction in which it is installed. Manufacturer shall be selected by type, size, location and color before ordering. Provide factory-fabricated and assembled units, complete with attachment devices and fasteners ready for installation, concealed hinges, flush screwdriver-operated cam lock, and anchor straps. Provide access doors manufactured by: Bar-Co, J.L. Industries, Karp Associates, Milcor, Nystrom Building Products, Wade, or Zum.

H. PENETRATIONS

Coordinate sleeve selection and application with selection and application of fire-stopping specified in Division 07 section "Through-Penetration Firestop Systems."

Roofs:
1. Coordinate all roof penetrations with Engineer, Owner, and as applicable, the roofing contractor providing a roof warranty.

2. Keep all raceway penetrations within mechanical equipment curbs wherever possible. Coordinate with Division 01.

3. Flash and counter flash all openings through roof, and/or provide prefabricated molded seals compatible with the roof construction installed, or as required by the Engineer, Owner, or roofing contractor. All roof penetrations shall be leak tight at the termination of the work and shall not void any new or existing roof warranties.

Walls and Floors:
1. Steel Pipe Sleeves for Raceways and Cables: ASTM A53/A53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends, and drip rings.

2. Cast-Iron Pipe Sleeves for Raceways and Cables: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

3. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052 inch thickness and of length to suit application.

I. FIRESTOPPING

Sealants and accessories shall have fire-resistance ratings indicated, as established by testing identical assemblies in accordance with UL 2079 or ASTM E 814, or other NRTL acceptable to AHJ.

Manufacturers: Hilti, RectorSeal, Specified Technologies Inc., United States Gypsum Company, or 3M corp.

Through and Membrane Penetration Firestopping Systems Product Schedule: Provide UL listing, location, wall or floor rating, and installation drawing for each penetration fire stop system.

Where project conditions require modification to qualified testing and inspecting agency's illustrations for a particular firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Include qualifications data for testing agency.

J. EQUIPMENT FURNISHED BY OTHERS

Provide necessary equipment and accessories that are not provided by the equipment supplier or Owner to complete installation of equipment furnished by others in locations as indicated on the drawings, specified herein, or both. Equipment and accessories not provided by the equipment supplier may include, but not be limited to, flexible cords and plugs as required for proper operation of the complete system, in accordance with the manufacturers' instructions.

Contractor shall be responsible for correct rough-in dimensions and verify them with Contract Administrator and/or equipment supplier prior to rough-in and service installations.

K. SYSTEM TESTING AND ADJUSTING

Adjust, align, and test all communications equipment on this project provided under this division and all communications equipment furnished by others for installation or wiring under this division for proper operation.

Test all systems and equipment according to the requirements in NETA ATS (latest edition) and all additional requirements specified in following sections.

Maintain the following on the project premises at all times: a true RMS reading voltmeter, a true RMS reading ammeter, and a megohmmeter insulation resistance tester. Provide test data readings as requested or as required by the Engineer.

END OF SECTION 28

SECTION 28A: COMMON WORK FOR ELECTRONIC SECURITY

1. GENERAL

A. WORK INCLUDED

Provide common work for the technology sub-systems for this construction project, consisting of the following components:
1. Pathways
   a. Cable Supports
   b. Conduit
   c. Outlet Boxes
   d. Pull Boxes
2. Firestopping Systems
3. Security Fastening
4. Identification of these components

Provide all equipment, materials, labor, and services, not specifically mentioned or shown, which may be necessary to complete or perfect all parts of the installation. ensure they are following the requirements stated or reasonably inferred by the contract documents.

B. REFERENCES

Contractor shall meet the following standards and guidelines (latest editions):
1. ANSI/TIA-569 "Commercial Building Standard for Telecommunications Pathways and Spaces
2. BICSI TDMM "Telecommunications Distribution Methods Manual"
3. BICSI ITSIMM "Information Technology Systems Installation Methods Manual"
4. ASTM E 814 AND ANSI/UL1479 "Fire Tests Through Penetration Firestops"
5. ASTM E 84 AND ANSI/UL 723 "Surface Burning Characteristics of Building Materials"
6. ASTM E 119 AND ANSI/UL 263 "Fire Tests of Building Construction Materials"

Install all work in strict conformance with all manufacturers' requirements and recommendations unless these documents exceed those requirements. Install all equipment and materials in a neat and professional manner, aligned, leveled, and adjusted for satisfactory operation, in accordance with NECA guidelines.

