ABBREVIATIONS:

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANN	ANNUNCIATOR
AP	ACCESS POINT
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BICSI	BUILDING INDUSTRY CONSTRUCTION SERVICE INTERNATIONAL
BLDG	BUILDING
C	CONDUIT
CAB	CABINET
CAT	CATEGORY
CATV	CABLE TELEVISION
CD	CANDELA
CFCI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CL	CENTER LINE
CO	CARBON MONOXIDE
DN	DOWN
(E)	EXISTING
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FTC	FIRE TERMINAL CABINET
GRC	GALVANIZED RIGID CONDUIT
G OR GB	GROUND BOX
IACP	INTRUSION ALARM CONTROL PANEL
IDF	INTERMEDIATE DISTRIBUTION FRAME
IMC	INTERMEDIATE METAL CONDUIT
J OR JB	JUNCTION BOX
MEP	MECHANICAL / ELECTRICAL / PLUMBING
MDF	MAIN DISTRIBUTION FRAME
MPOE	MINIMUM PONT OF ENTRY
(N)	NEW
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NTS	NOT TO SCALE
N/A	NOT APPLICABLE
OFE	OWNER FURNISHED EQUIPMENT
OFCI	OWNER FURNISHED/CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED/OWNER INSTALLED
OSP	OUTSIDE PLANT
PVC	POLYVINYL CHLORIDE
RCDD	REGISTERED COMMUNICATION DISTRIBUTION DESIGNER
RCWY	RACEWAY
RM	ROOM
SR	SURFACE RACEWAY
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRIGHTERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
W	WATT
WP	WEATHERPROOF

TECHNOLOGY SYMBOL LEGEND:

ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MANUFACTURER	PART NUMBER	NOTES / DETAIL REFERENCES
	(N) SURFACE MOUNTED CONDUIT	COMMERCIAL GENERIC	N/A	GREY = EXISTING
	(E) UNDERGROUND CONDUIT	N/A	N/A	N/A
2300	(N) MEDIUM CAPACITY SURFACE MOUNTED CABLE RACEWAY	WIREMOLD	WM2300	GREY = EXISTING
5400	(N) HIGH CAPACITY SURFACE MOUNTED CABLE RACEWAY	WIREMOLD	WM5400	GREY = EXISTING
5500	(N) HIGH CAPACITY SURFACE MOUNTED CABLE RACEWAY	WIREMOLD	WM5500	GREY = EXISTING
E	(N) CONDUIT STUB	COMMERCIAL GENERIC	N/A	GREY = EXISTING
	(E) CONDUIT RISER	N/A	N/A	N/A
MDF	(E) DATA RACK	EXISTING	EXISTING	N/A
MDF / IDF	(N) DATA RACK	EXISTING	EXISTING	GREY = EXISTING
G	(E) GROUND BOX	N/A	N/A	N/A
J	(N) JUNCTION BOX	COMMERCIAL GENERIC	N/A	GREY = EXISTING
MPOE	(E) MINIMAL POINT OF ENTRY	EXISTING	EXISTING	N/A
ICS HE	(E) INTERCOM CONTROL CENTER HEADEND	EXISTING	EXISTING	N/A
KP	(E) INTRUSION KEYPAD	EXISTING	EXISTING	N/A
CLOCK	(N) CAT6A DATA DROP LOCATION (QTY = 1) - IP CLOCK/SPEAKER/IP MODULE COMBO BOX	RAULAND	SEE SHEET T703	N/A (10 T800)
	(N) CAT6A DATA DROP LOCATION - WALL MOUNTED SPEAKER/IP MODULE	RAULAND	SEE SHEET T703	N/A (7 T800)
WP	(N) CAT6A DATA DROP LOCATION - EXTERIOR INTERCOM SPEAKER/IP MODULE	RAULAND & LOWELL	SEE SHEET T703	N/A (8 T800)
	(N) CAT6A DATA DROP LOCATION	SEE 27 10 00	SEE 27 10 00	QTY. AS PER PLAN (11 T800)
	(N) CAT6A DATA DROP LOCATION (QTY = 2) - WIRELESS ACCESS POINT (T-BAR)	SEE 27 10 00	SEE 27 10 00	N/A (14 T800)
WP AP	(N) CAT6A DATA DROP LOCATION - EXTERIOR WIRELESS ACCESS POINT	SEE 27 10 00	SEE 27 10 00	N/A (12 T800) (15 T800)

PRE-CON MEETING REQUIREMENTS:

1. PRIOR TO BEGINNING ANY SITE WORK, INCLUDING DEMO, AN ON-SITE PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE LOW VOLTAGE DESIGNER. ANY SITE WORK COMMENCED PRIOR TO THIS MEETING SHALL BE AT THE CONTRACTOR'S SOLE RISK.

JOB SPECIFIC STANDARDS FOR LOW VOLTAGE:

SEE SPECIFICATIONS DIVISION 27 AND 28 FOR COMPLETE REQUIREMENTS.

1. CONDUIT BODIES, CONDULETS, PULLING ELBOWS, AND/OR "LB" FITTINGS ARE PROHIBITED IN ANY PATHWAY CONTAINING DATA CABLING (COPPER OR FIBER).
2. SINGLE HOLE CONDUIT STRAPS ARE PROHIBITED.
3. ALL WIRE AND CABLE PASSING THROUGH METALWORK SHALL BE SLEEVED WITH AN APPROPRIATE GROMMET OR BUSHING.

SYSTEM PROGRAMMING AND COMMISSIONING REQUIREMENTS:

1. THE DISTRICT WILL PERFORM ALL DATA NETWORK (CISCO) SWITCH PROGRAMMING. ALL OTHER PROGRAMMING/COMMISSIONING IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. TO FACILITATE DATA NETWORK SWITCH PROGRAMMING BY THE DISTRICT, THE CONTRACTOR SHALL PROVIDE, NO LATER THAN 14 CALENDAR DAYS PRIOR TO CUTOVER, AN INVENTORY OF SWITCH PORTS THAT WILL BE UTILIZED BY THE TELECENTER SYSTEM. THIS SHALL INCLUDE ALL DATA DROPS, NEW AND EXISTING.

SCOPE OF WORK:

1. 1. THE CONTRACTOR SHALL PROVIDE A (N) RAULAND TELECENTER U INTERCOM SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL REWORK THE (E) IDF AND MDF LOCATIONS, INCLUDING INSTALLATION OF (N) OWNER-FURNISHED DATA NETWORK SWITCHES, AS NOTED.
3. THE CONTRACTOR SHALL PROVIDE AND PERFORM OTHER DATA NETWORK INSTALLATION AND REWORK AS NOTED.
4. SYSTEMS ON THIS PROJECT REQUIRE CERTIFIED INSTALLERS. CONTRACTOR SHALL COMPLY WITH ALL CERTIFICATION REQUIREMENTS AS A CONDITION OF BID.
5. ALL EQUIPMENT SHALL BE NEW AND CONTRACTOR FURNISHED, UNO.
6. AFTER CUTOVER TO NEW SYSTEMS, THE CONTRACTOR SHALL REMOVE OLD OR ABANDONED DATA NETWORK, AUDIOVISUAL, ANALOG TELEPHONE, ANALOG INTERCOM, ANALOG CLOCK, AND COAX CABLING AND DEVICES AS NOTED.
7. THE PROJECT WILL REQUIRE SWING AND/OR GRAVEYARD AND/OR WEEKEND AND/OR HOLIDAY WORK SCHEDULES IN ORDER TO MEET THE PROJECT REQUIREMENTS AND MINIMIZE DISRUPTION TO THE ACTIVE USE OF THE SITE.
8. THE CONTRACTOR SHALL CAREFULLY COORDINATE CUTOVERS AND ACTIVATION/COMMISSIONING OF NEW SYSTEMS WITH THE DISTRICT REPRESENTATIVE.
9. THE CLOCK/INTERCOM SYSTEM AND ALL DATA NETWORK SYSTEMS SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES THAT SCHOOL IS IN SESSION.

CONTRACTOR FURNISHED DOCUMENTS:

(SHOP DRAWINGS / PRODUCT SUBMITTALS / QUALIFICATIONS)

1. ORDERING AND INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL THE FOLLOWING:
   - 1.1. CONTRACTOR FURNISHED SHOP DRAWINGS ARE RECEIVED AND APPROVED BY THE DESIGNER.
   - 1.2. PRODUCT SUBMITTAL DOCUMENTS ARE RECEIVED AND APPROVED BY THE DESIGNER.
   - 1.3. APPLICABLE QUALIFICATION DOCUMENTATION ARE RECEIVED AND APPROVED BY THE DESIGNER.
2. ANY DESIGN AND/OR INSTALLATION DISCREPANCIES/CHANGE ORDER REQUESTS ARE TO BE ADDRESSED AT TIME OF SHOP DRAWING CREATION. CHANGE ORDERS AFTER APPROVED SHOP DRAWINGS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. ALTERNATIVE PRODUCTS ARE TO SUBMITTED WITH A FORMAL SUBSTITUTION REQUEST AND THE CONTRACTOR IS RESPONSIBLE FOR DEMONSTRATING PRODUCT FULL EQUIVALENCY.
4. IT SHALL BE UNDERSTOOD THAT THE DRAWINGS, DETAILS, AND ONE-LINES PROVIDED WITH THE DESIGN PACKAGE ARE DIAGRAMMATIC. INFORMATION PRESENTED IN DESIGN DRAWINGS ARE AS ACCURATE AS POSSIBLE, BUT ACCURACY IS NOT GUARANTEED AND FIELD VERIFICATION, OF ALL DIMENSIONS, ROUTING, ETC., BY THE CONTRACTOR IS REQUIRED.
5. DRAWINGS AND SPECIFICATIONS ARE PROVIDED TO SHOW THE INTENT OF THE DESIGN TO ASSIST THE CONTRACTOR IN SUBMITTING AN ACCURATE BID. CONTRACTOR IS DIRECTED TO MAKE FIELD SURVEYS AS PART OF THEIR WORK PRIOR TO SUBMITTING SYSTEM LAYOUT DRAWINGS (SHOP DRAWINGS). THE CONTRACTOR SHALL MAKE ALLOWANCE IN THE PROPOSAL TO COMPLY WITH THE INTENT OF THE DESIGN.
6. IN CASE OF DOUBT OF WORK INTENDED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REQUEST INSTRUCTIONS FROM THE DESIGNER OR OWNER PRIOR TO BID.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE, OPERABLE, AND FULLY FUNCTIONING SYSTEM.

TECHNOLOGY GENERAL PROJECT NOTES:

1. UPON COMPLETION OF THE INSTALLATION OF THE SYSTEMS, THE CONTRACTOR SHALL PROVIDE A SATISFACTORY TEST OF THE ENTIRE SYSTEMS IN THE PRESENCE OF THE ARCHITECT/DESIGNER, INSPECTOR, AND THE OWNER.
2. A STAMPED SET OF APPROVED SYSTEM DESIGN DOCUMENTS, AND CONTRACTOR FURNISHED SHOP DRAWINGS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. THE CONTRACTOR SHALL INCORPORATE ANY AND ALL REDLINES TO DRAWINGS SETS AS REQUIRED. ANY DEVIATION FROM APPROVED DESIGN DOCUMENTS, INCLUDING THE SUBSTITUTION OF DEVICES, SHALL BE APPROVED BY THE ARCHITECT/DESIGNER AND THE OWNER PRIOR TO INSTALLATION.
3. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/DESIGNER PRIOR TO INSTALLATION.
4. ALL PENETRATIONS THROUGH RATED ASSEMBLIES REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITH THROUGH PENETRATION FIRST STOP SYSTEMS WITH A "T" RATING EQUAL TO THE ASSEMBLY PENETRATED, SEE DETAILS ON SHEET T801 FOR MORE INFORMATION.
5. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH DEVICE. DO NOT SPLICE THE WIRE. THERE MUST BE AT LEAST 6" OF LEAD WIRE FROM THE BOX TO THE DEVICE.
6. ALL CLOCK, BELL AND INTERCOM CIRCUITS SHALL BE IN CONDUIT, SURFACE RACEWAY, OR OPEN RUN ABOVE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANNER AS INDICATED ON DESIGN DOCUMENTS. EXPOSED CABLES ARE ONLY PERMITTED IF INDICATED ON DESIGN DOCUMENTS AS "EXPOSED".
7. LOW VOLTAGE PANELS, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURER'S SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT FOR 20 lbs., WITHOUT SPECIAL MOUNTING DETAILS.
8. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/DESIGNER AT A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO FINAL INSPECTION FOR FINAL PUNCH ALL ITEMS ON PUNCH LIST MUST BE COMPLETE FOR JOB TO FINAL.
9. PRIOR TO FINAL INSPECTION, THE CONTRACTOR SHALL PROVIDE ALL PROJECT AS-BUILT DRAWINGS AND MANUALS PER SPECIFICATIONS.
10. THE CONTRACTOR SHALL ALSO PROVIDE A TYPED RECORD OF COMPLETION. A FINAL WILL NOT BE GRANTED UNTIL THE ABOVE IS APPROVED BY THE OWNER.
11. THE TERM "PROVIDE" SHALL MEAN TO FURNISH, INSTALL AND MAKE FULLY OPERATIONAL.

PROJECT CODES AND STANDARDS:

PARTIAL LIST OF APPLICABLE CODES AND STANDARDS EFFECTIVE : JANUARY 1, 2023:

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), CCR, TITLE 24, PART 1
2022 CALIFORNIA BUILDING CODE (CBC), CCR, TITLE 24, PART 2 (2018 INTERNATIONAL BUILDING CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE (CEC), CCR, TITLE 24, PART 3 (2017 NATIONAL ELECTRICAL CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA MECHANICAL CODE (CMC), CCR, TITLE 24, PART 4 (2018 UNIFORM MECHANICAL CODE, WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE, CCR, TITLE 24, PART 6
2022 CALIFORNIA FIRE CODE (CFC), CCR, TITLE 24, PART 9 (2018 INTERNATIONAL FIRE CODE WITH CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, CCR, TITLE 24, PART 11
2022 CALIFORNIA REFERENCED STANDARDS CODE, CCR, TITLE 24, PART 12
2022 NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE, NATIONAL FIRE PROTECTION ASSOCIATION

ANCHORAGE AND BRACING NOTES:

APPLICABLE CODE: 2022 CBC REVISED: 12/23/2024

MEP COMPONENT ANCHORAGE NOTE:

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26 THRU 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVEABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVEABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENTS.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTION SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE:

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7 SECTION 13.3 AS DEFINED IN ASCE 7 SECTIONS 13.6.5, 13.6.6, 13.6.7, AND 13.6.8; AND 2022 CBC SECTIONS 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEMS ARE AS NOTED BELOW. THE MEP DESIGN PROFESSIONAL ENGINEER RESPONSIBLE FOR CONTENT ON THESE SHEETS HAS VERIFIED THAT THE DESIGN METHODS IDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ☐ MD ☐ PP ☐ E ☒ OPTION 1: PROJECT-SPECIFIC DESIGN.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 2: DESIGN BASED ON OSHPD OPM, WITHIN PROJECT SUBMITTAL.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 3: DESIGN BASED ON OSHPD OPM, DEFERRED SUBMITTAL.

