

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
A.V.C.	AUDIO/VISUAL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
S.C.	SECURITY CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR

TECHNOLOGY SYMBOL LIST

SYMBOL:	EQUIPMENT LIST ABBREV.:	DESCRIPTION:	NOTE:
CR	AC-CR-W	ACCESS CONTROL CREDENTIAL READER	3.
ADO	AC-ADO-W	ACCESS CONTROL AUTOMATIC DOOR OPENER	.
CSS	N/A	CONTROLLED SECURITY SCHEME SCHEDULE IDENTIFIER	3.
DC	AC-DC	ACCESS CONTROL DOOR CONTACT	3.
REX	AC-REX	ACCESS CONTROL REQUEST TO EXIT	3.
AAM	AR-AMM-W	AREA OF RESCUE - ASSISTANCE MASTER STATION	.
AAC	AR-AAC-W	AREA OF RESCUE - ASSISTANCE CALL STATION	.
WP1	AV-WP1-W	AUDIO/VISUAL FACEPLATE (WALL) - TYPE 1	.
IRS	AV-IRS-C	AUDIO/VISUAL INFRA-RED SENSOR (CEILING)	.
TP	AV-TP-W	AUDIO/VISUAL TOUCH PANEL (WALL)	.
SI	AV-SI-C	PERFORMANCE AUDIO SPEAKER - TYPE 1 (CEILING)	.
CA-WAP	SC-IO-CWAP	WIRELESS ACCESS POINT INFORMATION OUTLET (CEILING)	1.
WAP	SC-WAP-C	WIRELESS ACCESS POINT DEVICE/ENCLOSURE (CEILING)	.
CI	SC-IO-W	INFORMATION OUTLET (WALL)	1.
W	SC-WP-W	WALL PHONE	.
CI	SC-IO-F	INFORMATION OUTLET (FLOOR)	1, 2.
HH	SC-HH-1	HANDHOLE	.
AV	AV-RLW	AUDIO/VISUAL ROUGH-IN (WALL)	.

WIDTH X HEIGHT	CABLE TRAY, CHANNEL TRAY, BASKET TRAY
WIDTH X HEIGHT	LADDER RACK
DIAMETER	CONDUIT
→	CONDUIT DOWN
○	CONDUIT UP OR UP/DOWN
[-]	CONDUIT SLEEVE
---	CONTINUATION

GENERAL NOTES:

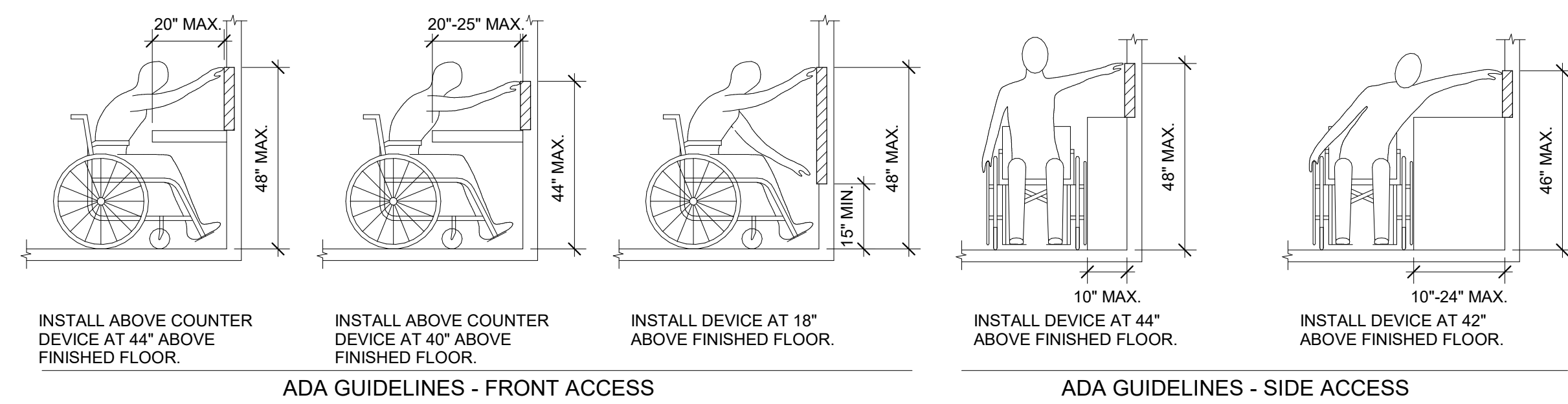
- ALL SYMBOLS AND ABBREVIATIONS LISTED MAY NOT BE APPLICABLE TO THIS PROJECT. REFER TO THE GENERAL TECHNOLOGY EQUIPMENT SCHEDULE FOR MORE COMPLETE DESCRIPTION AND ITEMS.
- ALL SYMBOLS AND ABBREVIATIONS REFER TO TECHNOLOGY SHEETS ONLY AS DEFINED ON THE SHEET INDEX. REFER TO THE GENERAL TECHNOLOGY NOTES FOR ADDITIONAL INFORMATION.
- ALL SYMBOLS LISTED ABOVE ARE FOR REFERENCE ONLY. REFER TO PLANS AND LINE TYPE KEY FOR NEW, EXISTING TO REMAIN AND TO BE REMOVED ITEMS FOR ADDITIONAL INFORMATION.

TECHNOLOGY SYMBOL NOTES:

- "CI" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION. REFER TO INFORMATION OUTLET SCHEDULE ON T500 FOR ADDITIONAL INFORMATION.
- INFORMATION OUTLET INSTALLED IN E.C. PROVIDED FLOOR BOX. "CI" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION. REFER TO INFORMATION OUTLET SCHEDULE ON T500 FOR ADDITIONAL INFORMATION. REFER TO THE ELECTRICAL FLOOR PLANS AND ELECTRICAL EQUIPMENT SCHEDULES FOR ADDITIONAL INFORMATION.
- REFER TO CONTROLLED SECURITY SCHEME (CSS) TYPE SCHEDULE ON T500 FOR ADDITIONAL INFORMATION.

TECHNOLOGY ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
BFC	BELOW FINISHED CEILING
C	CONDUIT
J-BOX	JUNCTION BOX
SIM	SIMILAR
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
+#	MOUNTING HEIGHT ABOVE FINISHED FLOOR
EF-#	ENTRANCE FACILITY
MDF	MAIN DISTRIBUTION FRAME
TR-#	TELECOMMUNICATIONS ROOM
TE	TELECOM ENCLOSURE
OBG	OLBRICH GARDENS
CoM IT	CITY OF MADISON INFORMATION TECHNOLOGY



ADA STANDARDS FOR ACCESSIBLE DESIGN

SUGGESTED MATRIX OF RESPONSIBILITY

ITEM:	SHOWN ON:	FURNISHED BY:	INSTALLED BY:	NOTES:
TECHNOLOGY ROUGH-IN. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR DEFINITION	T-SERIES	E.C.	E.C.	3, 4.
INFORMATION OUTLET FACEPLATES, JACKS, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
CONDUIT SLEEVES (WHEN SHOWN ON DRAWINGS)	T-SERIES	E.C.	E.C.	
CONDUIT SLEEVES (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	T.C.	2, 4.
TELECOMMUNICATION SYSTEMS ROUGH-IN	T-SERIES	E.C.	E.C.	1.
TELECOMMUNICATION EQUIPMENT, CABLING, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
CABLE TRAY (INCLUDING WIRE BASKET TRAY) REFER TO SPECIFICATION SECTION 27 05 28 FOR DEFINITION	T-SERIES	E.C.	E.C.	
LADDER RACK	T-SERIES	T.C.	T.C.	5.
GROUNDING LUGS ON TECHNOLOGY EQUIPMENT	T-SERIES	T.C.	E.C.	6.
BONDING SYSTEM FOR TECHNOLOGY SYSTEM. REFER TO SPECIFICATION SECTION 27 05 28 FOR DEFINITION	T-SERIES	E.C.	E.C.	7, 8.
CONNECTION OF TECHNOLOGY BONDING SYSTEM TO THE ELECTRICAL GROUND SYSTEM	T-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (120V OR GREATER)	E-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	E.C.	2, 4.
LINE VOLTAGE POWER FOR DOOR HARDWARE POWER SUPPLIES	ARCH SPEC	E.C.	E.C.	
LOW VOLTAGE CABLING FOR TECHNOLOGY SYSTEMS	T-SERIES	T.C.	T.C.	
CABLE HANGERS AND SUPPORTS OR OTHER CABLE ROUTING METHODS (OTHER THAN CONDUIT AND CABLE TRAY)	T-SERIES	T.C.	T.C.	5.
FLOOR BOX (ROUGH-IN)	T & E SERIES	E.C.	E.C.	

SUGGESTED MATRIX OF RESPONSIBILITY NOTES

- LOCATIONS OF TELECOMMUNICATIONS ROUGH-INS SHALL BE INDICATED BY THE INFORMATION OUTLET SYMBOLS ON THE DRAWINGS. REFER TO THE TECHNOLOGY SYMBOL LIST FOR ADDITIONAL INFORMATION.
- BASED ON THE INHERENT DIFFERENCES IN PRODUCTS FROM VARIOUS MANUFACTURERS, ALL REQUIRED EQUIPMENT MAY NOT BE SHOWN ON THE DRAWINGS FOR ALL ACCEPTABLE MANUFACTURERS.
- INCLUDES BACKBOXES AND CONDUIT REQUIRED FOR THE TECHNOLOGY SYSTEMS INSTALLATION. THE E.C. SHALL BASE THE BID ON THE BASIS OF DESIGN SHOWN ON THE CONTRACT DOCUMENTS.
- ALL CHANGES TO THE SLEEVES, BACKBOXES, CONDUITS, AND POWER REQUIRED BECAUSE OF THE T.C.'S SELECTION OF AN ALTERNATE ACCEPTABLE MANUFACTURER OR FROM SYSTEM CONFIGURATIONS THAT ARE LEFT TO THE CHOICE OF THE CONTRACTOR SHALL BE INCLUDED IN THE T.C.'S BID. THIS BID SHALL INCLUDE INSTALLATION BY A LICENSED ELECTRICIAN.
- UNLESS TRADE RULES DICTATE OTHERWISE.
- FURNISHED AS PART OF THE EQUIPMENT WHEN POSSIBLE, OR FURNISHED TO THE E.C. FOR INSTALLATION IN THE FIELD.
- INCLUDES ALL CONDUCTORS, GROUND BARS, AND TERMINATIONS FOR THE COMPLETE BONDING SYSTEM REQUIRED BY THE SPECIFICATIONS.
- REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF PANELS AND SWITCHBOARDS SHOWN IN THE TECHNOLOGY BONDING RISER DIAGRAM AND TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.