C. SUBMITTALS

Preconstruction submittals. Product cutsheets for firestopping, cable tray, floor boxes, poke-throughs, and cable support. Shop drawings indicating proposed conduit routing, pull box sizes and locations, dimensioned floor box and poke-thru locations, and all firestopping locations with product information and UL system called out at each firestop location.

Post construction submittals: As-built 'record drawings' – preconstruction shop drawings updated with any minor changes made in the field. Operation & Maintenance instructions for firestopping, cable tray, and floor boxes/poke-throughs.

Regulatory Requirements: Provide products listed and classified by Underwriter's Laboratories, Inc. as suitable for the purpose intended. Provide the following to meet NEC requirements: unlisted entrance cables shall not be routed exposed in the building for more than 50 feet; extend entrance conduits in intermediate or right of way metal poles to telecommunications entrance room. Plenum-rated horizontal and backbone cables are required wherever routed in return-air plenum spaces. Wet-rated horizontal and backbone cables are required wherever routed in wet or damp locations (as defined in the NEC) and shall transition to plenum-rated cables wherever they enter a return-air plenum space; provide an appropriately sized transition point enclosure.

Electronic Security Systems Warranty: All components of the electronic security systems shall be covered by a manufacturer warranty for a period of at least (1) years. For Software as a Service and cloud managed electronic security systems provide at least (5) years of support, service, and system management. This warranty shall cover materials, equipment, and workmanship, as well as the performance of the system for all current and future applications.

2. PRODUCTS AND MATERIALS

A. ACCESS CONTROL

Access Control System (ACS): <Extend the existing XXX access control system.> <Provide an access control system to control and monitor electro-mechanical barriers that limit physical access to authorized persons to openings of a secured area. System shall consist of a PC-based Server, networked PC-based client workstation(s), and field-installed panels and devices, connected by an Owner-provided high-speed electronic data transmission network.>

Access Control system shall integrate with the following Electronic Security Systems:
Intercom Entry System –
1. Answering stations shall be programmed to allow a button to release/unlock the door or gate adjacent to initiating intercom station via the Access Control System.
Video Surveillance System (VSS) –
1. Workstation(s) shall be programmed to display live video and recorded from Video Surveillance cameras.
2. Provide the alarm-handling window with a command button that will display the camera associated with the alarm point.
3. Display mouse-selectable icons representing each camera source, to select source to be displayed.

Door Hardware Interface – Coordinate with Division 08 Sections that specify door and gate hardware required to be monitored or controlled by the ACS. The Controllers in this Section shall have electrical characteristics that match the signal and power requirements of door hardware. Integrate door hardware specified in Division 08 Sections to function with the controls and PC-based software and hardware in this Section.

Security management software – <By Owner. Coordinate with Owner for existing software version, access to the existing system, and the programming requirements.> <ACS, Database Management, and Integration Platform basis of design manufacturers are:
1. Lenel S2; OnGuard
2. Genetec; Security Center
3. Software House; C-CURE 9000
These vendor systems are well-established in the industry and offer advanced features that form the general Basis-of-Design required for this project. Alternate vendor systems will be considered by the Design Consultant PRIOR TO BID only.>

Access Control System server – <By Owner.> <Rack-mounted server from ACS vendor or off-the-shelf server that meets the performance requirements of the ACS. Coordinate exact requirements with ACS vendor prior to Pre-Construction Submittals. Connect server to a rack-mount UPS unit that shall extend the runtime for a minimum of 30 minutes.> <Cloud-hosted by ACS manufacturer. Coordinate connection to cloud server with Owner's IT department and provide any gateway devices required for a complete and functional system.>

Access Control System client workstation – <By Owner.> <A workstation PC from ACS vendor or off-the-shelf workstation PC that meets the performance requirements of the ACS and VSS. Coordinate exact requirements with ACS vendor prior to Pre-Construction Submittal. Connect each workstation to a desktop UPS unit that shall extend runtime of each workstation computer and its monitors for a minimum of [30 minutes].>

Access Control Panels/Controllers - Provide IP addressable access controllers with reader and input/output system modules as necessary for a complete and functional access control system. The controller shall be an independent network appliance with the ability to control a minimum of (8) doors and support a minimum of (64) input and output connections utilizing multiple combinations of system modules. The controller shall store the card holder database and alarm and event buffers on-board to allow the controller to maintain functionality if connection to the host server is lost.