SHEET INDEX:

SHEET	DESCRIPTION
T000	TECHNOLOGY COVER SHEET
T010	TECHNOLOGY SITE PLAN - DEMO
T100	TECHNOLOGY SITE PLAN - NEW
T101	TECHNOLOGY SITE PLAN - EXTERIOR SPEAKERS COVERAGE
T200	TECHNOLOGY FLOOR PLAN NEW - MDF 1.00
T201	TECHNOLOGY FLOOR PLAN NEW - MDF 1.00
T202	TECHNOLOGY FLOOR PLAN NEW - MDF 1.00
T203	TECHNOLOGY FLOOR PLAN NEW - IDF 1.01
T204	TECHNOLOGY FLOOR PLAN NEW - IDF 1.02
T205	TECHNOLOGY FLOOR PLAN NEW - IDF 1.03
T206	TECHNOLOGY FLOOR PLAN NEW - IDF 1.04
T700	TECHNOLOGY RACK ELEVATIONS
T701	TECHNOLOGY RACK ELEVATIONS
T702	TECHNOLOGY SINGLE LINE DIAGRAMS
T800	TECHNOLOGY DETAILS
T801	TECHNOLOGY DETAILS
T802	TECHNOLOGY FIRE DETAILS

KMM Services, Inc.

KMM SERVICES, INC
TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave. Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE

TECHNOLOGY COVER SHEET

DRAWING STATUS

CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T000

GENERAL NOTES:

1. CONTRACTOR SHALL TOUCH UP PAINT TO MATCH EXISTING CONDITIONS FOR ALL AREAS OF NEW INSTALL OR DEMOLITION.
2. CONTRACTOR SHALL DEMO ALL SURFACE RACEWAY OR CONDUIT ABANDONED AS A RESULT OF DEMO.
3. AFTER CUTOVER TO NEW SYSTEMS, ALL ANALOG INTERCOM AND CLOCK CABLING SHALL BE DEMOED FROM ENDPOINT TO ENDPOINT, INCLUDING WITHIN CONDUITS AND PULL BOXES.

SHEET NOTES:

1. DEMO (E) SPEAKER AND BACKBOX. DEMO CABLE TO SOURCE AND ANY ABANDONED CONDUIT OR SURFACE RACEWAY. WATERPROOF ANY PENETRATIONS.
2. DEMO TELECENTER HEADEND EQUIPMENT INCLUDING RACK. DELIVER HEADEND UNIT TO DISTRICT ELECTRONICS SHOP. SEE PICTURE DETAIL.
3. DEMO CLOCK POWER SUPPLY AND SAFE OFF POWER.
4. DEMO ABANDONED AP MOUNT AND CABLE TO SOURCE.
5. AFTER CUTOVER TO (N) SYSTEMS, DEMO IDF ON WALL INCLUDING ALL COPPER AND FIBER CABLING.

PICTURE DETAIL - 66 BLOCK DEMO

TECHNOLOGY SITE PLAN - DEMO

SCALE: 1"=20'

0 20 40

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TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave, Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE
TECHNOLOGY SITE PLAN - DEMO

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
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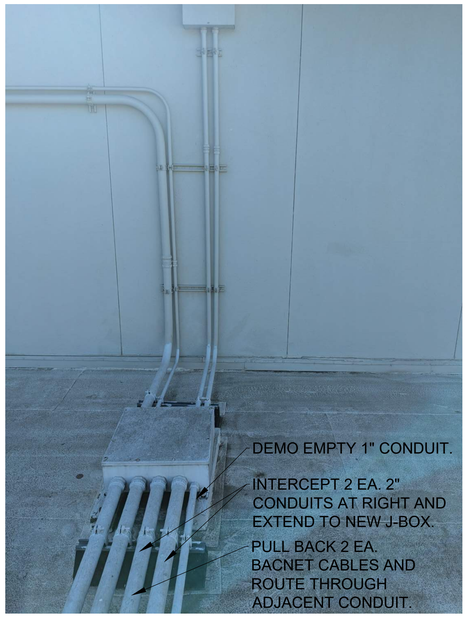
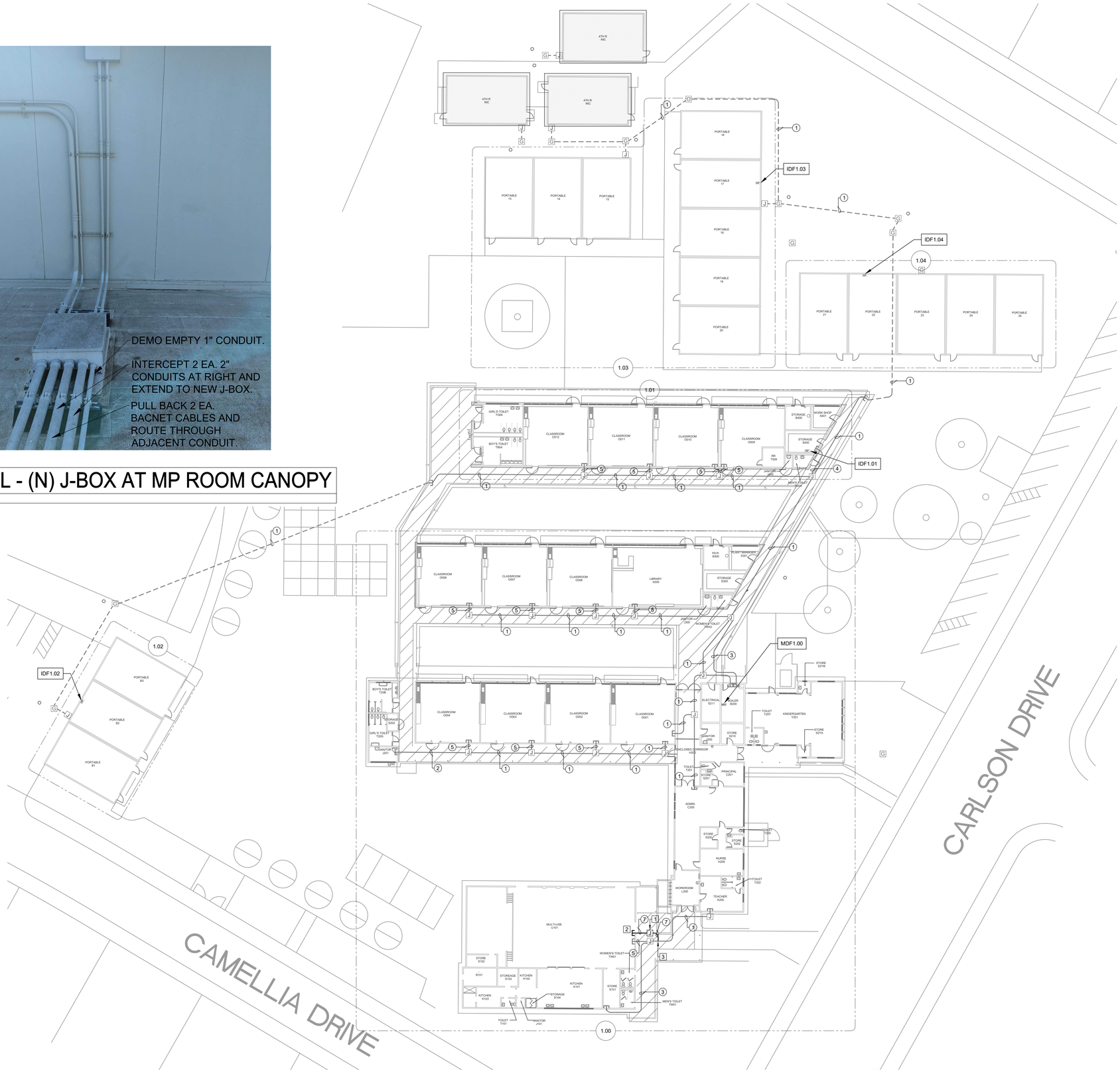
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T010



PIC DETAIL - (N) J-BOX AT MP ROOM CANOPY



CONDUIT QTY. AND SIZE:

1. (E) 4 EA. 2" CONDUITS.
2. (E) 1 EA. 1" CONDUITS.
3. (E) 1 EA. 2" CONDUITS.
4. (E) 2 EA. 2" CONDUITS.
5. (E) 2 EA. 1" CONDUITS.
6. (E) 3 EA. 2" CONDUITS.
7. (N) 2 EA. 2" CONDUITS.

GENERAL NOTES:

1. NO STRUCTURAL BEAMS SHALL BE PENETRATED OR ALTERED.
2. ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED, AND CONFIGURED, UNO.
3. CONTRACTOR SHALL TOUCH UP PAINT TO MATCH EXISTING CONDITIONS FOR ALL AREAS OF NEW INSTALL OR DEMOLITION.

SHEET NOTES:

1. PROVIDE 1 EA. (N) NEMA 4 J-BOX WITH CONTINUOUS HINGE LID AND CLAMP STYLE CLOSURE MOUNTED ON DURA-BLOCKS. SEE DETAIL 1/T-801.
2. PROVIDE (N) CONDUIT PENETRATION TO INTERIOR. SEE DETAIL 1/T-801.
3. INTERCEPT 2 EA. (E) 2" CONDUITS. EXTEND AND RE-ROUTE TO (N) J-BOX. SEE PICTURE DETAIL. COORDINATE PHASING WITH PROJECT MANAGER.

TECHNOLOGY SITE PLAN - NEW

SCALE: 1"=20'

0 20 40

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TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave, Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
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5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE
TECHNOLOGY SITE PLAN - NEW

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
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ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T100

TECHNOLOGY SITE PLAN - EXTERIOR SPEAKERS COVERAGE

SCALE: 1"=20'

0 20 40

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TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave, Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT

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CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE

TECHNOLOGY SITE PLAN - EXTERIOR SPEAKERS

DRAWING STATUS

CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
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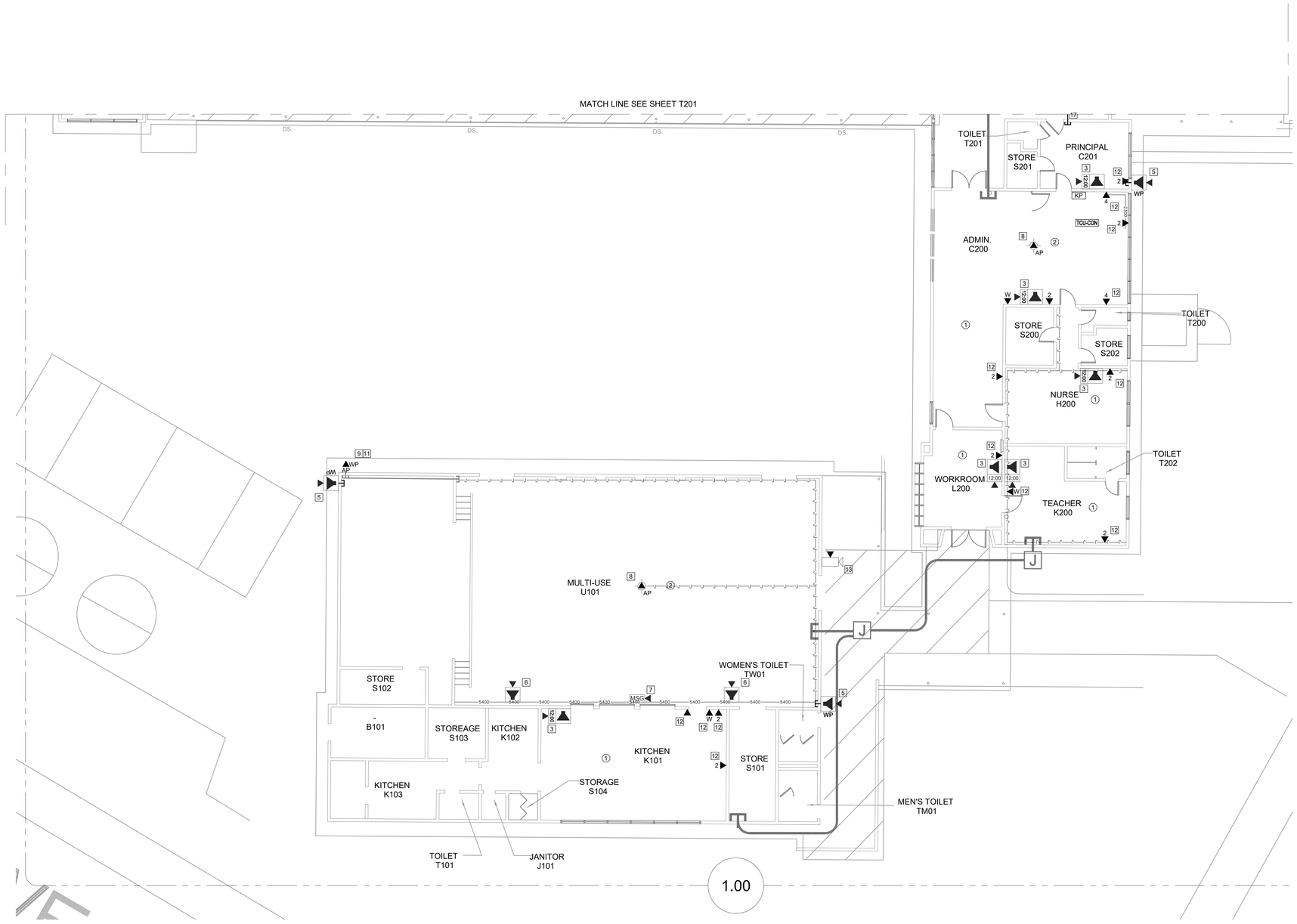
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-05

REVISION

SHEET T101



CEILING CONDITION CHART:

1. HARD LID CEILING
2. DROP IN CEILING TILES

GENERAL NOTES:

1. NO STRUCTURAL BEAMS SHALL BE PENETRATED OR ALTERED.
2. ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED, AND CONFIGURED, UNO.
3. CONTRACTOR SHALL TOUCH UP PAINT TO MATCH EXISTING CONDITIONS FOR ALL AREAS OF NEW INSTALL OR DEMOLITION.