TELECOM ROOM REFERENCES

TELECOM ROOM	DETAIL / SHEET REFERENCE	FLOOR PLAN REFERENCE	ARCH ROOM NUMBER
AV CLOSET	6/T200	1/T101	113
EXISTING MDF	1/T200	1/T101	18
TR-1	2/T200	1/T101	102
WORKROOM	5/T200	1/T111	34

TECHNOLOGY GENERAL NOTES:

- ##### INDICATES GENERAL TECHNOLOGY EQUIPMENT SCHEDULE ITEM LABELED AS "EQUIPMENT LIST ABBREVIATION"
- REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR FULL DESCRIPTIONS AND MANUFACTURERS OF ALL DEVICES.

TECHNOLOGY MOUNTING SUBSCRIPT KEY:

- A MOUNT AT 48" TO CENTERLINE ABOVE COUNTER OR BACKSPLASH
- H MOUNT ORIENTED HORIZONTALLY
- L MOUNT IN CASEWORK
- M MOUNT IN MODULAR FURNITURE
- S MOUNT IN SURFACE RACEWAY

A SLASH IS USED BETWEEN TWO SUBSCRIPTS, E.G., A/H.

TECHNOLOGY INSTALLATION NOTES:

- THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATION DETAIL ON THIS PAGE FOR ADDITIONAL INFORMATION.
- CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING, IN FLOOR SLAB, ETC. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN MECHANICAL ROOMS AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE.
- BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" HORIZONTALLY. "THRU-THE-WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
- VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS PRIOR TO MAKING THE ACTUAL TELECOMMUNICATIONS INSTALLATION. ADJUST OUTLETS OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
- TELECOMMUNICATIONS EQUIPMENT SHALL BE MOUNTED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
- ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E84 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO 27 05 03 AND 28 05 03 FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
- REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF TELECOMMUNICATIONS WORK THAT IS OUTSIDE THE CONTRACT LIMITS OF CONSTRUCTION. REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.
- ALL LADDER RACK AND CABLE TRAY SIZES ARE AS DEFINED ON THE DRAWINGS. REFER TO SPECIFICATION SECTIONS 27 05 28 AND 27 11 00 FOR APPROVED MANUFACTURERS AND INSTALLATION REQUIREMENTS.
- FLUSH MOUNT ALL TELECOMMUNICATION OUTLETS AT 18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED OTHERWISE.

TECHNOLOGY SHEET INDEX

T000	TECHNOLOGY COVER SHEET
T001	SITE DEMOLITION PLAN - TECHNOLOGY
T001	SITE PLAN - TECHNOLOGY
T101	LEARNING CENTER FLOOR PLAN - LEVEL 1 - TECHNOLOGY
T102	LEARNING CENTER FLOOR PLAN - LEVEL 2 - TECHNOLOGY
T111	GREENHOUSE FLOOR PLAN - LEVEL 1 - TECHNOLOGY
T200	ENLARGED PLANS - TECHNOLOGY
T300	DETAILS - TECHNOLOGY
T400	RISER DIAGRAMS - TECHNOLOGY
T401	RISER DIAGRAMS - TECHNOLOGY
T500	SCHEDULES - TECHNOLOGY

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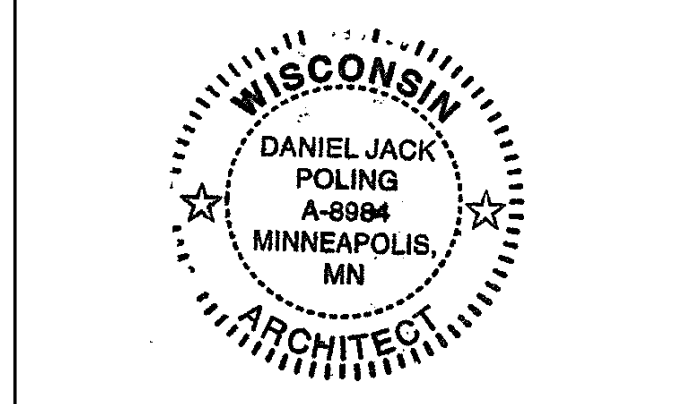
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**Olbrich Botanical Gardens
Expansion Phase 1**
BPW Project #8162
3330 Atwood Avenue
Madison, WI 53704

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin. ARCHITECT SEAL.



Signature: *Daniel Jack Poling*
Print Name: Jack Poling
Date: JUNE 4, 2018 License No.: A-9984

MARK	DATE	DESCRIPTION
01	10/2018	DESIGN DEVELOPMENT SUBMISSION
03	30/2018	70% CD SUBMISSION
05	04/2018	90% CD SUBMISSION
06	01/2018	BID ISSUE
06	04/2018	PERMIT ISSUE

PROJECT NO: 2017016
PROJECT PHASE: BID DOCUMENTS
DRAWN BY: BHASON CHECKED BY: DONPAU
Design: 2017 Copyright: West, Shover & Reynolds, Ltd.

TECHNOLOGY COVER SHEET

EXHIBIT O
T000

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GENERAL NOTES:

1. THE SCOPE OF WORK REQUIRES THIS CONTRACTOR TO PROVIDE A COORDINATED SCHEDULE FOR REMOVAL OF THE EXISTING FIBER OPTIC CABLE IN ADVANCE OF REMOVING THE CABLE.
2. THE SCHEDULE FOR REMOVAL OF THE EXISTING FIBER OPTIC CABLE MUST BE PRE-APPROVED IN WRITING BY THE CITY OF MADISON OLBRICH GARDENS PROJECT MANAGER (RANDY WIESNER 608-267-8679).
3. COORDINATE CABLE REMOVAL WITH INSTALLATION OF NEW FIBER CABLE SCOPE ON SHEET T001.
4. THIS SCOPE OF WORK TO REMOVE THE EXISTING FIBER AND INSTALL THE NEW FIBER OPTIC CABLE MUST BE COMPLETED BEFORE THE DEMO WORK FOR THE EXISTING GREENHOUSE CAN BEGIN.

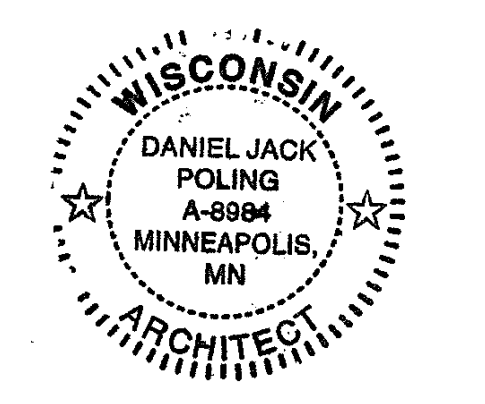
KEYNOTES: (C)

1. EXISTING CITY OWNED INCOMING FIBER OPTIC CABLE. REMOVE CABLE BACK TO EXISTING MDF.
2. REMOVE EXISTING CITY OWNED FIBER OPTIC CABLE FROM MDF THROUGH EXISTING GREENHOUSE AND OUT TO EXISTING HAND HOLE OUTSIDE OF GREENHOUSE. PULL EXISTING FIBER OPTIC CABLE BACK TO EXISTING HANDHOLE. COIL 25 FT SLACK LOOP AND SPLICE TO NEW FIBER OPTIC CABLE. REFER TO SITE PLAN ON SHEET T001 FOR NEW WORK REQUIREMENTS.

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**Olbrich Botanical Gardens
Expansion Phase 1**
BPW Project #8162
3330 Atwood Avenue
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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin.
ARCHITECT SEAL



Signature: *Jack Poling*
Print Names: Jack Poling
Date: JUNE 4, 2018 License No.: A-9884

ISSUE	MARK	DATE	DESCRIPTION
		01.10.2018	DESIGN DEVELOPMENT SUBMISSION
		03.30.2018	70% CD SUBMISSION
		05.04.2018	90% CD SUBMISSION
		06.01.2018	BID ISSUE
		06.04.2018	PERMIT ISSUE