Firestopping: Provide a label on both sides of all fire stop locations, indicating firestop manufacturer, installer and company, date installed, and UL system number with all relevant ratings indicated. Where cable tray routing encounters a rated wall, stop cable tray and provide firestop devices (sleeves) through rated wall. Firestop devices shall equal that of the cable tray. Wherever j-hook cable routing encounters a rated wall, provide firestop devices through rated wall. Capacity of firestop devices shall equal that of the installed cabling plus 25% spare capacity.

Labeling: Label all conduit with "Security" according to the intended system use of the installated or future cabling. For wall stub-up locations, label overhead only.
For conduits greater than 10', label both ends of conduit with far end location and room/number. Example – Security to Security Rack R01 (Room 025) FOR conduits that stub up directly into a communications equipment room, label both ends of conduit with far end location and room/number. Far end label shall be inside floor box. Label pull boxes "Security" on the cover.

END OF SECTION 28A

SECTION 28B: ELECTRONIC SECURITY SYSTEMS

1. GENERAL REQUIREMENTS

A. WORK INCLUDED

Furnish and install complete Electronic Security System (ESS) for this construction project, consisting of:
1. Access Control System
2. Intrusion Detection System
3. Video Surveillance System
4. Network Infrastructure

Provide all equipment, materials, labor, and services, not specifically mentioned or shown, which may be necessary to complete or perfect all parts of the installation. Ensure that they are following the requirements state or reasonably inferred by the contract documents.

Work is to be completed by certified installers of the system manufacturer that is being installed.

Work not included / related sections: Common work, such as raceways and backboxes, are by Division 26. Category cabling for security cameras is by Division 27.

POE network switches and configuration are by Owner. Within 2 weeks after award of project, schedule a meeting or conference call with the Owner's IT department to coordinate port counts, bandwidth, and other miscellaneous network requirements (such as IP addresses, mac addresses, and firewall and VLAN settings).

Codes, standards, and guidelines:

Follow the most current revisions of the following codes and standards:
1. NFPA 70 – National Electric Code
2. NFPA 101 – Life Safety Code
3. NFPA 730 – Guide for premises security
4. NFPA 731 – Installation of electronic premises security systems
5. ANSI/BICSI 005-2013 – Electronic safety and security system design and implementation best practices
6. UL 294 – Access Control Systems and Units
7. UL 681 – Standard for Installation and Classification of Burglar and Holdup Alarm Systems

BICSI electronic safety and security design reference manual definitions:

ESN – Electronic security network
ESC – Electronic security contractor, the primary contractor of this section, responsible for fully coordinating all electronic security system requirements with other divisions and sections, such as power, fire alarm, and pathways/other common work.
GB – gigabyte
KVM – Keyboard, Video, and Mouse
NJATC – National Joint Apprenticeship and Training Committee
NVR – Network Video Recorder
POE – Power over Ethernet
RAID – Redundant Array of Independent Disks
RCCD – Registered Communications Distribution Designer, a BICSI designation
RTPM – Registered Telecommunications Project Manager, a BICSI designation

B. CONTRACTOR QUALIFICATIONS

Bidding contractor shall have a minimum of five continuous years in the business of integrating and installing electronic security systems. Bidding contractor shall be a certified installer by the equipment manufacturers whose products shall be incorporated into this project. Post-award certification will not be accepted. If requested, provide archived or cached proof of certification.

The ESC's project manager shall have a minimum of five years' experience and have one of the following certifications/degrees: ASIS PSP or CPP, BICSI RCDD or RTPM (or equivalent from local union); NICET Level III video specialist (or equivalent from local union); or a technology-related degree from an ABET accredited institution.

C. SUBMITTALS

Preconstruction submittals. Product cutsheets. Shop drawings: Scaled floor plans indicating device locations and proposed cable / conduit routing. All device locations to be labeled with unique identifier. Enlarged floor plans and wall/rack elevations, with manufacturer components identified by part number. Schematic riser diagrams for each security sub-system with all devices shown and labeled with a unique identifier. Cable between headend equipment and devices shall be identified by cable type and manufacturer/part number.