SHEET NOTES:

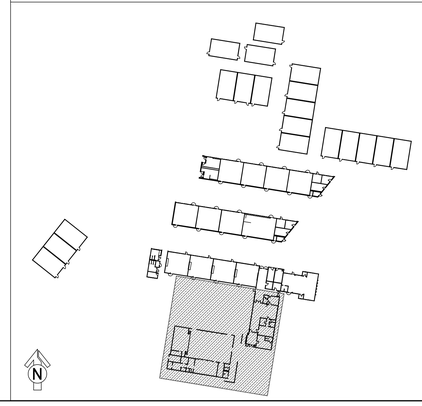
1. REWORK MDF/IDF PER RACK ELEVATION. SEE T700/T701.
2. REMOVE (E) CLOCK/SPEAKER COMBO BOX. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP VIA (E) SURFACE RACEWAY.
3. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP. PROVIDE (N) WM2300 TO NEAREST DATA RACEWAY OR J-BOX.
4. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP. FISH THROUGH WALL TO (N) CUT-IN BOX BEHIND COMBO BACKBOX.
5. PROVIDE (N) EXTERIOR SPEAKER WITH (N) EXTERIOR BACKBOX. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP AT INTERIOR ENCLOSURE. REMOVE (E) SPEAKER, AS OCCURS.
6. PROVIDE (N) BACKBOX WITH (N) SPEAKER AND (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP.
7. PROVIDE (N) LARGE MESSAGE BOARD WITH PROTECTIVE COVER. REWORK (E) DATA DROP INTO (N) METAL WIREMOLD BOX (P/N V5741). METAL BOX REQUIRED HERE FOR ADEQUARE STABILITY OF LARGE MESSAGE BOARD.
8. PROVIDE (N) 2 EA. CAT6A DATA DROP FOR WIRELESS AP. RELOCATE (E) WIRELESS AP AS REQ'D.
9. PROVIDE (N) 1 EA. CAT6A DATA DROP AT EXTERIOR AP AND PROVIDE REQUIRED COMPONENTS PER DETAIL 12/T801, 13/T801.
10. REWORK (E) DATA DROP AT EXTERIOR AP AND PROVIDE REQUIRED COMPONENTS PER DETAIL 12/T801, 12/T801.
11. INSTALL (N) OWNER-FURNISHED EXTERIOR AP.
12. PROVIDE (N) CAT6A DATA DROP, QTY INDICATED, VIA (N) PATHWAY.
13. PROVIDE (N) CAT6A DATA DROP AT (E) CAMERA.
14. PULL BACK (E) DATA DROP FOR CAMERA AND REWORK THROUGH (N) INTERIOR PATHWAY.
15. REPLACE BROKEN WIREMOLD SURFACE BOX.
16. (N) 2 EA. 2" CONDUITS.
17. CORE THE CONCRETE WALL.

TECHNOLOGY FLOOR PLAN NEW - MDF 1.00

SCALE: 1/8"=1'

0 4 8 12 16

KEY PLAN



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TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave, Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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RONNY KAGESTROM
Signature
EXPIRES 12/31/2027
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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE
TECHNOLOGY FLOOR PLAN - MDF1.00

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T200

CEILING CONDITION CHART:

1. HARD LID CEILING
2. DROP IN CEILING TILES

GENERAL NOTES:

1. NO STRUCTURAL BEAMS SHALL BE PENETRATED OR ALTERED.
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SHEET NOTES:

1. REWORK MDF/IDF PER RACK ELEVATION. SEE T700/T701.
2. REMOVE (E) CLOCK/SPEAKER COMBO BOX. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP VIA (E) SURFACE RACEWAY.
3. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP. PROVIDE (N) WM2300 TO NEAREST DATA RACEWAY OR J-BOX.
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6. PROVIDE (N) BACKBOX WITH (N) SPEAKER AND (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP.
7. PROVIDE (N) LARGE MESSAGE BOARD WITH PROTECTIVE COVER. REWORK (E) DATA DROP INTO (N) METAL WIREMOLD BOX (P/N V5741). METAL BOX REQUIRED HERE FOR ADEQUARE STABILITY OF LARGE MESSAGE BOARD.
8. PROVIDE (N) 2 EA. CAT6A DATA DROP FOR WIRELESS AP. RELOCATE (E) WIRELESS AP AS REQ'D.
9. PROVIDE (N) 1 EA. CAT6A DATA DROP AT EXTERIOR AP AND PROVIDE REQUIRED COMPONENTS PER DETAIL 12/T801, 13/T801.
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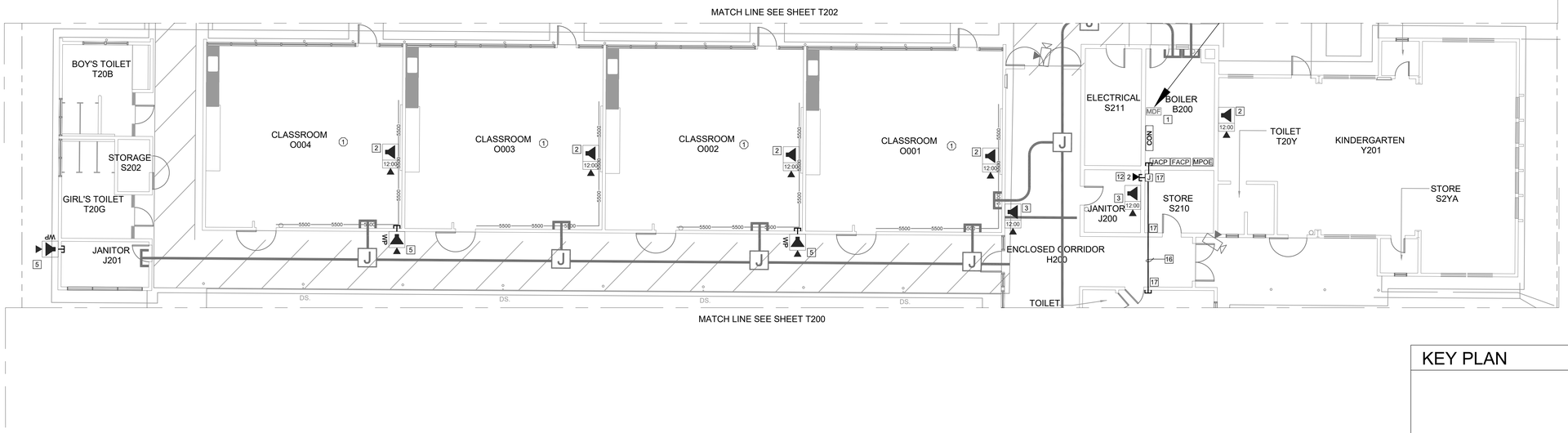
13. PROVIDE (N) CAT6A DATA DROP AT (E) CAMERA.
14. PULL BACK (E) DATA DROP FOR CAMERA AND REWORK THROUGH (N) INTERIOR PATHWAY.
15. REPLACE BROKEN WIREMOLD SURFACE BOX.
16. (N) 2 EA. 2" CONDUITS.
17. CORE THE CONCRETE WALL.

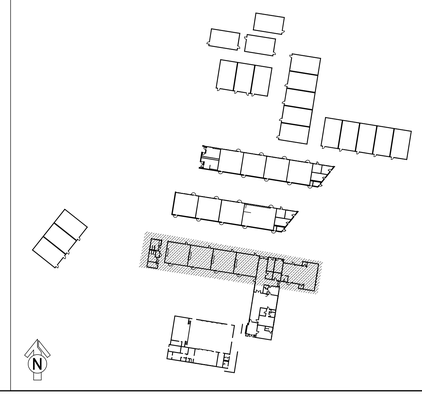


TECHNOLOGY FLOOR PLAN NEW - MDF 1.00

SCALE: 1/8"=1'

0 4 8 12 16

KEY PLAN



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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE

TECHNOLOGY FLOOR PLAN - MDF 1.00

DRAWING STATUS

CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T201

CEILING CONDITION CHART:

1. HARD LID CEILING
2. DROP IN CEILING TILES

GENERAL NOTES:

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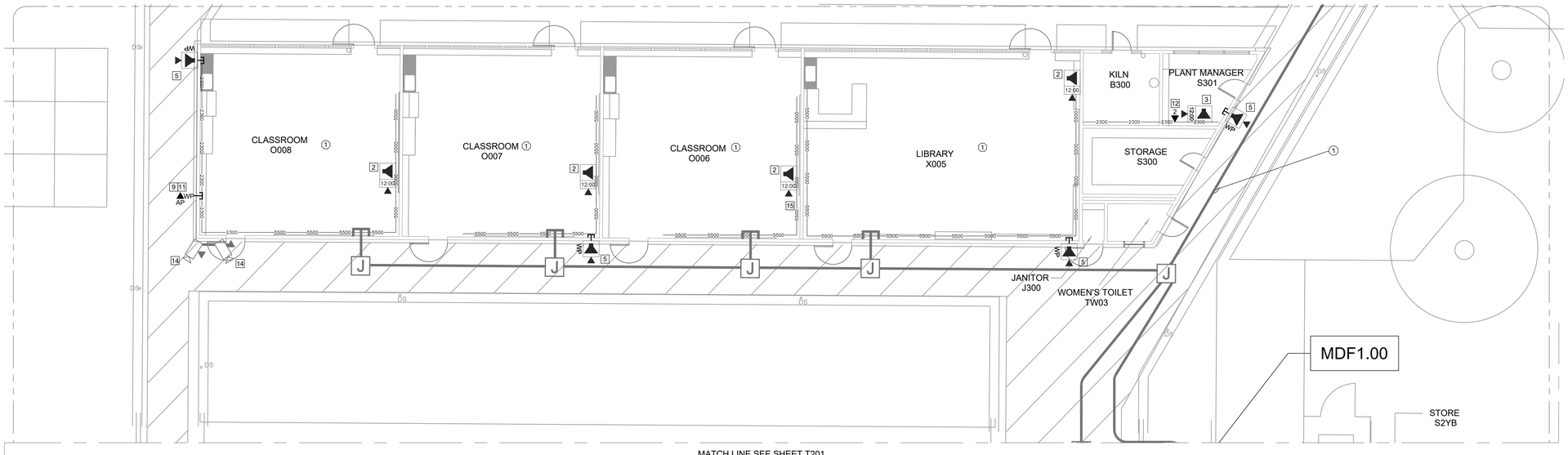
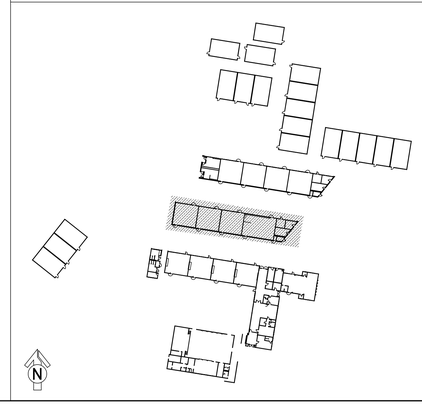


TECHNOLOGY FLOOR PLAN NEW - MDF 1.00

SCALE: 1/8"=1'

0 4 8 12 16

KEY PLAN



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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

CALEB GREENWOOD TELECENTER UPGRADE

5457 CARLSON DR.

SACRAMENTO, CA 95819

SHEET TITLE

TECHNOLOGY FLOOR PLAN - MDF 1.00

DRAWING STATUS

CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T202

CEILING CONDITION CHART:

1. HARD LID CEILING
2. DROP IN CEILING TILES

GENERAL NOTES:

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1. REWORK MDF/IDF PER RACK ELEVATION. SEE T700/T701.
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6. PROVIDE (N) BACKBOX WITH (N) SPEAKER AND (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP.
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8. PROVIDE (N) 2 EA. CAT6A DATA DROP FOR WIRELESS AP. RELOCATE (E) WIRELESS AP AS REQ'D.
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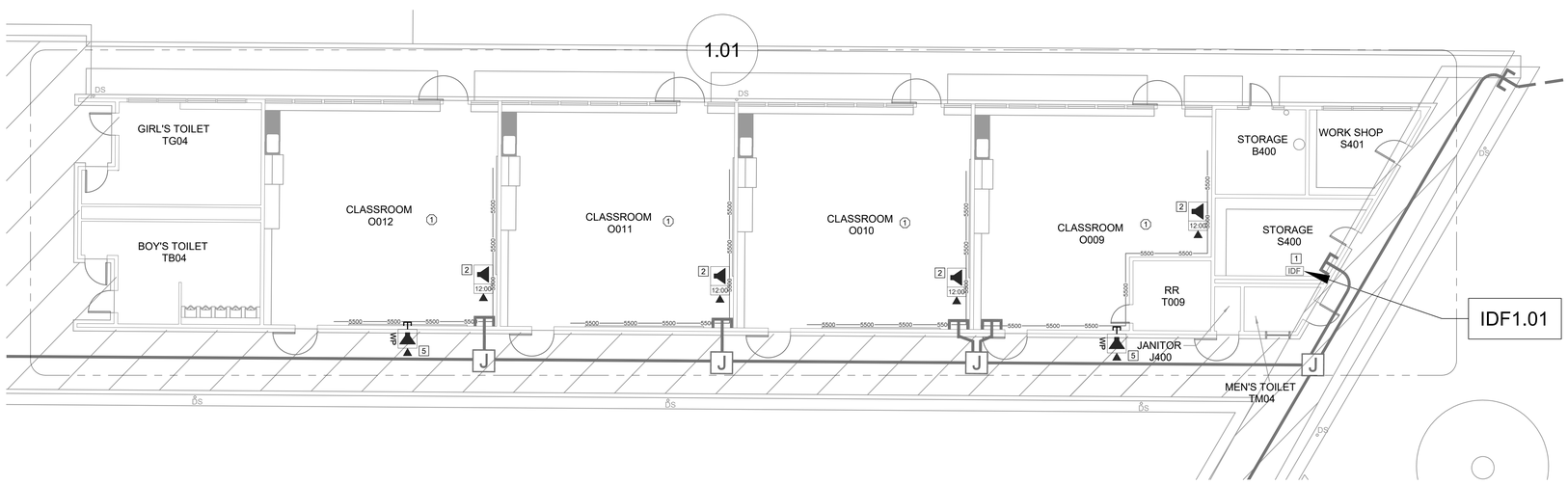
15. REPLACE BROKEN WIREMOLD SURFACE BOX.
16. (N) 2 EA. 2" CONDUITS.
17. CORE THE CONCRETE WALL.