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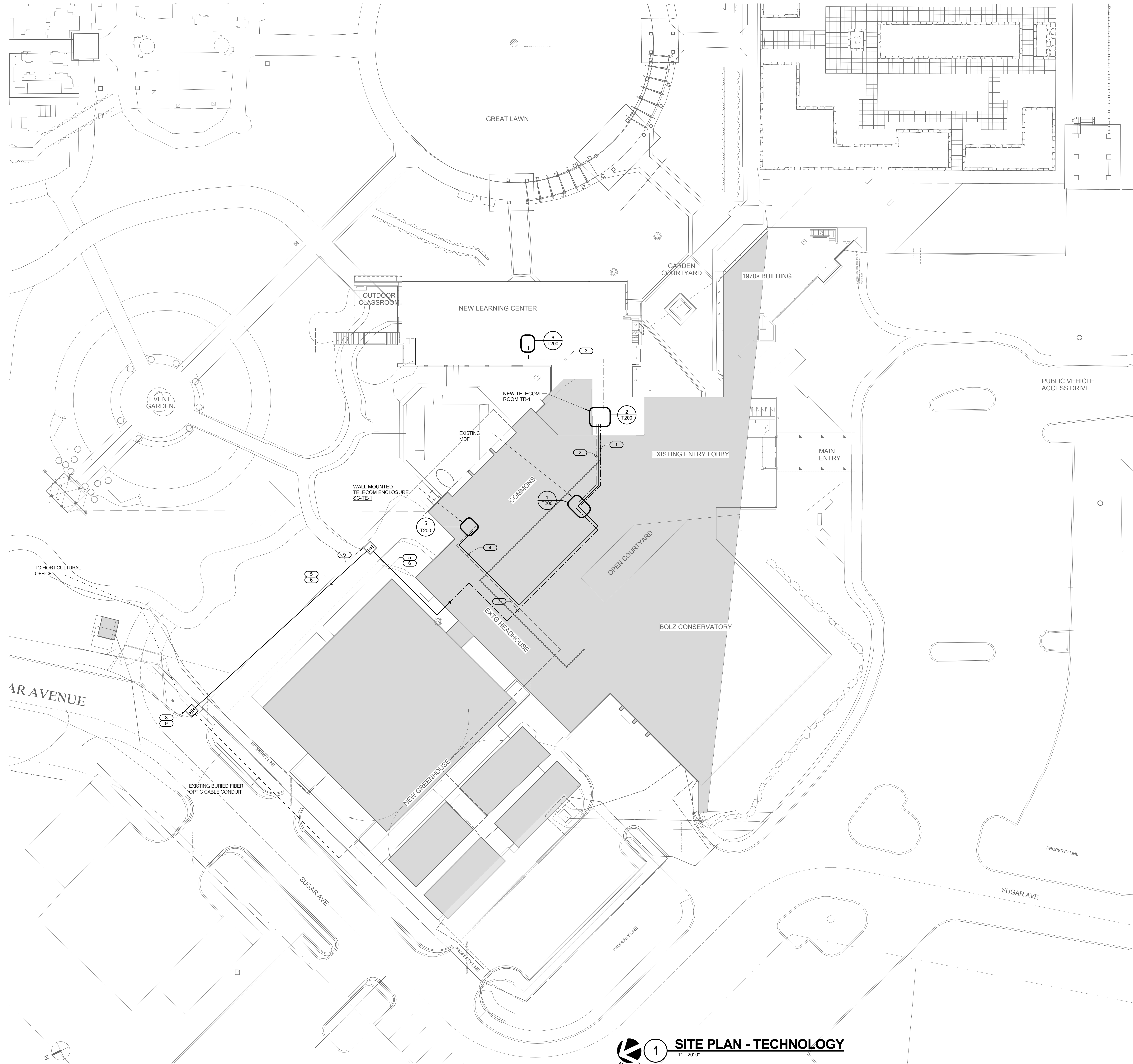
**SITE DEMOLITION
PLAN -
TECHNOLOGY**
EXHIBIT O
TD001

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- KEYNOTES:**
1. PROVIDE 12-STRAND OS2 SINGLEMODE FIBER OPTIC CABLE BETWEEN EXISTING MDF AND NEW TR. REFER TO SHEET T400 FOR RISER DIAGRAM.
 2. PROVIDE 12-STRAND OS2 SINGLEMODE FIBER OPTIC CABLE BETWEEN EXISTING MDF AND NEW TR. REFER TO SHEET T400 FOR RISER DIAGRAM.
 3. PROVIDE NEW 12-STRAND OS2 SINGLEMODE FIBER OPTIC CABLE FROM NEW DATA ROOM (102) TO NEW AV CLOSET (113).
 4. PROVIDE (4) CATEGORY 6A CABLES FROM NEW TR TO WALL MOUNTED ENCLOSURE IN MAINTENANCE OFFICE. TERMINATE TO CATEGORY 6A RJ45 JACKS. REFER TO SHEET T400 FOR RISER DIAGRAM.
 5. INSTALL SINGLEMODE CABLE WITH 3-CELL MAXCELL INNERDUCT IN 4" CONDUIT PROVIDED BY E.C. ROUTE CABLE TO NEW HANDHOLE AT SUGAR AVENUE.
 6. INSTALL CONDUIT WITH LOCATOR WIRE A MINIMUM OF 3' BELOW GRADE.
 7. PROVIDE NEW 12-STRAND SM FIBER OPTIC CABLE IN INNERDUCT FROM EXISTING MTR TO HAND HOLE LOCATION AT SUGAR AVENUE.
 8. PROVIDE WATERTIGHT SPLICE FOR NEW FIBER OPTIC CABLE CONNECTION TO EXISTING FIBER OPTIC CABLE PULLED BACK DURING DEMOLITION PHASE.
 9. REFER TO DETAIL S/T300 FOR ADDITIONAL INFORMATION.

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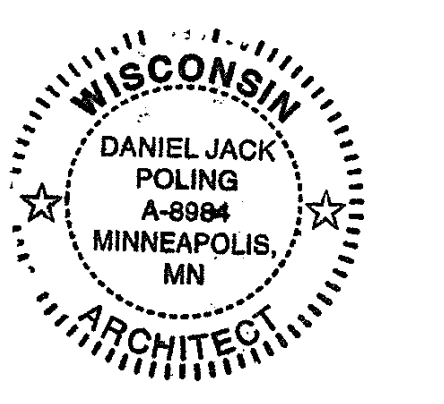
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Olbrich Botanical Gardens Expansion Phase 1

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Signature: *[Signature]*
 Print Name: Jack Poling
 Date: JUNE 4, 2018 License No.: A-9894

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SITE PLAN - TECHNOLOGY

EXHIBIT O
T001

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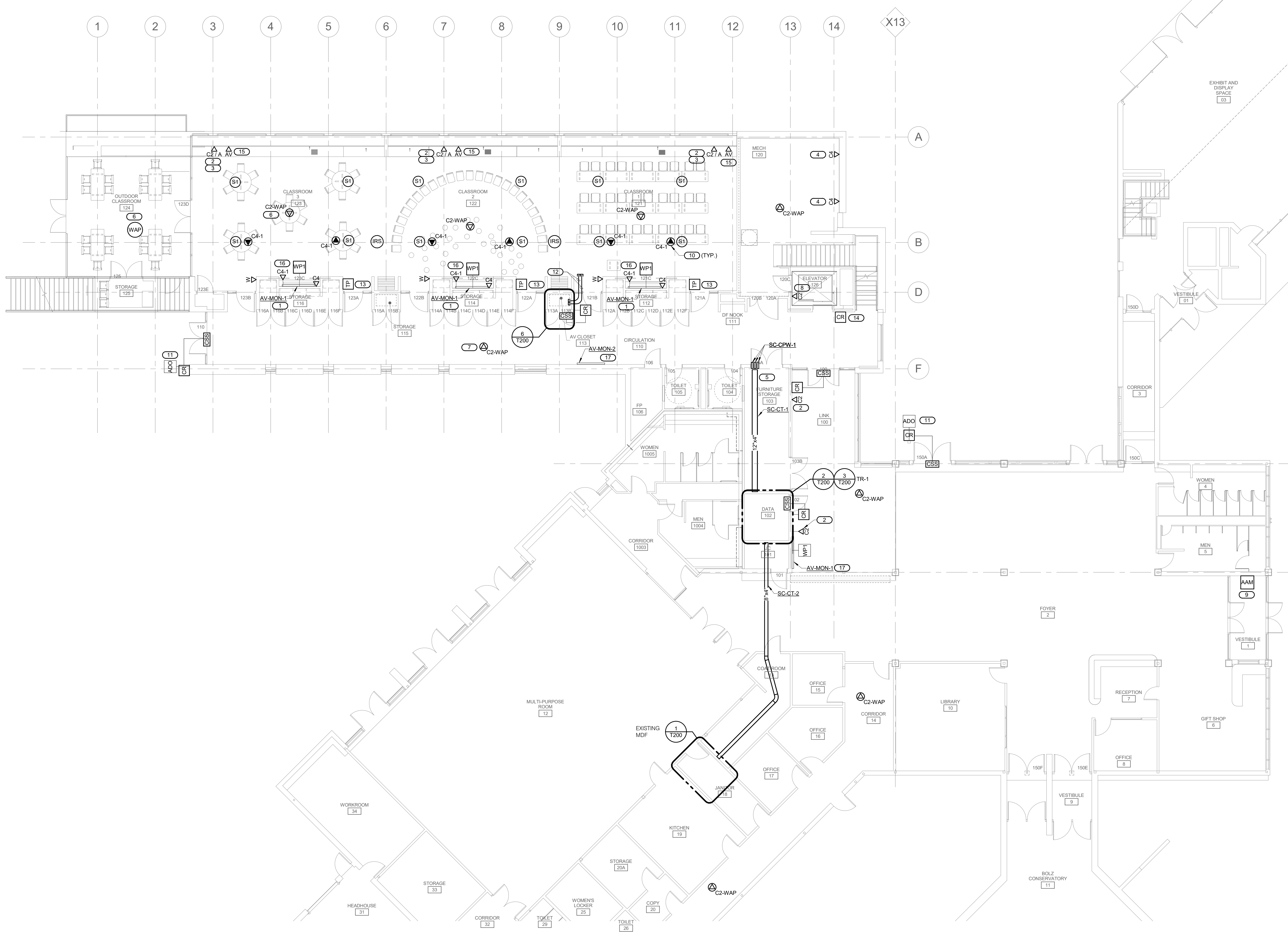
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1 SITE PLAN - TECHNOLOGY

1" = 20'-0"