Post construction submittals: As-built 'record drawings' – preconstruction shop drawings updated with any minor changes made in the field. Operation & maintenance information.
Structured cabling warranty certificate. Test results, per Part 3.

Regulatory Requirements: Provide products listed and classified by Underwriter's Laboratories, Inc. as suitable for the purpose intended. Provide the following to meet NEC requirements: unlisted entrance cables shall not be routed exposed in the building for more than 50 feet; extend entrance conduits in intermediate or right of way metal poles to telecommunications entrance room. Plenum-rated horizontal and backbone cables are required wherever routed in return-air plenum spaces. Wet-rated horizontal and backbone cables are required wherever routed in wet or damp locations (as defined in the NEC) and shall transition to plenum-rated cables wherever they enter a return-air plenum space; provide an appropriately sized transition point enclosure.

Electronic Security Systems Warranty: All components of the electronic security systems shall be covered by a manufacturer warranty for a period of at least (1) years. For Software as a Service and cloud managed electronic security systems provide at least (5) years of support, service, and system management. This warranty shall cover materials, equipment, and workmanship, as well as the performance of the system for all current and future applications.

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Security management software – <By Owner. Coordinate with Owner for existing software version, access to the existing system, and the programming requirements.> <ACS, Database Management, and Integration Platform basis of design manufacturers are:
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Access Control System client workstation – <By Owner.> <A workstation PC from ACS vendor or off-the-shelf workstation PC that meets the performance requirements of the ACS and VSS. Coordinate exact requirements with ACS vendor prior to Pre-Construction Submittal. Connect each workstation to a desktop UPS unit that shall extend runtime of each workstation computer and its monitors for a minimum of [30 minutes].>

Access Control Panels/Controllers - Provide IP addressable access controllers with reader and input/output system modules as necessary for a complete and functional access control system. The controller shall be an independent network appliance with the ability to control a minimum of (8) doors and support a minimum of (64) input and output connections utilizing multiple combinations of system modules. The controller shall store the card holder database and alarm and event buffers on-board to allow the controller to maintain functionality if connection to the host server is lost.

Power Supplies & Integral Batteries – Power supplies with back up batteries will convert 110-120VAC power to provide centralized 12VDC or 24VDC power to access control equipment and accessories. Manufacturer shall be Altronix or Life Safety Power; provide product cutsheet(s) and battery calculations.
Requirements:
1. Outputs shall be individually fused.
2. Automatic switch shall instantaneously transfer to stand-by battery power upon AC input failure without interruption, providing a minimum run-time of 4-hours at full-load.
   a. Power supply shall have integral charger for sealed lead acid or gel type batteries.
   b. Low battery cutoff shall prevent battery damage from excessive discharge.
   c. Power supplies shall have supervisory relay outputs for AC or battery failure.
3. Fire alarm disconnect which enables emergency egress. The Fire alarm disconnect shall be:
   a. Capable of either latching or non-latching configuration.
   b. Supervised, indicating fire alarm control panel input is triggered via output relay.
   c. Individually addressable for any or all outputs.
4. LEDs shall indicate the presence of AC or DC voltage for input and each individual output.
5. Dedicated LEDs shall indicate status of individually energized relays.

Coordinate with Division 08 Sections that specify door hardware and gate hardware. Provide power supplies that support power requirements of electrified latches, strikes, or magnets required.

Wall-Mounted Enclosures – Install controllers in appropriately rated enclosures that protect against dust, falling dirt, and dripping noncorrosive liquids.
1. Interior Electronics: NEMA 250, Type 12.
2. Exterior Electronics: NEMA 250, Type 4X, stainless steel.
3. Corrosion Resistant: NEMA 250, Type 4X, stainless steel.
4. Screw Covers: Where enclosures are readily accessible, secure with security fasteners of type appropriate for enclosure.

For interior installations, provide an enclosure by Altronix or Life Safety Power that can house the access control panel boards, power supplies and batteries for a complete system. Provide product cutsheet(s).

Card readers – Refer to schedule on contract drawings for approved manufacturer and model numbers. Card readers shall operate at the 13.56 MHz frequency and support ODSP communication over RS-485 cabling. The card readers must also support mobile cred