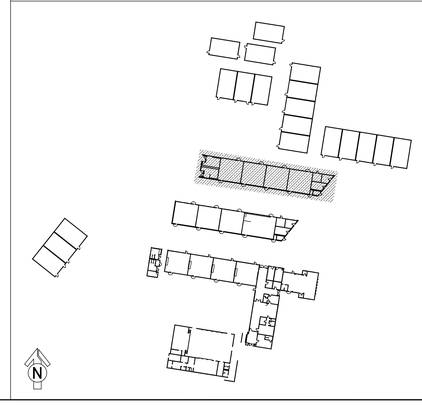


TECHNOLOGY FLOOR PLAN NEW - IDF 1.01

SCALE: 1/8"=1'

0 4 8 12 16

KEY PLAN



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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE

TECHNOLOGY FLOOR PLAN - IDF 1.01

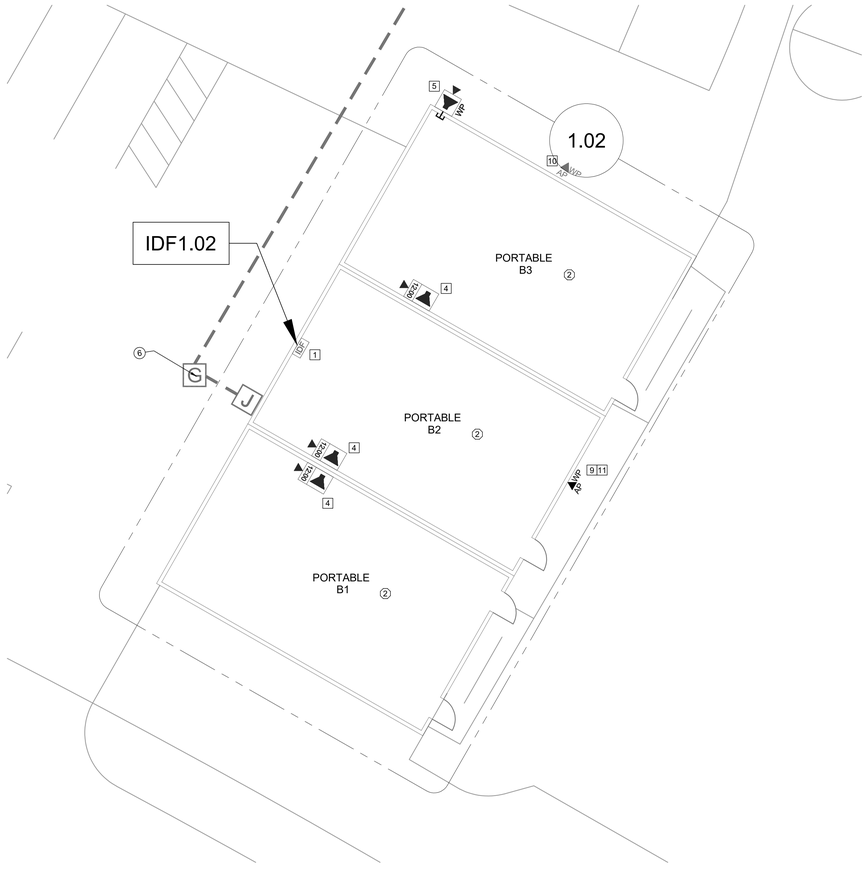
DRAWING STATUS

CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T203



CEILING CONDITION CHART:

1. HARD LID CEILING
2. DROP IN CEILING TILES

GENERAL NOTES:

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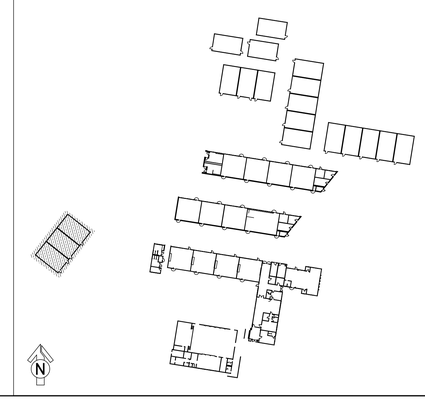
15. REPLACE BROKEN WIREMOLD SURFACE BOX.
16. (N) 2 EA. 2" CONDUITS.
17. CORE THE CONCRETE WALL.

TECHNOLOGY FLOOR PLAN NEW - IDF 1.02

SCALE: 1/8"=1'

0 4 8 12 16

KEY PLAN



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SHEET TITLE
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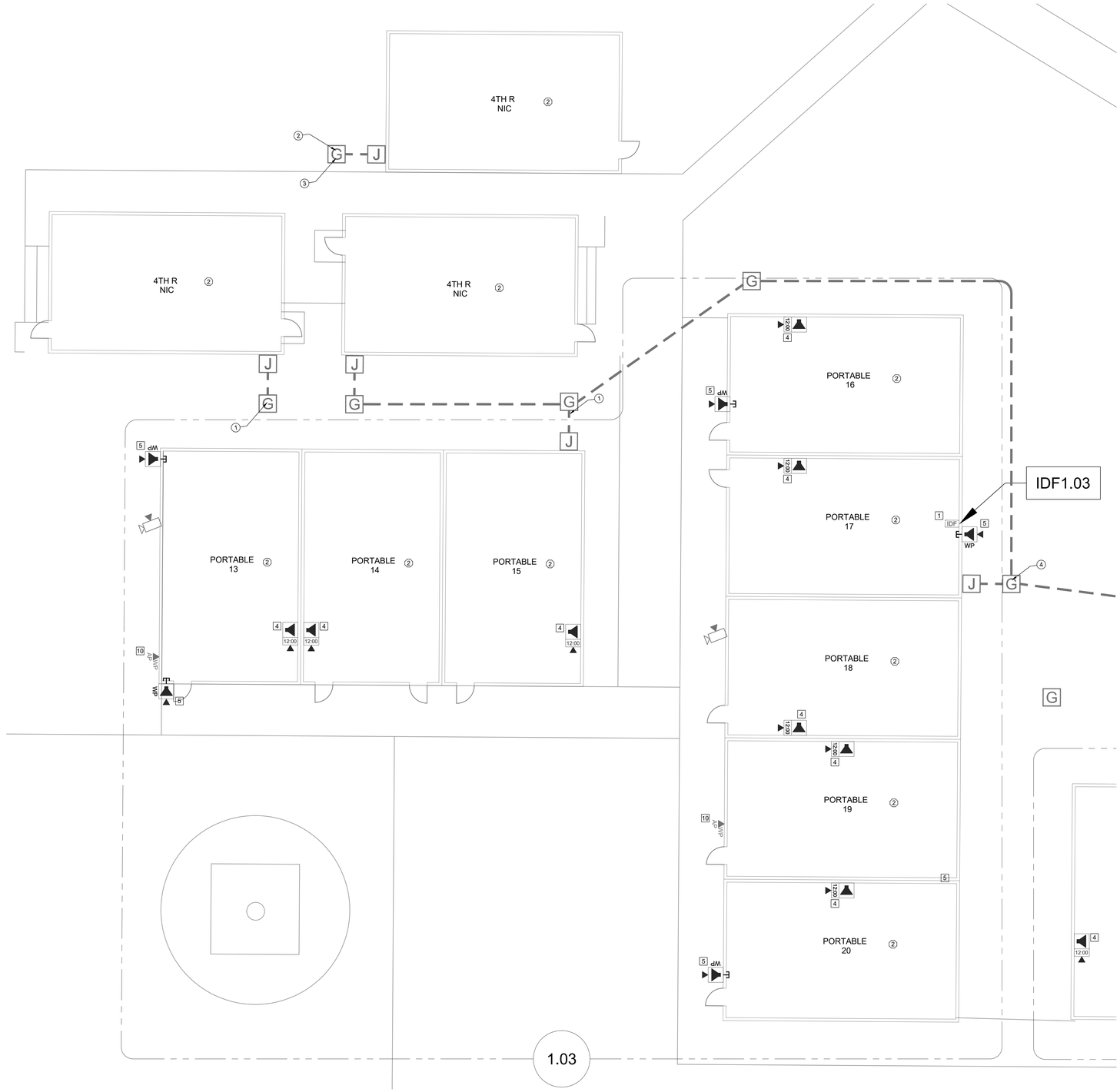
PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T204



TECHNOLOGY FLOOR PLAN NEW - IDF 1.03

SCALE: 1/8"=1'

0 4 8 12 16

CEILING CONDITION CHART:

1. HARD LID CEILING
2. DROP IN CEILING TILES

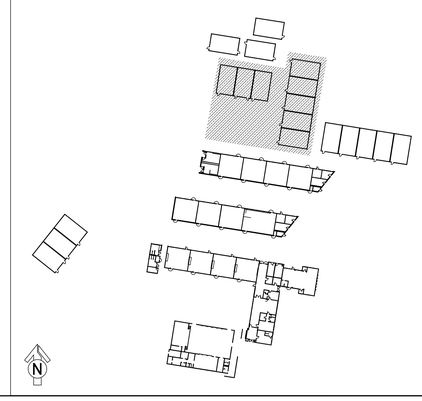
GENERAL NOTES:

1. NO STRUCTURAL BEAMS SHALL BE PENETRATED OR ALTERED.
2. ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED, AND CONFIGURED, UNO.
3. CONTRACTOR SHALL TOUCH UP PAINT TO MATCH EXISTING CONDITIONS FOR ALL AREAS OF NEW INSTALL OR DEMOLITION.

SHEET NOTES:

1. REWORK MDF/IDF PER RACK ELEVATION. SEE T700/T701.
2. REMOVE (E) CLOCK/SPEAKER COMBO BOX. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP VIA (E) SURFACE RACEWAY.
3. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP. PROVIDE (N) WM2300 TO NEAREST DATA RACEWAY OR J-BOX.
4. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP. FISH THROUGH WALL TO (N) CUT-IN BOX BEHIND COMBO BACKBOX.
5. PROVIDE (N) EXTERIOR SPEAKER WITH (N) EXTERIOR BACKBOX. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP AT INTERIOR ENCLOSURE. REMOVE (E) SPEAKER, AS OCCURS.
6. PROVIDE (N) BACKBOX WITH (N) SPEAKER AND (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP.
7. PROVIDE (N) LARGE MESSAGE BOARD WITH PROTECTIVE COVER. REWORK (E) DATA DROP INTO (N) METAL WIREMOLD BOX (P/N V5741). METAL BOX REQUIRED HERE FOR ADEQUARE STABILITY OF LARGE MESSAGE BOARD.
8. PROVIDE (N) 2 EA. CAT6A DATA DROP FOR WIRELESS AP. RELOCATE (E) WIRELESS AP AS REQ'D.
9. PROVIDE (N) 1 EA. CAT6A DATA DROP AT EXTERIOR AP AND PROVIDE REQUIRED COMPONENTS PER DETAIL 12/T801, 13/T801.
10. REWORK (E) DATA DROP AT EXTERIOR AP AND PROVIDE REQUIRED COMPONENTS PER DETAIL 12/T801, 12/T801.
11. INSTALL (N) OWNER-FURNISHED EXTERIOR AP.
12. PROVIDE (N) CAT6A DATA DROP, QTY INDICATED, VIA (N) PATHWAY.
13. PROVIDE (N) CAT6A DATA DROP AT (E) CAMERA.
14. PULL BACK (E) DATA DROP FOR CAMERA AND REWORK THROUGH (N) INTERIOR PATHWAY.
15. REPLACE BROKEN WIREMOLD SURFACE BOX.
16. (N) 2 EA. 2" CONDUITS.
17. CORE THE CONCRETE WALL.

KEY PLAN



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5433 El Camino Ave, Suite 5
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DONNY KAGESTROM
Signature
EXPIRES 12/31/2027
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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

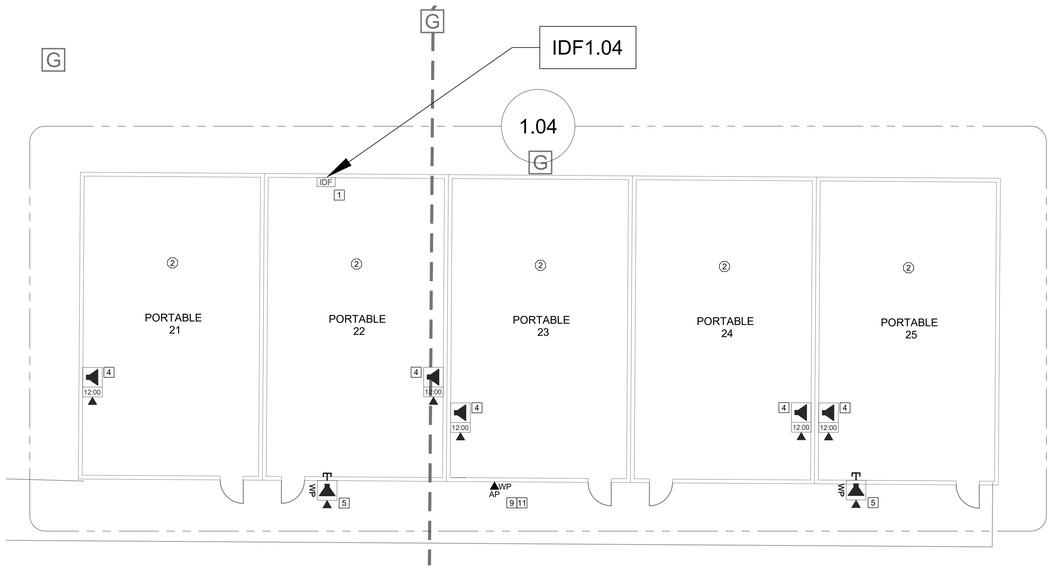
SHEET TITLE
TECHNOLOGY FLOOR PLAN - IDF 1.03

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T205



CEILING CONDITION CHART:

1. HARD LID CEILING
2. DROP IN CEILING TILES

GENERAL NOTES:

1. NO STRUCTURAL BEAMS SHALL BE PENETRATED OR ALTERED.
2. ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED, AND CONFIGURED, UNO.
3. CONTRACTOR SHALL TOUCH UP PAINT TO MATCH EXISTING CONDITIONS FOR ALL AREAS OF NEW INSTALL OR DEMOLITION.