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- GENERAL NOTES:**
- ALL CABLES ON THIS SHEET TERMINATE IN NEW TELECOM ROOM TR-1 DATA 102.
 - REFER TO SHEET T001 FOR FIBER OPTIC CABLE ROUTING.
 - REFER TO SHEET T400 FOR RISER DIAGRAMS.
 - AV EQUIPMENT CONTRACTOR FURNISHED, CONTRACTOR INSTALLED.
- KEYNOTES:**
- INSTALL MONITOR ABOVE CUSTOM CABINERY, ON WALL WITH FULLY ARTICULATING WALL MOUNT (CHIEF ODMLA25) OR PRE-APPROVED EQUAL. REFER TO ARCHITECTURAL DRAWING TO COORDINATE ELEVATIONS AND MOUNTING DETAILS. PROVIDE OUTLET WITH TAMPER RESISTANT COVER PLATE, HUBBELL TPF10W OR PRE-APPROVED EQUAL.
 - INSTALL OUTLET IN BACKSPLASH ABOVE COUNTERTOP.
 - INFORMATION OUTLET FOR DDC CONTROLS. FIELD COORDINATE MOUNTING FINAL LOCATION AND ELEVATION WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION. CABLES RISE FROM CABLE TRAY TO PATHWAY IN SECOND FLOOR. PROVIDE FIRE RATED PATHWAYS BETWEEN RATED SPACES.
 - PROVIDE RATED CABLE FOR OUTLET, INCLUDE NEMA RATED IP67 ENCLOSURE FOR OWNER PROVIDED WAP.
 - LOCATE OUTLET ABOVE WOOD PANEL CEILING TILE, CENTERED WITHIN ROOM. COORDINATE ACCESS AND LOCATION WITH OTHER CEILING DEVICES (TYP.) REFER TO ARCHITECTURAL PLAN FOR CEILING TYPES AND OTHER DETAILS.
 - PROVIDE OUTLETS FOR EMERGENCY CALL DEVICE. COORDINATE CONNECTION TO TRAVEL CABLE WITH ELEVATOR INSTALLER/CONTRACTOR.
 - FIELD COORDINATE FINAL MOUNTING LOCATION WITH MOUNTING OF FIRE ALARM PANEL.
 - INSTALL OUTLETS IN FLOOR BOX PROVIDED BY E.C. REFER TO SHEET E102 FOR ADDITIONAL INFORMATION.
 - INSTALL DEVICES IN BOLLARD WITH CABLES RATED FOR WET ENVIRONMENT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION. REFER TO DETAIL 3/T400 FOR ADDITIONAL INFORMATION.
 - PROVIDE (2) 2" CONDUIT PATHWAYS ABOVE CEILING INTO AV CLOSET 113 FOR AV CABLING. LOCATE TOUCH PANEL AT ADA HEIGHT ADJACENT TO LIGHTING CONTROLS.
 - OR INTEGRATED INTO ELEVATOR CONTROLS.
 - PROVIDE CONDUIT AND BACKBOX ROUGH-IN WITH (2) XLR CONNECTORS (1-MALE AND 1-FEMALE) WITH STAINLESS STEEL FACERPLATE. PLACE OUTLET ABOVE BEHIND MONITOR AND MILLWORK AT 48" AFF ON WALL.
 - INSTALL MONITOR AT 60" AFF O/C OR ON CENTER ON WALL WITH TILT WALL MOUNT (CHIEF LTTU) OR PRE-APPROVED EQUAL.



1 LEARNING CENTER FLOOR PLAN - LEVEL 1 - TECHNOLOGY
 1/8" = 1'-0"
 NORTH

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 MADISON, WI 53706
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**Olbrich Botanical Gardens
 Expansion Phase 1**
 BPW Project #8162
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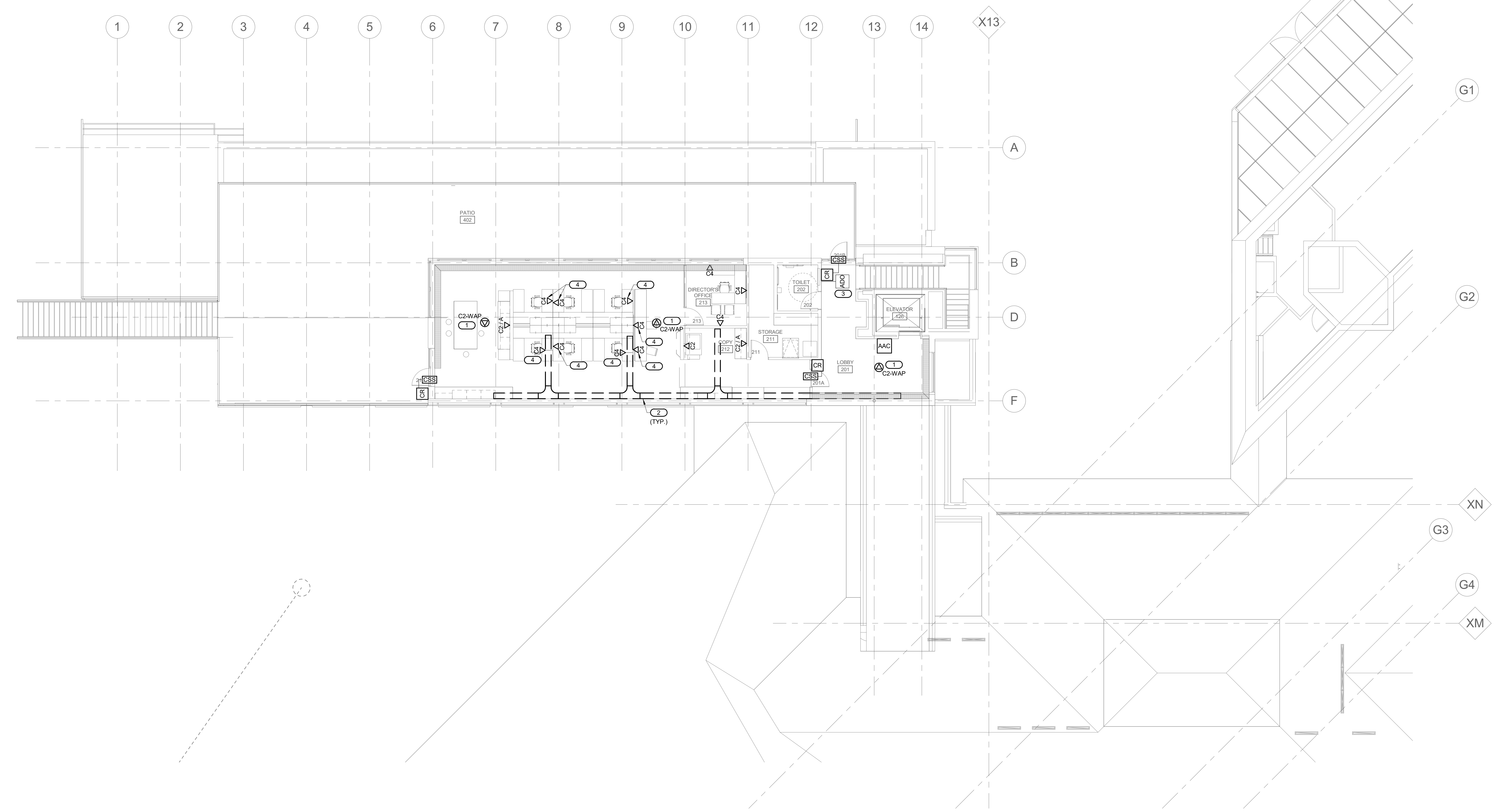
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 Date: JUNE 4, 2018 License No. A-8984

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	05.04.2018	90% CD SUBMISSION
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	06.04.2018	PERMIT ISSUE

PROJECT NO. 2017016
 PROJECT PHASE BID DOCUMENTS
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**LEARNING CENTER
 FLOOR PLAN -
 LEVEL 1 -
 TECHNOLOGY**
 EXHIBIT O
T101

- GENERAL NOTES:**
1. ALL CABLES ON THIS SHEET TERMINATE IN NEW TELECOM ROOM TR-1 DATA 102 ON FIRST FLOOR.
 2. CABLE PATHWAYS PROVIDED BY E.C. UNDER RAISED FLOOR.
 3. BACKBOX AND CONDUIT PATHWAYS BY E.C.
- KEYNOTES:** **(E)**
1. CABLES PATHWAYS FOR WAP DEVICES FED TO CEILING VIA GLULAM CHANNELS. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
 2. DROP IN CABLE TRAY SC-CT-1 UNDER FLOOR.
 3. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION. REFER TO DETAIL 3/T400 FOR ADDITIONAL INFORMATION.
 4. PROVIDE CABLES FOR C4 OUTLET FOR EACH CHAIR WITH A 20' COIL OF EXCESS. CONTRACTOR TO COORDINATE FINAL LOCATION WITH FURNITURE INSTALL EXCESS NEATLY COILED AND TIED BELOW FLOOR.



1 **LEARNING CENTER FLOOR PLAN - LEVEL 2 - TECHNOLOGY**
 1/8" = 1'-0"

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DANIEL JACK POLING
 A-9894
 MINNEAPOLIS, MN
 ARCHITECT

Signature: *[Signature]*
 Print Names: Jack Poling
 Date: JUNE 4, 2018 License No. A-9894

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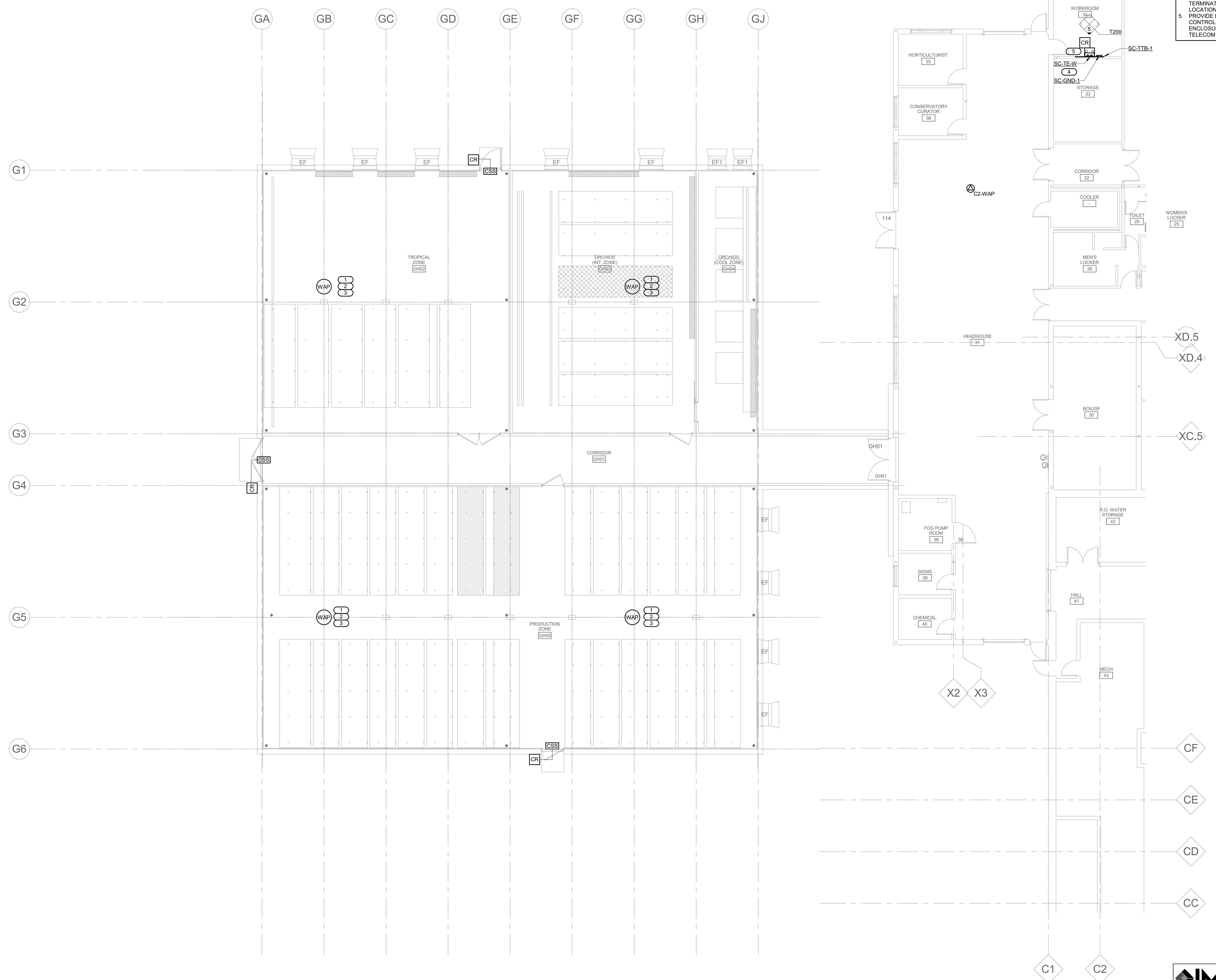
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 DRAWN BY: BHASON CHECKED BY: DONPAU
LEARNING CENTER FLOOR PLAN - LEVEL 2 - TECHNOLOGY
 EXHIBIT O
T102

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- GENERAL NOTES:**
1. WAP AND DATA OUTLETS ON THIS SHEET TERMINATE TO PATCH PANELS WITHIN TELECOM ENCLOSURE SC-TE-W.
 2. WAP DEVICES OWNER FURNISHED, CONTRACTOR INSTALLED.
 3. NEW ACCESS CONTROL DEVICES WILL BE WIRED TO NEW ACCESS CONTROL PANEL.
- KEYNOTES:**
1. PROVIDE WITH HUBBELL (OR APPROVED EQUAL) CATEGORY 6 HI-IMPACT PRODUCTS (BACKBOXES, FACEPLATES, OUTLETS AND PATCH CORDS), TYPICAL WITHIN GREEN HOUSE.
 2. INSTALL OUTLETS IN OBERON 1020 SERIES NEMA 4 ENCLOSURE.
 3. PROVIDE CABLE IN OVERHEAD CONDUIT PATHWAYS PROVIDED BY E.C. FOR WAP DEVICES IN GREENHOUSE.
 4. ALL DATA CABLES IN GREENHOUSE TERMINATE IN TELECOM ENCLOSURE AT THIS LOCATION.
 5. PROVIDE KEYSAN SECURITY ACCESS CONTROL DEVICE WITH THE TELECOM ENCLOSURE. MOUNT DEVICE ON THE DOOR OF TELECOM ENCLOSURE.

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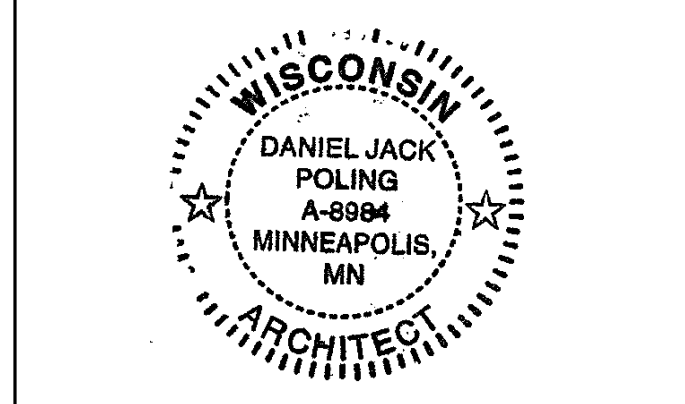
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 Print Name: Jack Poling
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GREENHOUSE FLOOR PLAN - LEVEL 1 - TECHNOLOGY
 EXHIBIT O
T111

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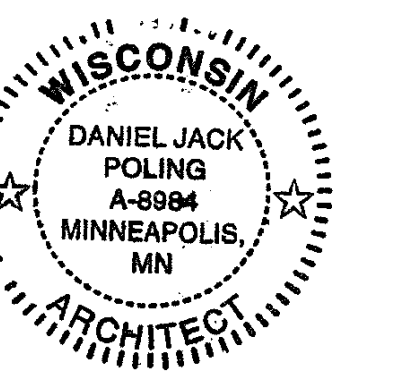
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GREENHOUSE FLOOR PLAN - LEVEL 1 - TECHNOLOGY
 1/8" = 1'-0"

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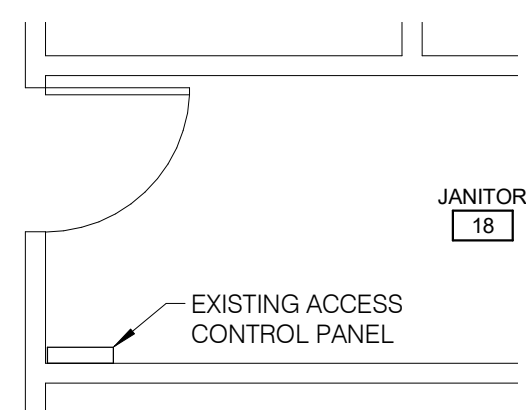
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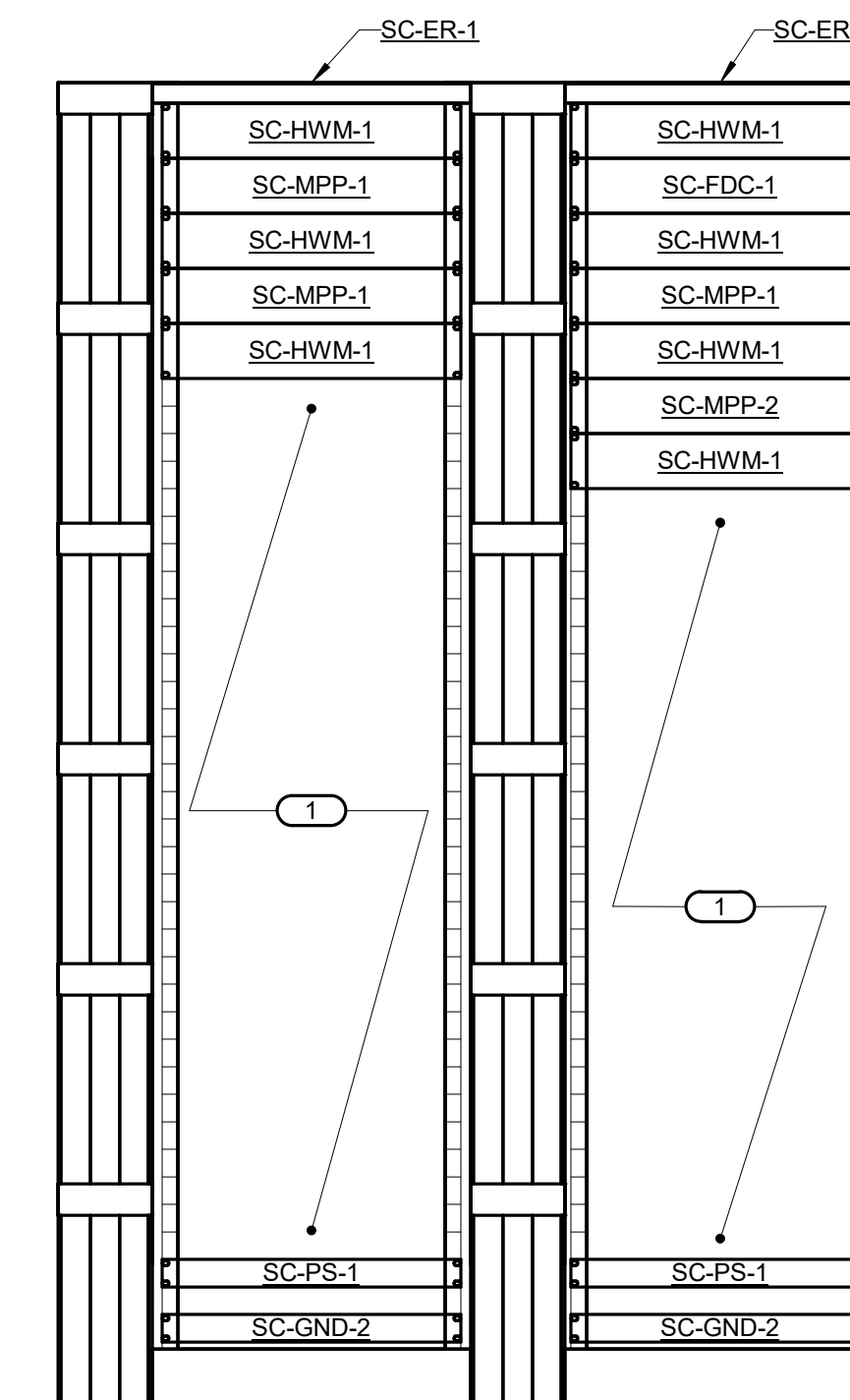
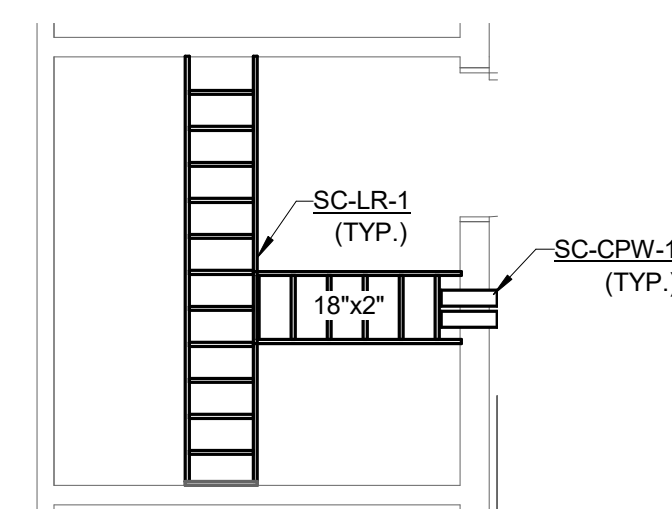
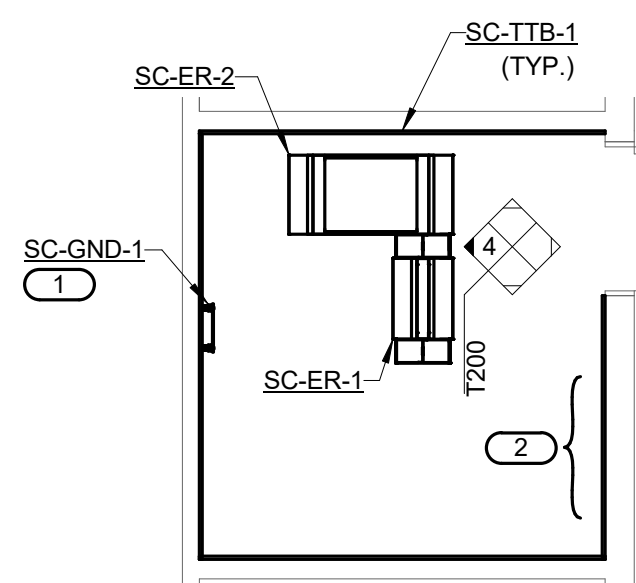
**ENLARGED PLANS -
 TECHNOLOGY**