SHEET NOTES:

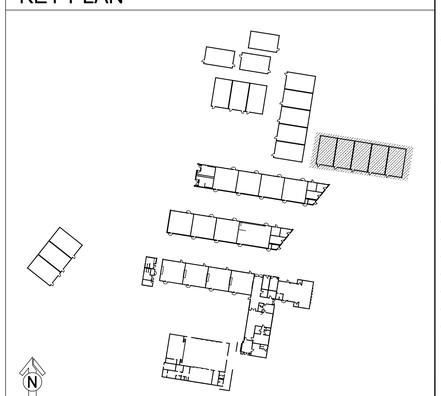
1. REWORK MDF/IDF PER RACK ELEVATION. SEE T700/T701.
2. REMOVE (E) CLOCK/SPEAKER COMBO BOX. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP VIA (E) SURFACE RACEWAY.
3. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP. PROVIDE (N) WM2300 TO NEAREST DATA RACEWAY OR J-BOX.
4. PROVIDE (N) COMBO BOX WITH (N) SPEAKER, (N) CLASSROOM IP MODULE, AND (N) IP CLOCK. PROVIDE (N) 1 EA. CAT6A DATA DROP. FISH THROUGH WALL TO (N) CUT-IN BOX BEHIND COMBO BACKBOX.
5. PROVIDE (N) EXTERIOR SPEAKER WITH (N) EXTERIOR BACKBOX. PROVIDE (N) INTERIOR ENCLOSURE WITH (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP AT INTERIOR ENCLOSURE. REMOVE (E) SPEAKER, AS OCCURS.
6. PROVIDE (N) BACKBOX WITH (N) SPEAKER AND (N) CLASSROOM IP MODULE. PROVIDE (N) 1 EA. CAT6A DATA DROP.
7. PROVIDE (N) LARGE MESSAGE BOARD WITH PROTECTIVE COVER. REWORK (E) DATA DROP INTO (N) METAL WIREMOLD BOX (P/N V5741). METAL BOX REQUIRED HERE FOR ADEQUARE STABILITY OF LARGE MESSAGE BOARD.
8. PROVIDE (N) 2 EA. CAT6A DATA DROP FOR WIRELESS AP. RELOCATE (E) WIRELESS AP AS REQ'D.
9. PROVIDE (N) 1 EA. CAT6A DATA DROP AT EXTERIOR AP AND PROVIDE REQUIRED COMPONENTS PER DETAIL 12/T801, 13/T801.
10. REWORK (E) DATA DROP AT EXTERIOR AP AND PROVIDE REQUIRED COMPONENTS PER DETAIL 12/T801, 12/T801.
11. INSTALL (N) OWNER-FURNISHED EXTERIOR AP.
12. PROVIDE (N) CAT6A DATA DROP, QTY INDICATED, VIA (N) PATHWAY.
13. PROVIDE (N) CAT6A DATA DROP AT (E) CAMERA.
14. PULL BACK (E) DATA DROP FOR CAMERA AND REWORK THROUGH (N) INTERIOR PATHWAY.
15. REPLACE BROKEN WIREMOLD SURFACE BOX.
16. (N) 2 EA. 2" CONDUITS.
17. CORE THE CONCRETE WALL.

TECHNOLOGY FLOOR PLAN NEW - IDF 1.04

SCALE: 1/8"=1'

0 4 8 12 16

KEY PLAN



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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE
TECHNOLOGY FLOOR PLAN - IDF 1.04

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

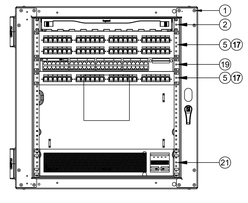
SHEET T206

SCOPE OF WORK - IDF 1.02

1. DEMO THE ABANDONED FIBER ENCLOSURE AND ORANGE FIBER.
2. RE-SECURE THE RACK RAILS SO THEY ARE PROPERLY AFFIXED TO THE CABINET.
3. RELABEL AND RE-ORDER E) DATA DROPS IN PATCH PANELS TO MATCH DISTRICT STANDARD PER DETAIL 11/T800. PROVIDE NEW LABELEING AT PATCH PANEL, FIELD, AND WRAPS AT BOTH ENDS OF CABLE. NOTE: THE 2U/24P PATCH PANEL SHALL BE LABELED "P0".
4. PROVIDE (N) DEDICATED 120V/20A CIRCUIT IN QUAD BOX ON REAR PAN OF RACK.
5. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY PER THE ELEVATION. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY THE UPS.

RACK - EXISTING CONDITION

SCALE: NONE



RACK - FINAL LAYOUT

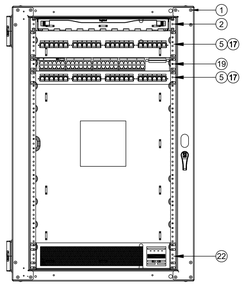
SCALE: NONE

SCOPE OF WORK - IDF 1.01

1. THIS IDF IS CURRENTLY IDENTIFIED AS "1.05". IT WILL BE RE-IDENTIFIED AS "1.01" AS PART OF THIS PROJECT.
2. RELABEL AND RE-ORDER E) DATA DROPS IN PATCH PANELS TO MATCH DISTRICT STANDARD PER DETAIL 11/T800. PROVIDE NEW LABELEING AT PATCH PANEL, FIELD, AND WRAPS AT BOTH ENDS OF CABLE. NOTE: THE 2U/24P PATCH PANEL SHALL BE LABELED "P0".
3. DEMO THE ABANDONED ORANGE FIBER CABLE.
4. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY PER THE ELEVATION. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY THE UPS.

RACK - EXISTING CONDITION

SCALE: NONE



RACK - FINAL LAYOUT

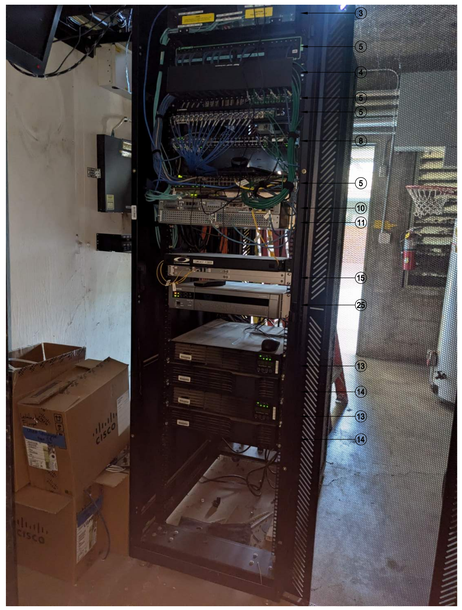
SCALE: NONE

GENERAL SCOPE OF WORK: (ALL IDF/MDF)

1. REMOVE ALL (E) RACK-MOUNTED CABLE MANAGER(S).
2. PROVIDE (N) REAR CABLE MANAGEMENT BAR(S) AT EACH PATCH PANEL AND DRESS (E) CABLES FOR STRAIN RELIEF PER 11/T800.
3. RELOCATE (E) DEVICES PER THE ELEVATION.
4. INSTALL (N) OWNER-FURNISHED SWITCHES PER THE ELEVATION.
5. PROVIDE (N) 12" SLIMLINE CAT6A PATCH CABLES TO REPLACE ALL (E) PATCH CABLES AND FOR ALL (N) DROPS, COLOR CODED TO DISTRICT STANDARD.

SCOPE OF WORK - MDF 1.00

1. RETERMINATE 12 EA. CCTV DATA DROPS ON BLUE KEYSTONES.
2. RELABEL AND RE-ORDER E) DATA DROPS IN PATCH PANELS TO MATCH DISTRICT STANDARD PER DETAIL 11/T800. PROVIDE NEW LABELEING AT PATCH PANEL, FIELD, AND WRAPS AT BOTH ENDS OF CABLE. NOTE: THE 2U/24P PATCH PANEL SHALL BE LABELED "P0".
3. DEMO THE ABANDONED ORANGE FIBER CABLE.
4. DEMO AND RETURN TO DISTRICT THE CCTV DATA SWITCH AT THE REAR OF THE RACK (NOT PICTURED).
5. ROUTE POWER FOR ALL RACK COMPONENTS SO THEY ARE PROTECTED BY THE UNINTERRUPTIBLE POWER SUPPLIES.



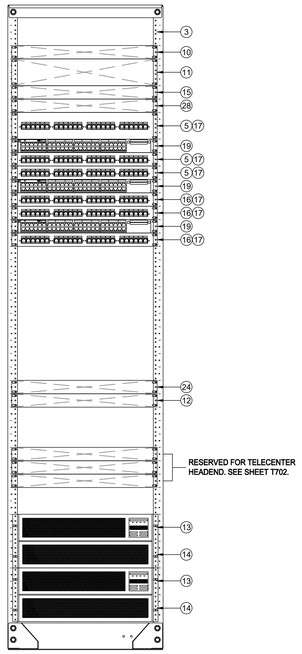
RACK - EXISTING CONDITION

SCALE: NONE

EQUIPMENT SCHEDULE:

ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MFG	PART NUMBER	NOTES / DETAIL REFERENCES
1	RACK CABINET	EXISTING	EXISTING	N/A
2	(E) 1U FIBER LIU	EXISTING	EXISTING	N/A
3	(E) 2U FIBER LIU	EXISTING	EXISTING	N/A
4	(E) 2U CABLE MANAGER	EXISTING	EXISTING	DEMO
5	(E) 1U 24P PATCH PANEL	EXISTING	EXISTING	RELOCATE PER ELEVATION
6	(E) 2U 48P PATCH PANEL	EXISTING	EXISTING	RELOCATE PER ELEVATION
7	(E) 24P SWITCH	EXISTING	EXISTING	DEMO
8	(E) 48P SWITCH	EXISTING	EXISTING	DEMO
9	(E) CCTV SWITCH AND PSU	EXISTING	EXISTING	DEMO
10	(E) CORE SWITCH	EXISTING	EXISTING	N/A
11	(E) VOIP GATEWAY	EXISTING	EXISTING	N/A
12	(E) NVR	EXISTING	EXISTING	N/A
13	(E) UPS	EXISTING	EXISTING	N/A
14	(E) UPS BATTERY	EXISTING	EXISTING	N/A
15	(E) CWDM CHASSIS	EXISTING	EXISTING	N/A
16	(N) 1U 24P PATCH PANEL	ORTRONICS	SPKSU24	N/A
17	(N) REAR CABLE MANAGEMENT BAR	ORTRONICS	OR-CMBFR0RU	N/A
18	NOT USED	NOT USED	NOT USED	N/A
19	(N) 48P SWITCH	CISCO	OFCI	N/A
20	NOT USED	NOT USED	NOT USED	N/A
21	(N) UPS - 1500VA	N1C	N1C.L1500	N/A
22	(N) UPS - 2000VA	N1C	N1C.L2000	N/A
23	NOT USED	NOT USED	NOT USED	N/A
24	(N) 1U RACK MOUNT MONITOR	TRIPP LITE	B021-000-19-HD2	N/A
25	(E) NVR (ABANDONED)	EXISTING	EXISTING	DEMO
26	NOT USED	NOT USED	NOT USED	N/A
27	NOT USED	NOT USED	NOT USED	N/A
28	(E) SERVICE PROVIDER LIU	EXISTING	EXISTING	N/A



RACK - FINAL LAYOUT

SCALE: NONE

KMM Services, Inc.

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TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave, Suite 5
Carmichael, CA 95608
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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE

TECHNOLOGY RACK ELEVATIONS

DRAWING STATUS

CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T700

3 DATA RACK LAYOUT - IDF 1.02
SCALE: NONE

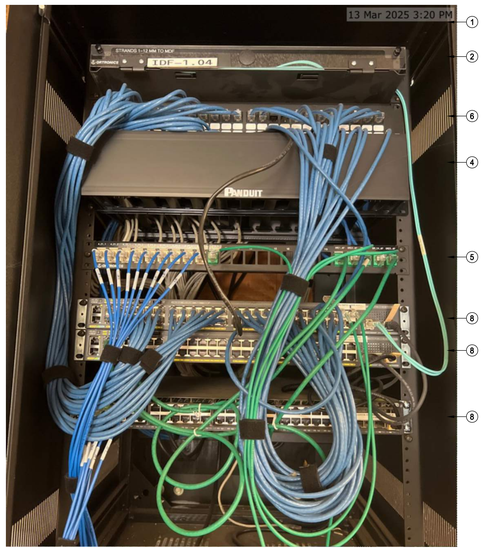
2 DATA RACK LAYOUT - IDF 1.01 (OLD IDF 1.05)
SCALE: NONE

1 DATA RACK LAYOUT - MDF 1.00
SCALE: NONE

REFER TO SYMBOL LEGEND ON T400 FOR ALL DEVICES ON THIS SHEET

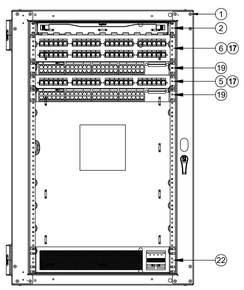
SCOPE OF WORK - IDF 1.04

1. RELABEL AND RE-ORDER E) DATA DROPS IN PATCH PANELS TO MATCH DISTRICT STANDARD PER DETAIL 11/T800. PROVIDE NEW LABELEING AT PATCH PANEL, FIELD, AND WRAPS AT BOTH ENDS OF CABLE. NOTE: THE 2U/48P PATCH PANEL SHALL BE LABELED "P0".
2. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY PER THE ELEVATION. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY THE UPS.