EXHIBIT O
T200



1 EXISTING MDF EQUIPMENT LAYOUT
 1/4" = 1'-0"

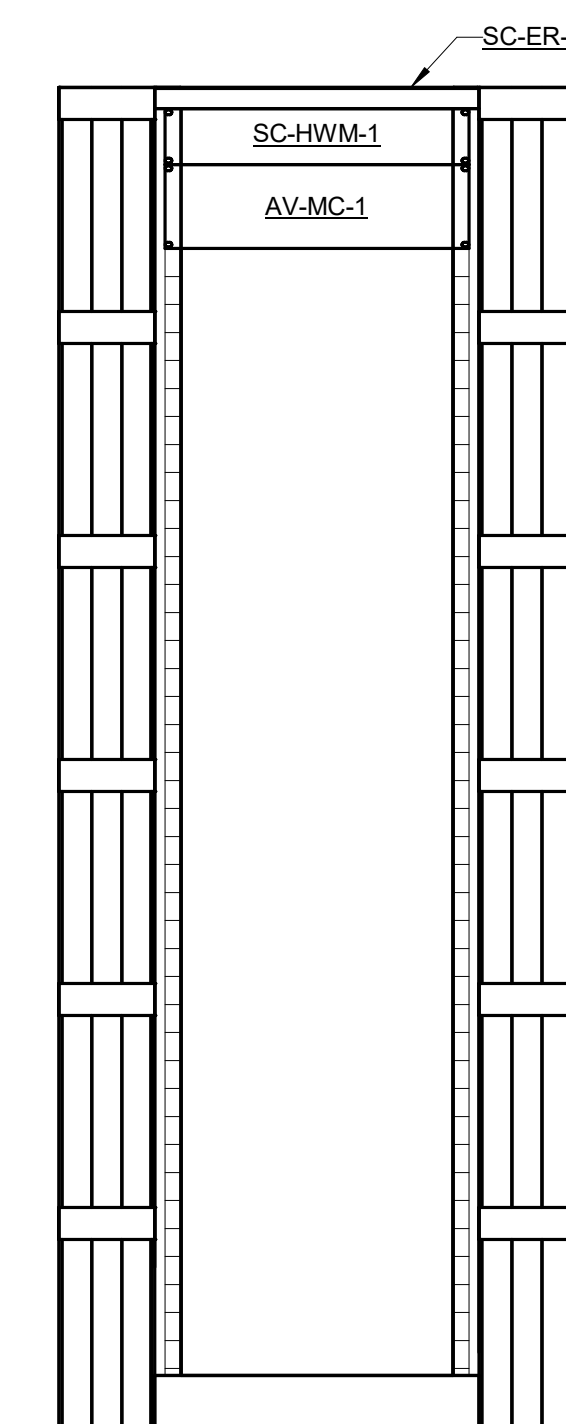
- NOTES:
 1. REFER TO SITE DEMOLITION PLAN ON SHEET TD001 FOR SCOPE OF WORK RELATED TO FIBER OPTIC CABLE DEMO AND REINSTALL.



4 TR-1 DATA 102 TECHNOLOGY ROOM - RACK ELEVATION
 1" = 1'-0"

- NOTES:
 1. CONFIRM EXACT LOCATION OF ALL RACK COMPONENTS WITH USER AGENCY'S INFORMATION SYSTEMS GROUP ON SITE PRIOR TO INSTALLATION.
 2. FURNISH AND INSTALL CABLE RUNWAY RADIUS DROPS AT ALL AREAS WHERE CABLE TRANSITIONS ON TO OR OFF OF HORIZONTAL CABLE RUNWAY. REFER TO 6/T300 AND 3/T300 FOR ADDITIONAL INFORMATION.
 3. CONTRACTOR FURNISHED AND INSTALLED EQUIPMENT IN TR-1 DATA 102 TECHNOLOGY ROOM WITH ON SITE ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.

KEYNOTE:
 1. SPACE RESERVED FOR OWNER PROVIDED EQUIPMENT.

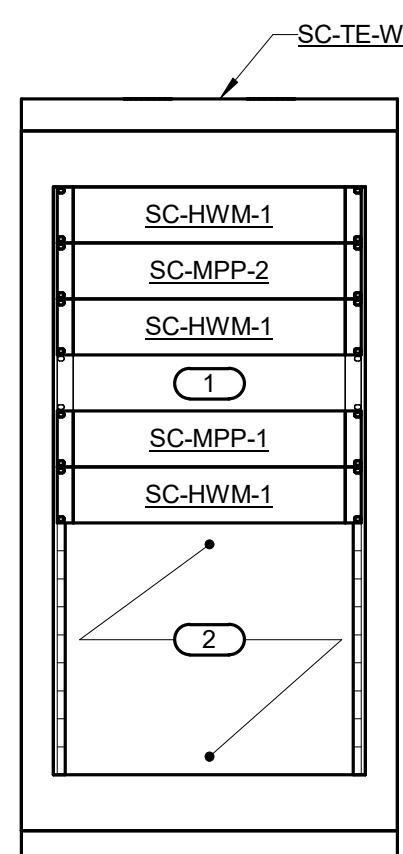


7 AV CLOSET 113 - RACK ELEVATION
 1" = 1'-0"

2 TR-1 DATA 102 TECHNOLOGY ROOM - EQUIPMENT LAYOUT
 1/4" = 1'-0"

- NOTES:
 1. COORDINATE ALL DEVICE LOCATIONS AND MOUNTING LOCATIONS IN TR-1 DATA 102 TECHNOLOGY ROOM ON SITE WITH OWNER'S IT STAFF PRIOR TO INSTALLATION.
 2. REFER TO DETAIL 2/T300 FOR TR-1 DATA 102 TECHNOLOGY ROOM - PATHWAY LAYOUT.
 3. REFER TO 4/T401 FOR TECHNOLOGY BONDING RISER DIAGRAM.

KEYNOTES:
 1. REFER TO 2/T300 BONDING BUSBAR DETAIL FOR ADDITIONAL INFORMATION. INSTALL AT A HEIGHT OF 60" AFF TO THE TOP OF THE GROUND BAR.
 2. 4'X4' SPACE RESERVED FOR ACCESS CONTROL PANEL. TOP OF THE PANEL NOT TO EXCEED 72" AFF WHEN MOUNTED ON WALL.

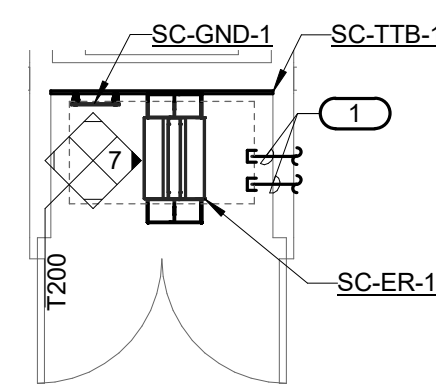


5 WORKROOM 34 - TELECOM ENCLOSURE ELEVATION
 1" = 1'-0"

KEYNOTE:
 1. POWER REQUIRED FOR OWNER PROVIDED NETWORK SWITCH BY E.C.
 2. SPACE RESERVED FOR OWNER PROVIDED EQUIPMENT.

3 TR-1 DATA 102 TECHNOLOGY ROOM - PATHWAY LAYOUT
 1/4" = 1'-0"

- NOTES:
 1. COORDINATE ALL DEVICE LOCATIONS AND MOUNTING LOCATIONS IN TR-1 DATA 102 TECHNOLOGY ROOM ON SITE WITH OWNER'S IT STAFF PRIOR TO INSTALLATION.
 2. INSTALL ALL HORIZONTAL CABLE RUNWAY IN TR-1 DATA 102 TECHNOLOGY ROOM AT A HEIGHT OF 90" AFF.
 3. FURNISH AND INSTALL CABLE RUNWAY RADIUS DROPS AT ALL AREAS WHERE CABLE TRANSITIONS ON TO OR OFF OF HORIZONTAL CABLE RUNWAY. REFER TO 3/T300 AND 6/T300 FOR ADDITIONAL INFORMATION.



6 AV CLOSET 113 - EQUIPMENT LAYOUT
 1/4" = 1'-0"

KEYNOTES:
 1. (2) 2" SLEEVES. REFER TO SHEET T101 FOR CONTINUATION.

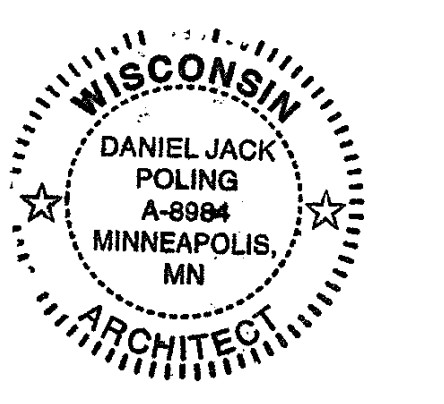
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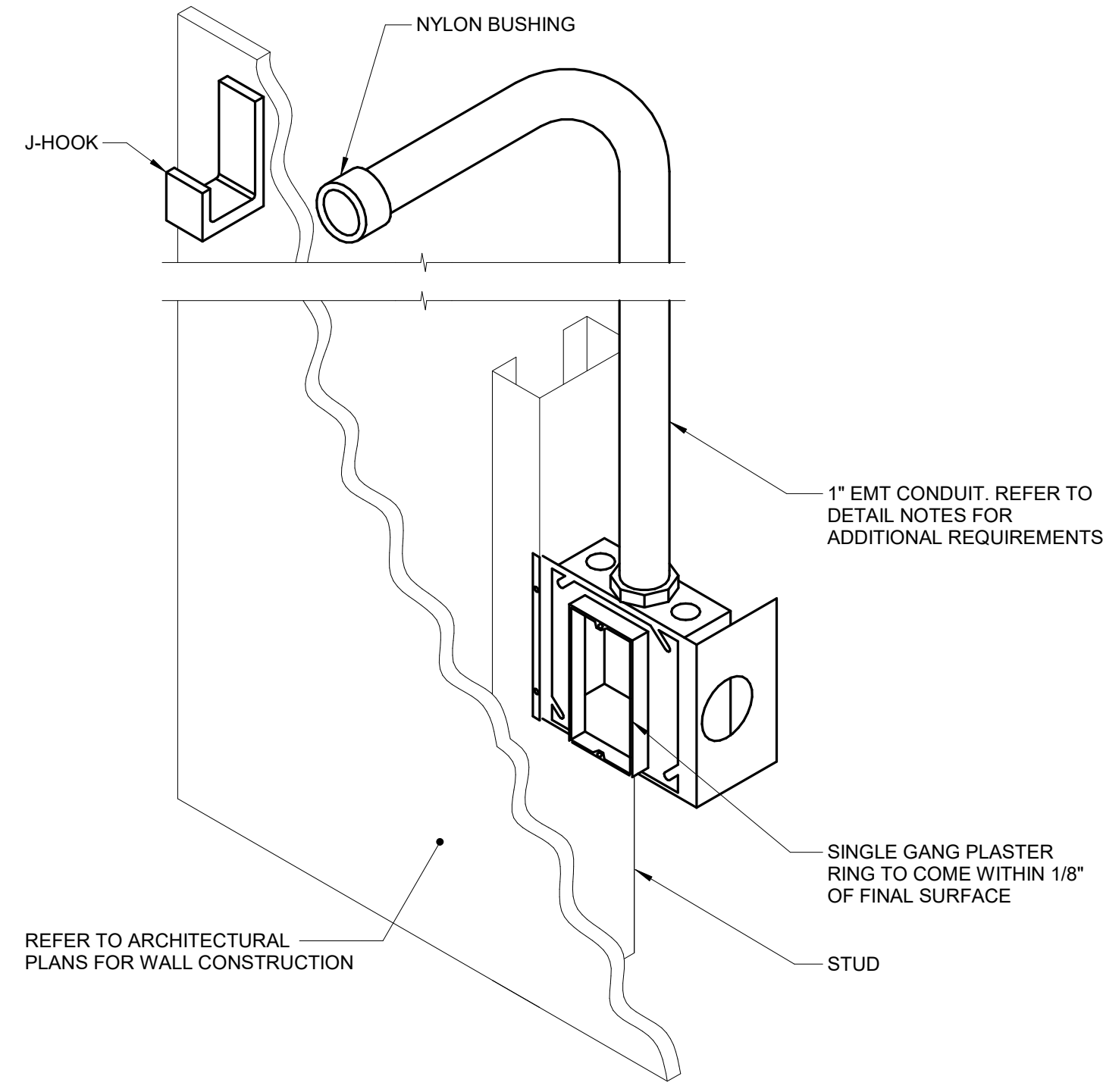
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		03.30.2018	70% CD SUBMISSION
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PROJECT PHASE	BID DOCUMENTS
DRAWN BY:	BHASON
CHECKED BY:	DONPAU