RACK - EXISTING CONDITION

SCALE: NONE



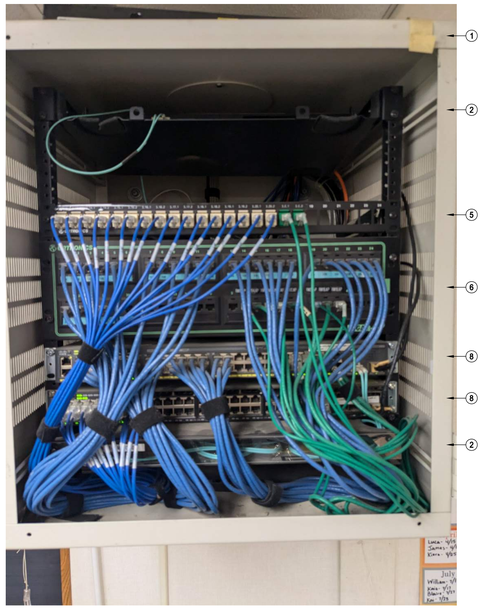
RACK - FINAL LAYOUT

SCALE: NONE

5 DATA RACK LAYOUT - IDF 1.04
SCALE: NONE

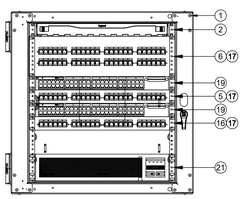
SCOPE OF WORK - IDF 1.03

1. DEMO THE ABANDONED FIBER ENCLOSURE AND ORANGE FIBER.
2. RELABEL AND RE-ORDER E) DATA DROPS IN PATCH PANELS TO MATCH DISTRICT STANDARD PER DETAIL 11/T800. PROVIDE NEW LABELEING AT PATCH PANEL, FIELD, AND WRAPS AT BOTH ENDS OF CABLE. NOTE: THE 3U/48P PATCH PANEL SHALL BE LABELED "P0".
3. PROVIDE (N) DEDICATED 120V/20A CIRCUIT IN QUAD BOX ON REAR PAN OF RACK.
4. PROVIDE (N) UNINTERRUPTIBLE POWER SUPPLY PER THE ELEVATION. ROUTE POWER FOR ALL RACK COMPONENTS SO THAT IT IS PROTECTED BY THE UPS.



RACK - EXISTING CONDITION

SCALE: NONE



RACK - FINAL LAYOUT

SCALE: NONE

4 DATA RACK LAYOUT - IDF 1.03
SCALE: NONE

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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

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PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

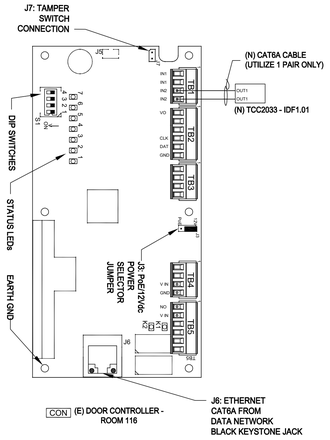
SHEET TITLE
TECHNOLOGY RACK ELEVATIONS

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T701

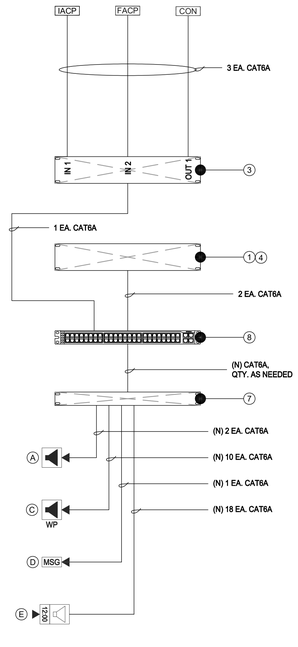


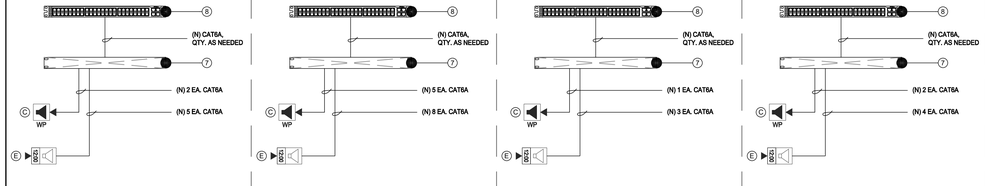
6 TELECENTER TO ACCESS CONTROL SINGLE LINE
SCALE: NONE

TELECENTER AUX IO MODULE SPECIFIC NOTES:

IACP & FACP CONNECTION - ROUTE (N) CABLE INTO CABINET AND PROVIDE 48" SERVICE LOOP. LABEL CABLE. DO NOT TERMINATE.

CON CONNECTION- SEE SINGLE LINE 9/T402 FOR TERMINATION REQUIREMENTS.





5 DATA RACK LAYOUT - IDF 1.04
SCALE: NONE

4 DATA RACK LAYOUT - IDF 1.03
SCALE: NONE

3 DATA RACK LAYOUT - IDF 1.02
SCALE: NONE

2 DATA RACK LAYOUT - IDF 1.01
SCALE: NONE

1 DATA RACK LAYOUT - MDF 1.00
SCALE: NONE

EQUIPMENT INTERCOM SCHEDULE:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

SYMBOL	DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
1	TELECENTER U IP CONTROLLER	RAULAND	TCC2000	N/A
2	TELECENTER U ADMIN CONSOLE		TCC2045	N/A TCU-CON
3	TELECENTER U AUX. IN/OUT. MODULE		TCC2033	N/A
	UNIVERSAL RACK MOUNTING KIT		TCC2099	N/A
4	TELECENTER U PROGRAM LINE INPUT MODULE		TCC2055	N/A
7	24-PORT OR 48-PORT PATCH PANEL	SEE DATA TECHNOLOGY RACK ELEVATIONS BELOW FOR MORE INFORMATION.		(N) OR (E) AS NOTED
8	48-PORT NETWORK SWITCH	SEE DATA TECHNOLOGY RACK ELEVATIONS BELOW FOR MORE INFORMATION.		(N) OR (E) AS NOTED
IACP	INTRUSION ALARM CONTROL PANEL	EXISTING	EXISTING	N/A
FACP	FIRE ALARM CONTROL PANEL	EXISTING	EXISTING	N/A
CON	ACCESS CONTROL PANEL	EXISTING	EXISTING	N/A

A EQUIPMENT SCHEDULE INTERIOR SURFACE SPEAKER:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
TELECENTER U IP CLASSROOM MODULE	RAULAND	TCC2011B	MOUNT INSIDE ENCLOSURE
8 OHM, 8" SPEAKER WITH RJ45 CONNECTOR	RAULAND	US0880	N/A
SPEAKER BAFFLE	RAULAND	ACC1003	N/A
SURFACE MOUNT SPEAKER ENCLOSURE	RAULAND	ACC1112	N/A

C EQUIPMENT SCHEDULE EXTERIOR SURFACE SPEAKER:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
TELECENTER U IP CLASSROOM MODULE	RAULAND	TCC2011B	MOUNT INSIDE BUILDING
TELECENTER U BREAKOUT MODULE	RAULAND	603101	MOUNT INSIDE BUILDING
8 OHM, 8" MOISTURE RESISTANT SPEAKER	LOWELL	8C10MRB	N/A
GRILLE VANDAL RESISTANT	RAULAND	ACC1012	N/A
SURFACE MOUNT SPEAKER ENCLOSURE	RAULAND	ACC1113	N/A
(N) SURFACE MOUNTED 4 GANG BACKBOX - WHITE	FSR	SMWB-4G-WHT	MOUNT INSIDE BUILDING

D EQUIPMENT SCHEDULE LARGE MESSAGE BOARD:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
LARGE MESSAGE BOARD	RAULAND	TCC3012L	N/A
PROTECTIVE CAGE	AMERICAN TIME	G2055OF-28	N/A

E EQUIPMENT SCHEDULE INTERIOR SURFACE CLOCK/SPEAKER COMBO:
ALL EQUIPMENT AND MATERIALS ARE CONTRACTOR FURNISHED, INSTALLED AND CONFIGURED (UNO)

DESCRIPTION	MODEL	PART NUMBER	NOTES / DETAIL REFERENCES
TELECENTER U IP CLASSROOM MODULE	RAULAND	TCC2011B	MOUNT IN ENCLOSURE
IP DIGITAL CLOCK	RAULAND	TCC3011S	N/A
BAFFLE ASSEMBLY WITH SPEAKER	RAULAND	ACC3011S	N/A
SURFACE MOUNT ENCLOSURE CLOCK/SPEAKER COMBO	RAULAND	ACC3011SBB	N/A

ACTION MATRIX:
INTERCONNECTIONS TO OTHER SYSTEMS

MODULES	TCC2033 (IDF 1.01)			
I/O PORTS	IN-1	IN-2	OUT-1	OUT-2
EVENT: LOCKDOWN			C	
EVENT: INTRUSION ALARM ACTIVE	A			
EVENT: FIRE ALARM ACTIVE		B		
A	INPUT: CLOSURE FROM INTRUSION ALARM PANEL			
B	INPUT: CLOSURE FROM FIRE ALARM PANEL			
C	OUTPUT: CLOSURE TO ACCESS CONTROL			

KMM SERVICES, INC
TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave. Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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JOHNNY KAGSTROM
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DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

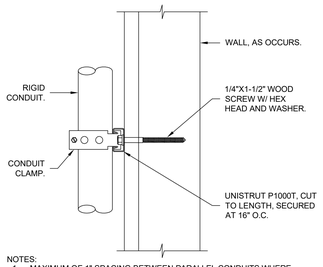
SHEET TITLE
TECHNOLOGY SINGLE LINE DIAGRAMS

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

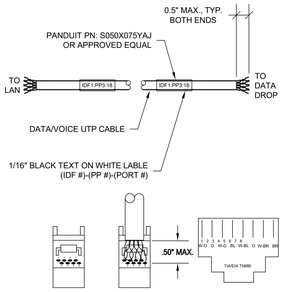
REVISION

SHEET T702

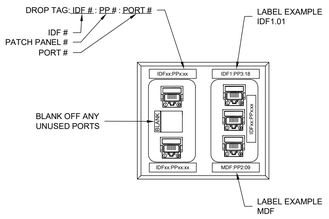


NOTES:
1. MAXIMUM OF 1" SPACING BETWEEN PARALLEL CONDUITS WHERE APPLICABLE.

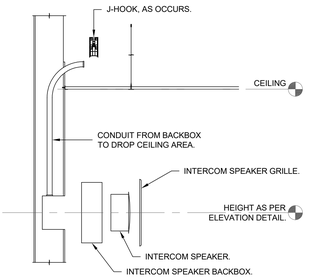
6 CONDUIT SUPPORT DETAIL - VERTICAL
SCALE: NONE



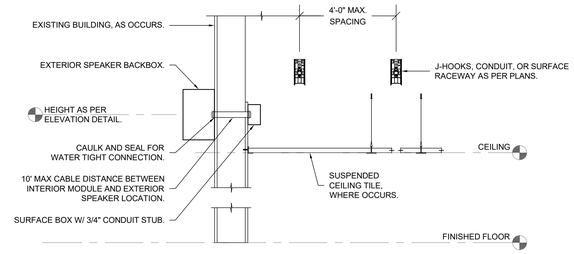
DATA CABLE LABELING DETAIL - AT PATCH PANEL / END POINT



DATA/ VOICE BACKBOX AND FACE PLATE DETAIL

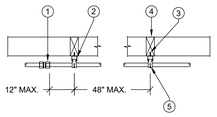


8 SURFACE MOUNTED INTERCOM SPEAKER DETAIL - EXISTING CONDUIT
SCALE: NONE



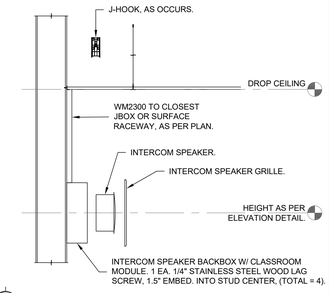
5 EXTERIOR INTERCOM SPEAKER MOUNTING DETAIL
SCALE: NONE

1. WEATHERPROOF COUPLING DEVICE BOX OR JUNCTION, TYP.
2. UNISTRUT P1000T, TYP.
3. 1/4"X1-1/2" WOOD SCREW W/ HEX HEAD AND WASHER.
4. EXISTING BUILDING STRUCTURE, TYP. U.N.O.
5. UNISTRUT UNIVERSAL PIPE CLAMP FOR 1/2" TO 2" CONDUIT:
   - 1/2" - P1211 (16 GA)
   - 3/4" - P1212 (16 GA)
   - 1" - P1213 (16 GA)
   - 1 1/4" - P1214 (14 GA)
   - 1 1/2" - P1215 (14 GA)
   - 2" - P1217 (14 GA)

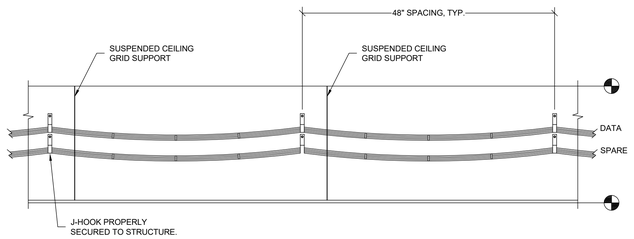


3/4" TO 2" CONDUIT

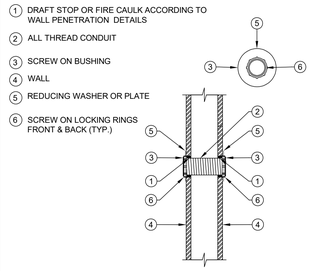
3 CONDUIT STRAP SPACING DETAIL
SCALE: NONE



7 SURFACE MOUNTED INTERIOR INTERCOM SPEAKER DETAIL
SCALE: NONE

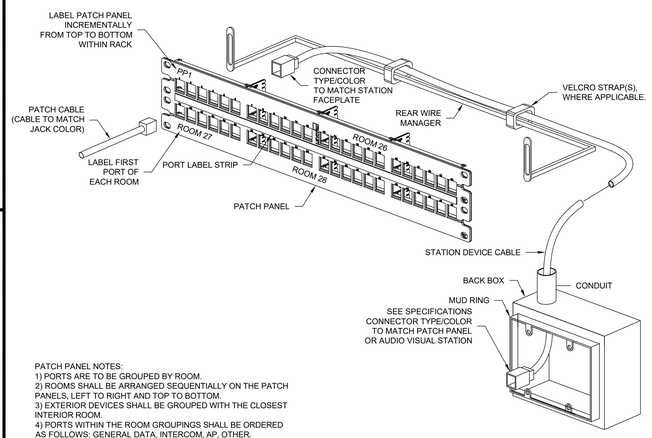


4 J-HOOK PATHWAY ABOVE CEILING DETAIL
SCALE: NONE



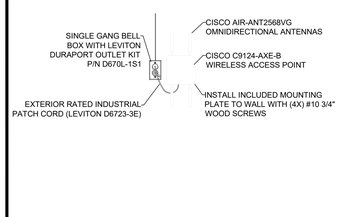
1. DRAFT STOP OR FIRE CAULK ACCORDING TO WALL PENETRATION DETAILS
2. ALL THREAD CONDUIT
3. SCREW ON BUSHING
4. WALL
5. REDUCING WASHER OR PLATE
6. SCREW ON LOCKING RINGS FRONT & BACK (TYP.)

2 CONDUIT SLEEVE PENETRATION DETAIL
SCALE: NONE

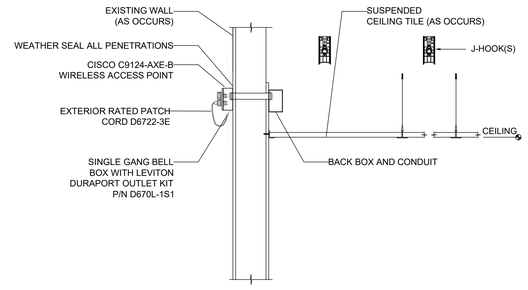


PATCH PANEL NOTES:
1) PORTS ARE TO BE GROUPED BY ROOM.
2) ROOMS SHALL BE ARRANGED SEQUENTIALLY ON THE PATCH PANELS, LEFT TO RIGHT AND TOP TO BOTTOM.
3) EXTERIOR DEVICES SHALL BE GROUPED WITH THE CLOSEST INTERIOR ROOM.
4) PORTS WITHIN THE ROOM GROUPINGS SHALL BE ORDERED AS FOLLOWS: GENERAL DATA, INTERCOM, AP, OTHER.
5) DO NOT SEGREGATE PATCH PANELS BY DEVICE TYPE UNLESS SPECIFICALLY DIRECTED ON THE IDF ELEVATION.

11 PATCH PANEL CONNECTION DETAIL - 2RU
SCALE: NONE



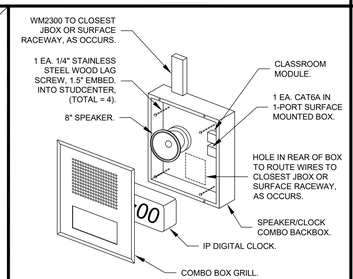
13 SURFACE MOUNTED INTERIOR INTERCOM SPEAKER DETAIL
SCALE: NONE



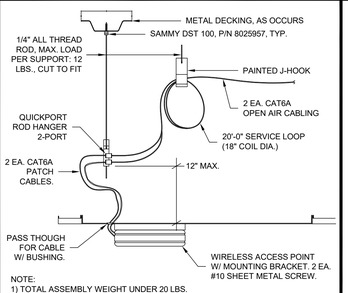
12 EXTERIOR WIRELESS ACCESS POINT RETROFIT SECTION VIEW
SCALE: NONE

NOT USED

NOT USED

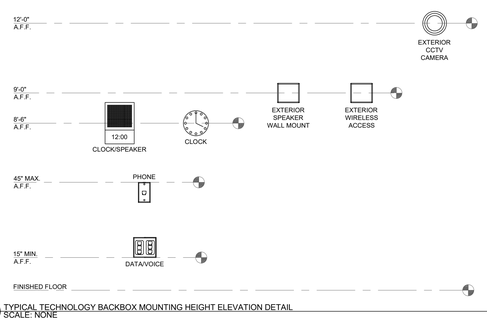


10 DIGITAL CLOCK AND SPEAKER COMBO ENCLOSURE MOUNTING DETAIL
SCALE: NONE

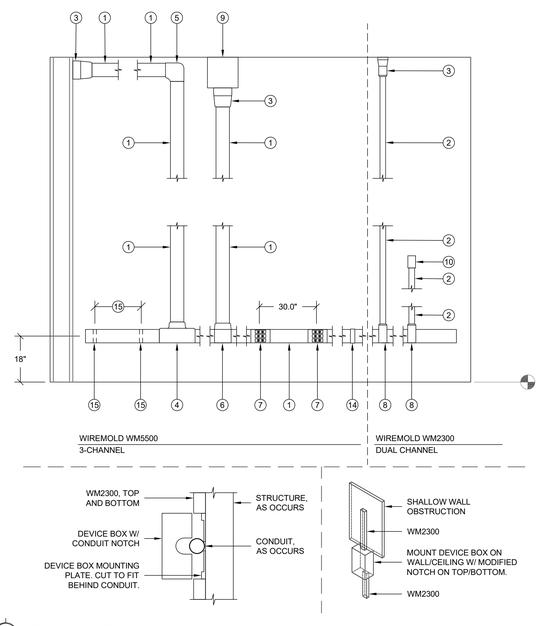


NOTE:
1) TOTAL ASSEMBLY WEIGHT UNDER 20 LBS.

14 WIRELESS ACCESS POINT ON METAL T-BAR CEILING MOUNTING DETAIL
SCALE: NONE



9 TYPICAL TECHNOLOGY BACKBOX MOUNTING HEIGHT ELEVATION DETAIL
SCALE: NONE



1 TYPICAL SURFACE MOUNTED RACEWAY W/ ASSEMBLY COMPONENTS DETAIL
SCALE: NONE

WIREMOLD SURFACE RACEWAY

SYMBOL	DESCRIPTION	WM5500 PART NUMBER	WM2300 PART NUMBER
1	WIREMOLD WM5500	5500	N/A
2	WIREMOLD WM2300	N/A	2300
3	ENTRANCE END FITTING	5510D	2310A
4	FULL CAPACITY TEE (FIBER READY)	N/A	N/A
5	FULL CAPACITY FLAT ELBOW 90°	5511F0	2311DFO
6	TEE	5515	2315
7	DEVICE BRACKET W/ DUAL RJ FACEPLATE, DUPLEX FACEPLATE OR BLACK FACEPLATE AS NEEDED	5550 / 5507FRJ / 5507D / 5507B	5474 / 5574
8	TRANSITION FITTING FOR WM2300	5574	2348
9	WALL MOUNTED PULL BOX SIZE AS NOTED PER PLAN	N/A	2300
10	DEVICE BOX	N/A	2348
11	END CAP	5510	2310B
12	INTERNAL ELBOW	5517FO	2317DFO
13	EXTERNAL ELBOW	5518FO	2318DFO
14	BASE SEAM COVER	5506	2306
15	WIRE CLIP	5500WC (INSTALL CLIPS AT 48" O.C. ENTIRE LENGTH OF WIREMOLD)	2300WC (INSTALL CLIPS AT 48" O.C. ENTIRE LENGTH OF WIREMOLD)
16	TRANSITION FITTING FOR WM5500 TO WM5400	5574A	N/A

NOTE:
1) DEVICE BOX (10) TO BE USED TO TRANSITION OVER CONDUIT AND SHALLOW WALL OBSTRUCTIONS (I.E. BULLETIN BOARD, TRIM, CASEWORK, ETC.) WHERE REQUIRED. UNDER NO CIRCUMSTANCES SHOULD SURFACE RACEWAY BE BENT OVER OBSTRUCTIONS.

KMM SERVICES, INC
TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave. Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE
TECHNOLOGY DETAILS

DRAWING STATUS
CONSTRUCTION DRAWINGS

PROJECT NO:	0032-411
BID PACKAGE:	-
DESIGNED BY:	CS
CHECKED BY:	SD
ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

SHEET T800

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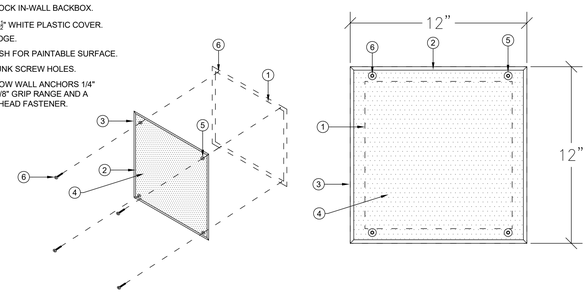
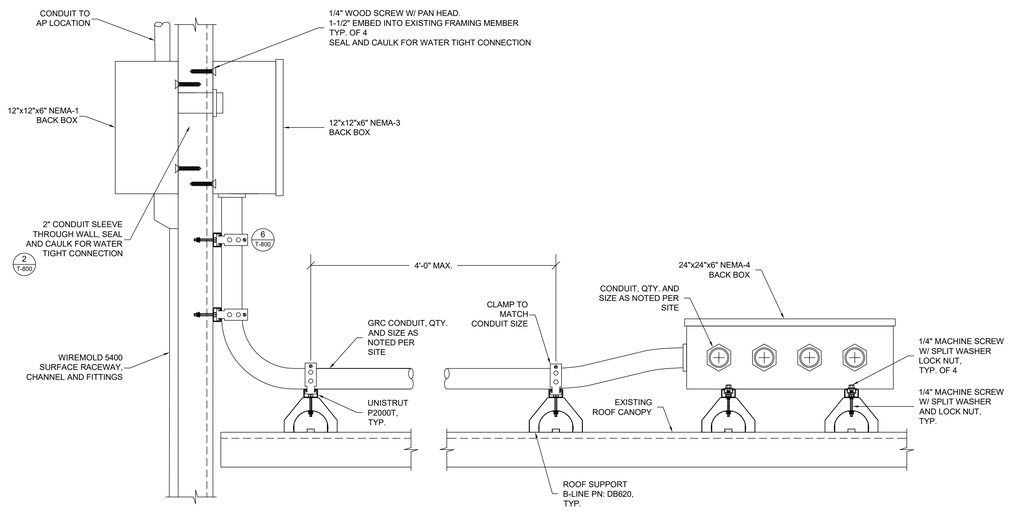
NOT USED

NOT USED

1. EXISTING CLOCK IN-WALL BACKBOX.
2. NEW 12"x12"x¼" WHITE PLASTIC COVER.
3. 1/4" BEVEL EDGE.
4. MATTED FINISH FOR PAINTABLE SURFACE.
5. COUNTER SUNK SCREW HOLES.
6. MOLLY HOLLOW WALL ANCHORS 1/4" HOLE WITH 1/8" GRIP RANGE AND A WHITE FLAT HEAD FASTENER.



2 CLOCK BACKBOX COVER PLATE
SCALE: NONE



1 EXTERIOR CANOPY CONDUIT AND BACK BOX MOUNTING DETAIL
SCALE: NONE

KMM Services, Inc.

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Office: (916) 359-4000 www.kmmservices.com

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CALEB GREENWOOD TELECENTER UPGRADE
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SHEET TITLE

TECHNOLOGY DETAILS

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CONSTRUCTION DRAWINGS

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ISSUE DATE:	2025-09-05
WORKING DATE:	2025-09-08

REVISION

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Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814)
and ANSI/ULC263 (ASTM E119)

CLIV.R14288
Wall-opening Protective Materials

SpecSeal Power Shield Box Inserts, for use with flush device UL Listed Metallic Outlet Boxes without internal clamps installed with steel mud rings in framed wall assemblies. When protective material is used in outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). The max outlet box dimensions, hourly rating, type of stud, use of stud cavity insulation and type of faceplate are tabulated below. Additional general construction features shall comply as follows:

A. **Studs** - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm).

B. **Stud Cavity Insulation** - Where indicated in the table below, stud cavity insulation to consist of min 3-1/2 in. (89 mm) thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3). Unless indicated as required, stud cavity insulation is optional.

C. **Wall Design** - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory.

D. **Pad Dimensions** - The minimum dimensions of the insert pad are shown in the table below. Pads may be cut to achieve dimensions shown in table and partial insert pads may be utilized.

Product	Max Outlet Box Size, in. (mm)	Outlet Box Type	Outlet Box Mfr	Pad Size, in. (mm)	Rating, hr	Stud	Cavity Insulation	Face Plate Type	Putty Ball
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	2	Steel	No	Steel	-
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	2	Steel	Yes	Plastic	-
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	2	Steel	No	Steel	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	2	Steel	Yes	Plastic	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	2	Steel	No	Steel	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	2	Steel	Yes	Plastic	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-11/16 x 4-11/16 x 2-1/8 (119 x 119 x 54) deep	-	-	4-1/2 x 4-1/2 (114 x 114)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-1/2 x 5 x 2-3/8 (114 x 127 x 60) deep	-	-	4-1/2 x 4-1/2 (114 x 114)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-1/2 x 14 x 2-1/2 (114 x 356 x 64) deep	-	-	4-1/2 x 13-3/4 (114 x 349)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-

SpecSeal Putty Pads, for use with flush device UL Listed Metallic Outlet Boxes installed with steel mud rings or UL Listed Nonmetallic Outlet Boxes in framed wall assemblies. When protective material is used on outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box. When nonmetallic box is used with Type NM cable, a 3/16 in. (5 mm) thickness of putty shall be formed around the cable at its connection to the box and extending a min of 1 in. (25 mm). The box composition, max device dimensions, hourly rating, type of stud and type of faceplate are tabulated below. Additional general construction features shall comply as follows:

A. **Studs** - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm).

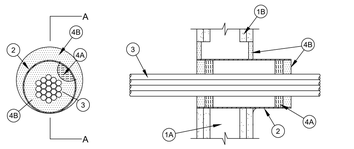
B. **Stud Cavity Insulation** - Unless indicated as required, stud cavity insulation is optional and may consist of min 3-1/2 in. (89 mm) thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3).

C. **Wall Design** - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory.

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-L-3210

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 3/4 Hr	FT Rating - 3/4 Hr
L Rating at Ambient - Less Than 1 CFM/sq ft (See Items 3 and 4B)	FH Ratings - 1 and 2 Hr (See Item 1)
L Rating at 400°F - Less Than 1 CFM/sq ft (See Items 3 and 4B)	FTH Rating - 3/4 Hr
	L Rating at Ambient - Less Than 5.1 L/S/m² (See Items 3 and 4B)
	L Rating at 204°F - Less Than 5.1 L/S/m² (See Items 3 and 4B)



Section A-A

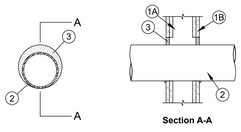
1. **Wall Assembly** - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, V300, U400, V400, or W400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76mm) clearance is present between the penetrating item and the framing on all four sides.
   B. **Gypsum Board*** - 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-1/2 in. (165 mm) when sleeve (Item 2) is installed. Max diam of opening is 4 in. (102 mm) when sleeve is not used.

   The hourly F and FH rating of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Steel Sleeve - (Optional)** - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT), steel conduit, Schedule 5 (or heavier) steel pipe sleeve or nom 0.016 in. thick (0.41 mm, No. 28 ga) galv steel sleeve installed flush with wall surfaces. The annular space between the steel sleeve and periphery of opening shall be min 0 in. (continuous point contact) to max 2 in. (51 mm). When Schedule 5 steel pipe or EMT is used, sleeve may be installed flush with or extend up to 18 in. (46 cm) beyond one or both wall surfaces. Steel sleeve may be installed at an angle not greater than 45-degrees from perpendicular. Schedule 5 steel pipe or EMT sleeves may extend continuously beyond one wall surface. Sleeve to be rigidly supported when extending from the wall surfaces.

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-L-1049

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr	FT Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Ratings - 1 and 2 Hr (See Item 1)
L Rating At 400 F - Less Than 1 CFM/sq ft	FTH Rating - 0 Hr
	L Rating at Ambient - Less Than 5.1 L/S/m2
	L Rating at 204°C - Less Than 5.1 L/S/m2



Section A-A

1. **Wall Assembly** - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, V300, U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76mm) clearance is present between the penetrating item and the framing on all four sides.
   B. **Gypsum Board*** - 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 38 in. (965 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.

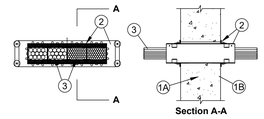
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

1A. **Metallic Sleeve** - (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) to max 0.105 in. (2.7 mm) thick sheet steel. Length of steel sleeve to be equal to the thickness of wall. Longitudinal seam of sleeve welded or overlapped min 1 in. (25 mm). The ends of the steel sleeve shall be flush or recessed max 1/4 in. (6 mm) from wall surfaces.

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-J-3098

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 2 and 4 Hr (See Item 3)	F Ratings - 2 and 4 Hr (See Item 3)
T Ratings - 3/4 and 1 Hr (See Item 3)	FT Ratings - 3/4 and 1 Hr (See Item 3)
L Rating At Ambient - Less Than 1, 1.3, 4 or 7 CFM/Device Module (See Item 3)	FH Ratings - 2 and 4 Hr (See Item 3)
L Rating At 400 F - Less Than 1, 2 or 3 CFM/Device Module (See Item 3)	FTH Ratings - 3/4 and 1 Hr (See Item 3)
	L Rating At Ambient - Less Than 1, 1.3, 4 or 7 CFM/Device Module (See Item 3)
	L Rating At 400 F - Less Than 1, 2 or 3 CFM/Device Module (See Item 3)



Section A-A

1. **Wall Assembly** - Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Opening to be max 1/4 in. (6 mm) larger than width and height dimensions of firestop device(s).
   See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. **Firestop Device** - One, two, three, four or seven firestop device modules ganged together. Each firestop device module consists of a 3 by 3 by 10-1/2 in. (76 by 76 by 267 mm) long galv steel tube with an intumescent material lining. Firestop device modules to be installed in accordance with the accompanying installation instructions. The space between the firestop device module(s) and the periphery of the opening shall be min 0 in. (0 mm, point contact) to max 1/8 in. (3.2 mm). In round openings, the space between the firestop device and the periphery of the opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Firestop device module(s) secured in place by means of steel wall plates installed with gasketing material supplied with product. Steel wall plates installed on both sides of wall and secured to each device by means of steel set screws provided with device. Each firestop device module is to be installed with ends projecting an equal distance beyond each surface of the wall assembly. As an option, devices may be cast or grouted into wall assembly. When device is cast or grouted in place, the steel wall plates are optional.

   SPECIFIED TECHNOLOGIES INC - EZ PATH Series 33 Fire Rated Pathway

2A. **Firestop Device* - Extension Module** - (Optional, Not Shown) - Module attached to ends of 3 by 3 by 10-1/2 in. (76 by 76 by 267 mm) long firestop device (Item 3) to increase its length to facilitate installation in thicker walls. Each module consists of a 3 by 3 by 6 in. (76 by 76 by 152 mm) long galv steel tube with an intumescent material lining. Extension module to be installed in accordance with the accompanying installation instructions. When module is used, firestop device (Item 2) and extension module(s) secured in place by means of steel wall plates installed with gasketing material supplied with product. Steel wall plates installed on both sides of wall and secured to each device or extension module(s) by means of steel set screws provided with wall plates. Firestop device and extension module(s) assembly to be installed with ends projecting an equal distance beyond each surface of the wall assembly.

   SPECIFIED TECHNOLOGIES INC - EZ PATH Extension

D. **Metallic Outlet Boxes** - Except as indicated in the table below, when steel outlet boxes are used and the boxes are interconnected by means of electrical metallic tube or conduit, a ball of putty is to be installed to plug the open end of each electrical metallic tube (EMT) or conduit within the outlet box. When MC cable is used and/or when the outlet boxes are not interconnected, the ball of putty is not required.

E. **Nonmetallic Outlet Boxes** - The box manufacturer is indicated in the table below. Boxes shall bear a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory.

Model	Max Outlet Box Size in. (mm)	Outlet Box Type	Outlet Box Mfr	Pad Size in. (mm)	Rating, hr	Stud	Cavity Insulation	Face Plate Type	Putty Ball
-	4 x 4 x 2-1/8 (102 x 102 x 54) deep	Steel	N.A.	-	1	Steel or Wood	-	Steel	No
-	4 x 4 x 2-1/8 (102 x 102 x 54) deep	Steel	N.A.	-	1	Steel or Wood	-	Plastic	Yes
-	4-11/16 x 4-11/16 x 2-1/8 (119 x 119 x 54) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	4-1/2 x 5 x 2-3/8 (114 x 127 x 60) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	4-1/2 x 14 x 2-1/2 (114 x 127 x 60) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Polyvinyl Chloride	Larnson & Sessions or Carlon	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Phenolic	Allied Moulded Prods	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Polycarbonate	Thomas & Betts	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Phenolic	Thomas & Betts	-	1 or 2	Wood	-	Plastic or Steel	N.A.
-	2-1/4 x 3-3/4 x 2-3/4 (57 x 95 x 70) deep	Polyvinyl Chloride	Pass & Seymour	-	1 or 2	Wood	-	Plastic or Steel	N.A.

SpecSeal Putty Pads, for use with maximum 4 by 4 by 2-1/8 in. (102 by 102 by 54 mm) deep flush device UL Listed Metallic Outlet Boxes installed with steel mud rings and with steel faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies constructed with min 5-1/2 in. (140 mm) wide wood or steel studs and with stud cavities filled with fiberglass (nom 0.5 pcf or 8 kg/m3) or mineral fiber (nom 4 pcf or 64 kg/m3) insulation. When protective material is used on outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the boxes on opposite sides of the wall are not interconnected with conduit or, when interconnected, the open end of the conduit within the outlet box is filled with a ball of putty. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13mm) The seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box.

SpecSeal EP23, EP24 and EP44 Power Shield Box Inserts and SpecSeal Putty Pads, for use with maximum 4 by 4 by 1-1/2 or 2-1/8 in. (102 by 102 by 38 or 54 mm) deep flush device UL Listed **Metallic Outlet Boxes** installed with steel mud rings and with steel or plastic faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies constructed with min 3-1/2 in. (89 mm) wide wood or steel studs. When both protective materials are used with outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the backs of the boxes are minimum 1/2 in. (13 mm) apart and provided that the boxes are not interconnected. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box. An insert pad shall be installed to completely cover the back inside surface of each outlet box.

SpecSeal Putty Pads, for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the individual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc. Moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud unless otherwise noted) including nailing tabs and to completely seal against the stud within the stud cavity. Multiple moldable putty pads may be installed on an outlet box to attain the required minimum thickness of putty material. Additional putty material used to seal around each conduit and/or cable fitting on the exterior of each box. A min 3/16 in. (4.8 mm) thickness of putty material is required on the exterior surfaces of flush device boxes in 1 and 2 hr fire rated Wall and Partition Designs. When the moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not installed back to back, except as noted.

SpecSeal EP55 Power Shield Box Inserts, for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the individual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc. Power Shield Box Insert is to be applied to the back surface of the box and may be slit to accommodate communications-circuit accessories. When the Power Shield Box Insert is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not installed back to back, except as noted.

3. **Cables** - Aggregate cross-sectional area of cables in opening when a steel sleeve (Item 2) is not used, or within steel sleeve to be max 48 percent of the aggregate cross-sectional area of the opening or sleeve. Cables to be bundled and rigidly supported on both sides of wall assembly. When the sleeve is installed, the annular space between the cables and the sleeve shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). When the sleeve (Item 2) is not used, the annular space between the cables and the opening shall be a min 0 in. (point contact) to a max 1/2 in. (13 mm). When L Ratings for penetrants are required, min separation between cables and between cables and periphery of opening or the sleeve os 1/8 in. (3 mm). Cable bundle, using cables described below, may penetrate the wall at an angle not greater than 45 degrees. Any combination of the following types and sizes of copper conductor cable may be used:
   A. Max 200 pair No. AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.
   B. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
   C. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
   D. Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
   E. Max RG/U (or smaller) coaxial cable with fluorinated ethylene or plenum-rated insulation and jacketing.
   F. Max 62.5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.
   G. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.
   H. Max 4/C No. 2/0 aluminum or copper conductor aluminum or steel Metal-Clad® or Armored-Clad® cable.
   I. Max 3/4-in. (19 mm) diam copper ground cable with or without a PVC jacket.
4. **Firestop System** - The firestop system shall consist of the following:
   A. **Paraffin Putty** - When required (See table in Item 4B), min 1 in. (25 mm) thickness of min 4.0 pcf (64 kg/m ^{3}) mineral wool batt insulation firmly packed into each end of sleeve (Item 2) as a permanent form. Packing material to be recessed from each end of sleeve as required to accommodate the required thickness of fill material. When the sleeve is not used, the packing material is not required.
   B. **Fill, Void or Cavity Material* - Sealant or Putty** - When sleeve (Item 2) is used, fill material applied to appropriate thickness within steel sleeve as shown in the table below, flush with edges of steel sleeve on both surfaces of wall. Min 1/2 in. (13 mm) thickness of fill material installed into annular space between sleeve and wall flush with both surfaces of the wall. Min 1/2 in. (13 mm) diam bead of sealant or "rope" of putty shall be applied around the perimeter of the sleeve on each side of the wall when sleeve extends beyond surface of wall and is installed at continuous point contact. When sleeve is not used, a min 5/8 in. (16 mm) thickness of fill material shall be applied within the annulus, flush with both surfaces of the wall. At point contact location, apply min 1/4 in. (6 mm) diam bead of fill material at cable/gypsum board interface on both sides of the wall.

Sealant or Putty Type	Thickness, In. (mm)	Packing Material Required
SpecSeal Series SSS Sealant or LCI Sealant	1/2 in. (13)	Yes
SpecSeal Series SSS Sealant or LCI Sealant	1 in. (25)	No
SpecSeal Putty	1 in. (25)	No

SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant, SpecSeal LCI Sealant or SpecSeal Putty

L Ratings apply only when SpecSeal Series SSS or SpecSeal LCI Sealants are used.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

2. **Through Penetrant** - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing may be installed at an angle not greater than 45-degrees from perpendicular. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** - Nom 36 in. (914 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** - Nom 36 in. (914 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Conduit** - Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit, nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or nom 4 in. (102 mm) diam (or smaller) flexible steel conduit.
   D. **Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   F. **Stainless Steel Pipe** - Nom 36 in. (914 mm) diam (or smaller) Schedule 10 (or heavier) stainless steel pipe.

2A. **Through Penetrating Product* - Flexible Metal Piping** - As an alternate to Item 2, one nom 2 in. (51 mm) diam (or smaller) steel flexible metal pipe to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. (51 mm). Pipe to be rigidly supported on both sides of the wall assembly.

   OMEGA FLEX INC

   GASTITE, DIV OF

   TITEFLEX WARD MFG L L C

3. **Fill, Void or Cavity Material*** - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location between through penetrant and gypsum board, a min 3/8 in. (10 mm) diam bead of fill material shall be applied at the gypsum board/through penetrant interface on both surfaces of wall.

   SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

   * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

3. **Cables** - Cables may represent a 0 to 100 percent visual fill within the loading area for each firestop device module. Cables to be rigidly supported on both sides of the wall assembly. Any combination of the following types of cables may be used:
   A. Max 400 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 350 kcmil single copper conductor power cable with XLPE jacket and insulation
   C. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   D. Max 3/C No. 10 AWG metal clad or armored cable with steel or aluminum jacket.
   E. Max 3/C No. 8 AWG NM cable (Romex) with PVC insulation and jacket.
   F. Max four pair No. 22 AWG (or smaller) copper conductor data cable with PVC or plenum rated jacketing and insulation.
   G. Max RG/U coaxial cable with fluorinated ethylene insulation and jacketing.
   H. Optical fiber cable with PVC or polyethylene (PE) jacket and insulation and having a max diam of 5/8 in. (16 mm).

   When Item 3A, 3B, 3C, 3D or 3E is used, the F and FH Ratings are 2 hr and the T, FT and FTH Ratings are 3/4 hr. When max 200 pair No. 24 AWG telecommunication cable is used or when Item 3F, 3G or 3H is used, the F and FH Ratings are 4 hr and the T, FT and FTH Ratings are 1 hr.

   The L Rating for each empty firestop device module is less than 1 cfm at ambient and at 400F. When Item 3A is used, the L Rating for each firestop device module with 100 percent visual fill is 4 cfm at ambient and 3 cfm at 400F. When Item 3F is used, the L Rating for each firestop device module with 100 percent visual fill is 1.3 cfm at ambient and less than 1 cfm at 400F. When Item 3G or 3H is used, the L Rating for each firestop device module with 100 percent visual fill is 7 cfm at ambient and 2 cfm at 400F.

   * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

KMM SERVICES, INC
TECHNOLOGY&FIRE LIFE SAFETY
5433 El Camino Ave. Suite 5
Carmichael, CA 95608
Office: (916) 359-4000 www.kmmservices.com

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SHEET REVISIONS

DELTA	DESCRIPTION	DATE

SITE KEY PLAN

PROJECT
SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
CALEB GREENWOOD TELECENTER UPGRADE
5457 CARLSON DR.
SACRAMENTO, CA 95819

SHEET TITLE
TECHNOLOGY FIRE DETAILS

DRAWING STATUS
CONSTRUCTION DRAWINGS

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REVISION

SHEET T802