**DETAILS -
 TECHNOLOGY**

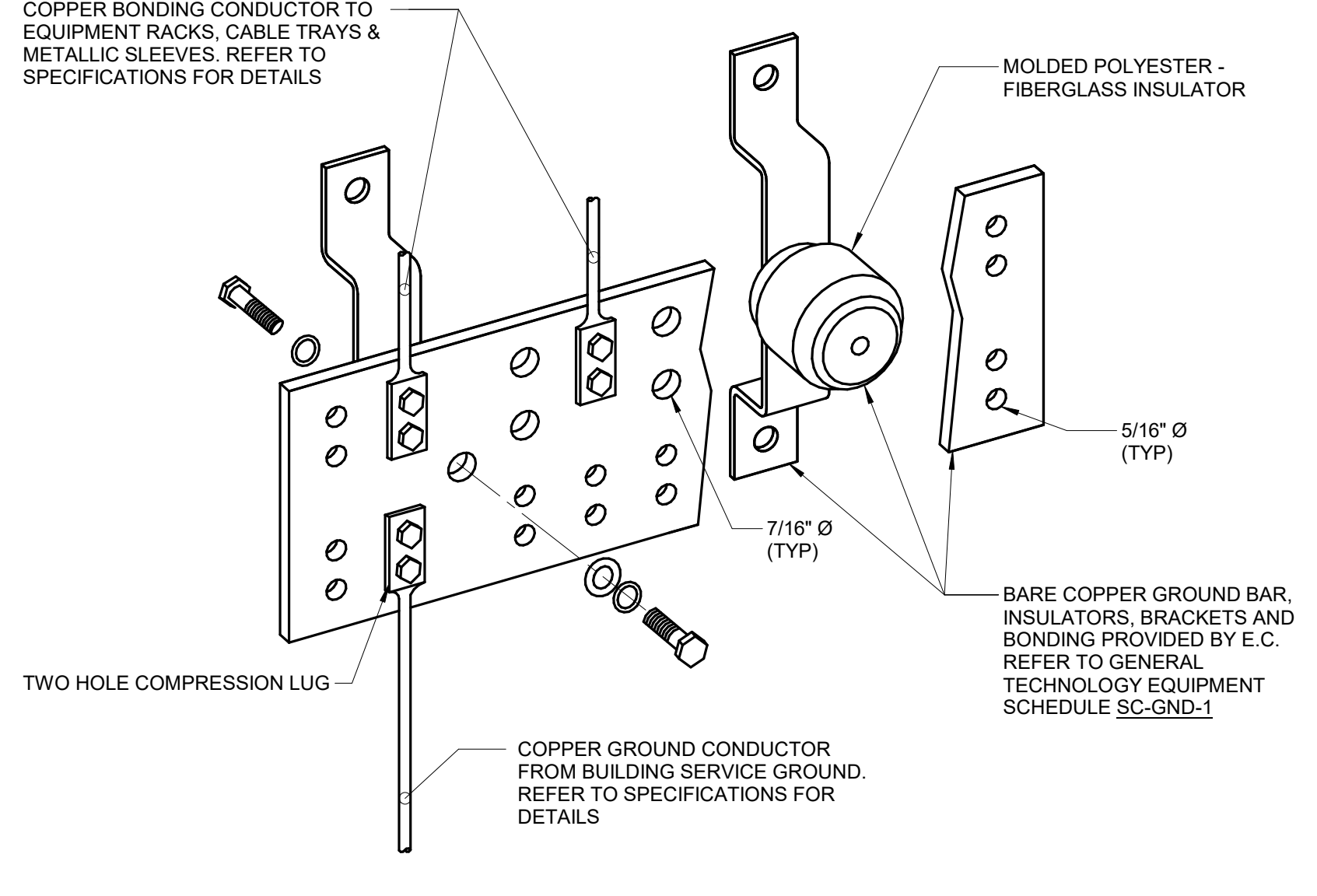
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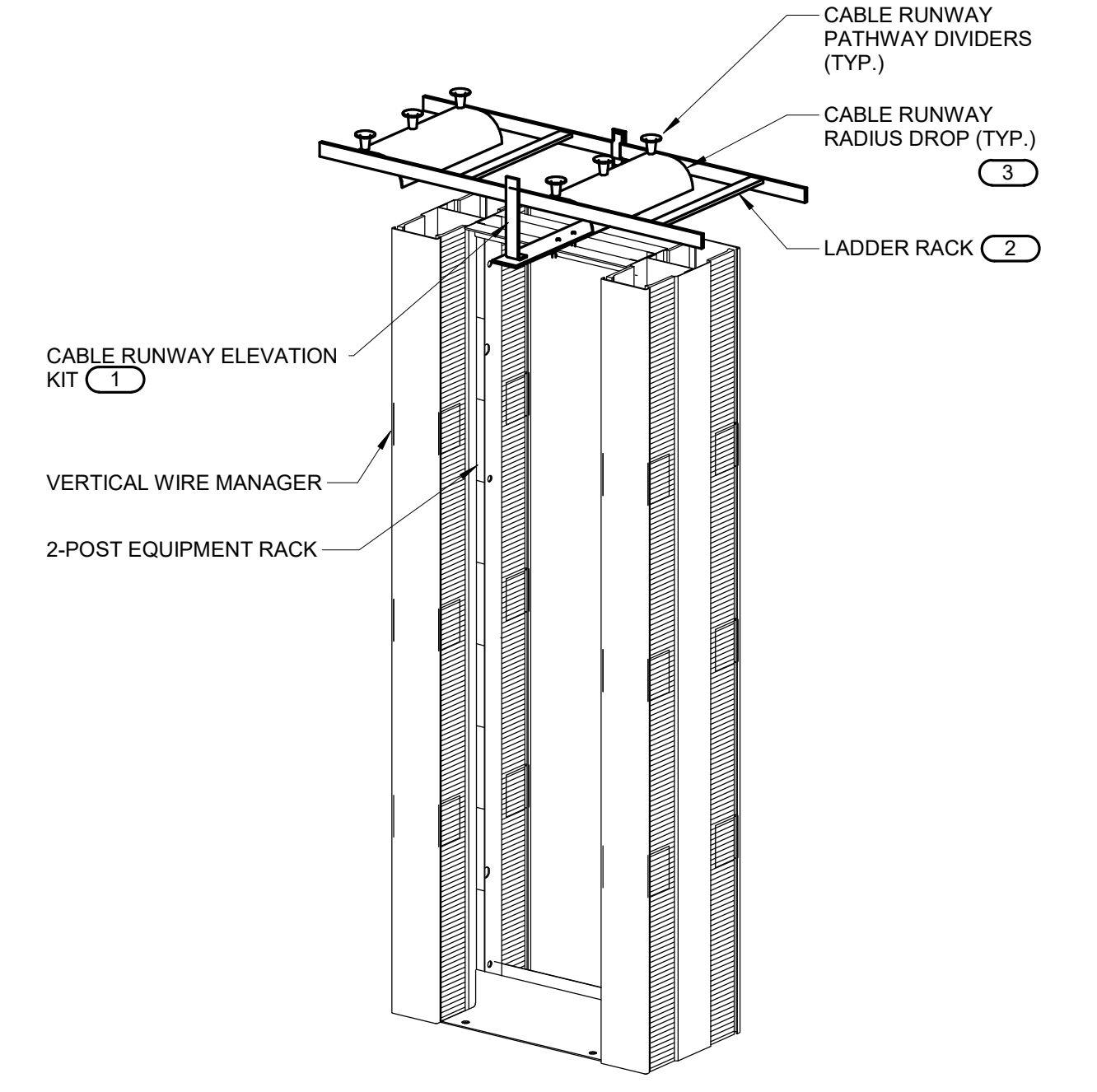
1 TECHNOLOGY ROUGH-IN MOUNTING DETAIL
 NO SCALE

- NOTES:
 1. 1" EMT CONDUIT SHALL STUB UP TO NEAREST ACCESSIBLE CEILING AND TERMINATE ORIENTED HORIZONTALLY AT THE HEIGHT OF THE ASSOCIATED CABLE TRAY OR J-HOOK ROUTE. CONDUIT RUN SHALL NOT CONTAIN MORE THAN 180 DEGREES OF BEND BETWEEN ACCESSIBLE JUNCTION BOXES OR BETWEEN JUNCTION BOX AND END OF CONDUIT.
 2. WHERE CONDUIT STUB IS LOCATED IN A ROOM WITH AN ACCESSIBLE CEILING AND IS NOT REQUIRED TO RUN TO CABLE ROUTE LOCATED OUTSIDE THE ROOM, STUB MUST TERMINATE ABOVE THE ACCESSIBLE CEILING WITH A 90-DEGREE BEND AT THE TOP ORIENTED IN TO THE ROOM AT THE HEIGHT OF THE ASSOCIATED CABLE TRAY OR J-HOOK ROUTE IN THE ROOM.
 3. ALL STUBS MUST BE FITTED WITH A NYLON BUSHING ON EACH END OF THE CONDUIT.
 4. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR TECHNOLOGY ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR FIRESTOP REQUIREMENTS.



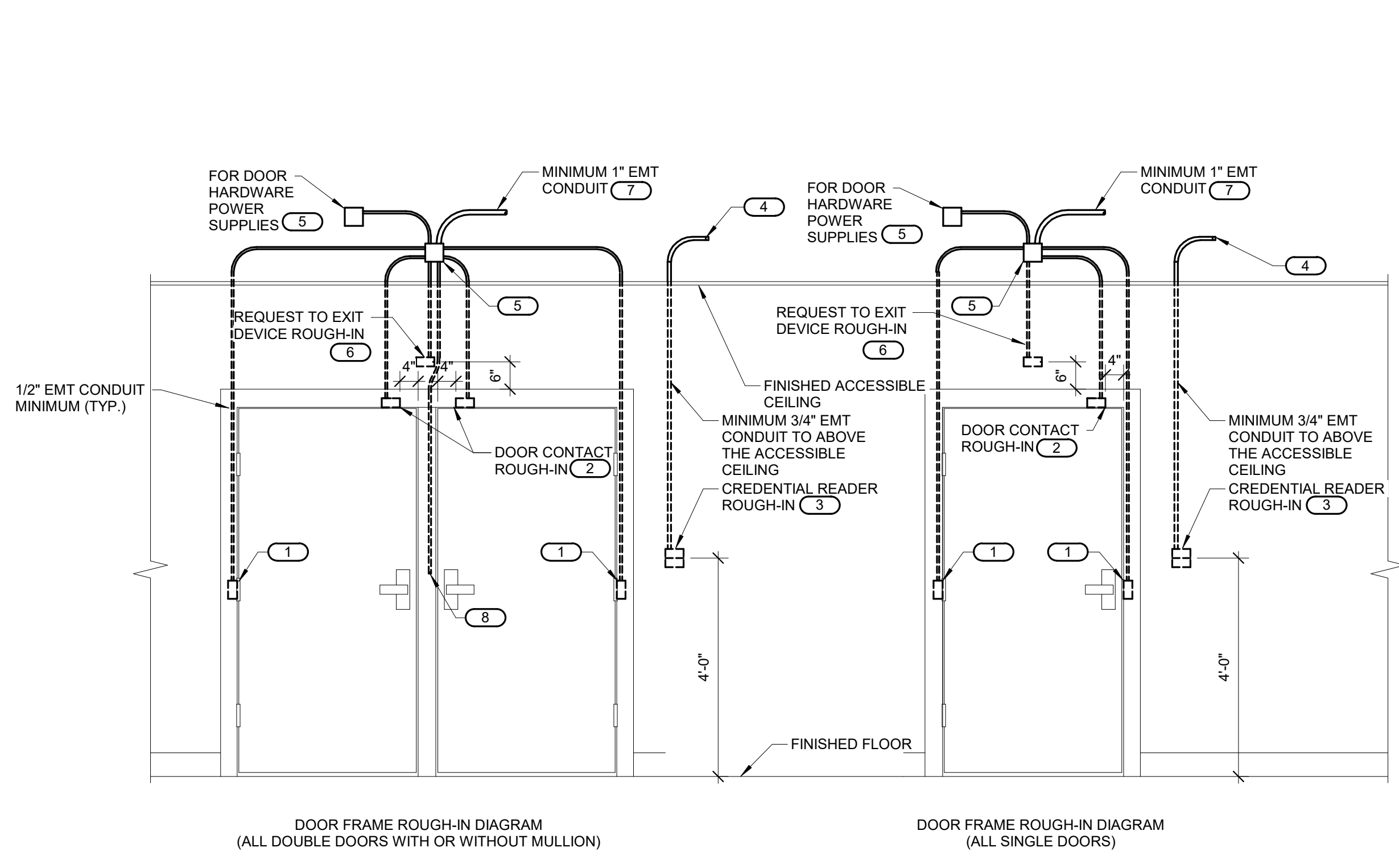
2 BONDING BUS BAR DETAIL
 NO SCALE

- NOTES:
 1. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE SC-GND-1 FOR WIDTH REQUIREMENTS.
 2. REFER TO 2/T401 FOR TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.



3 LADDER RACK MOUNTING DETAIL
 NO SCALE

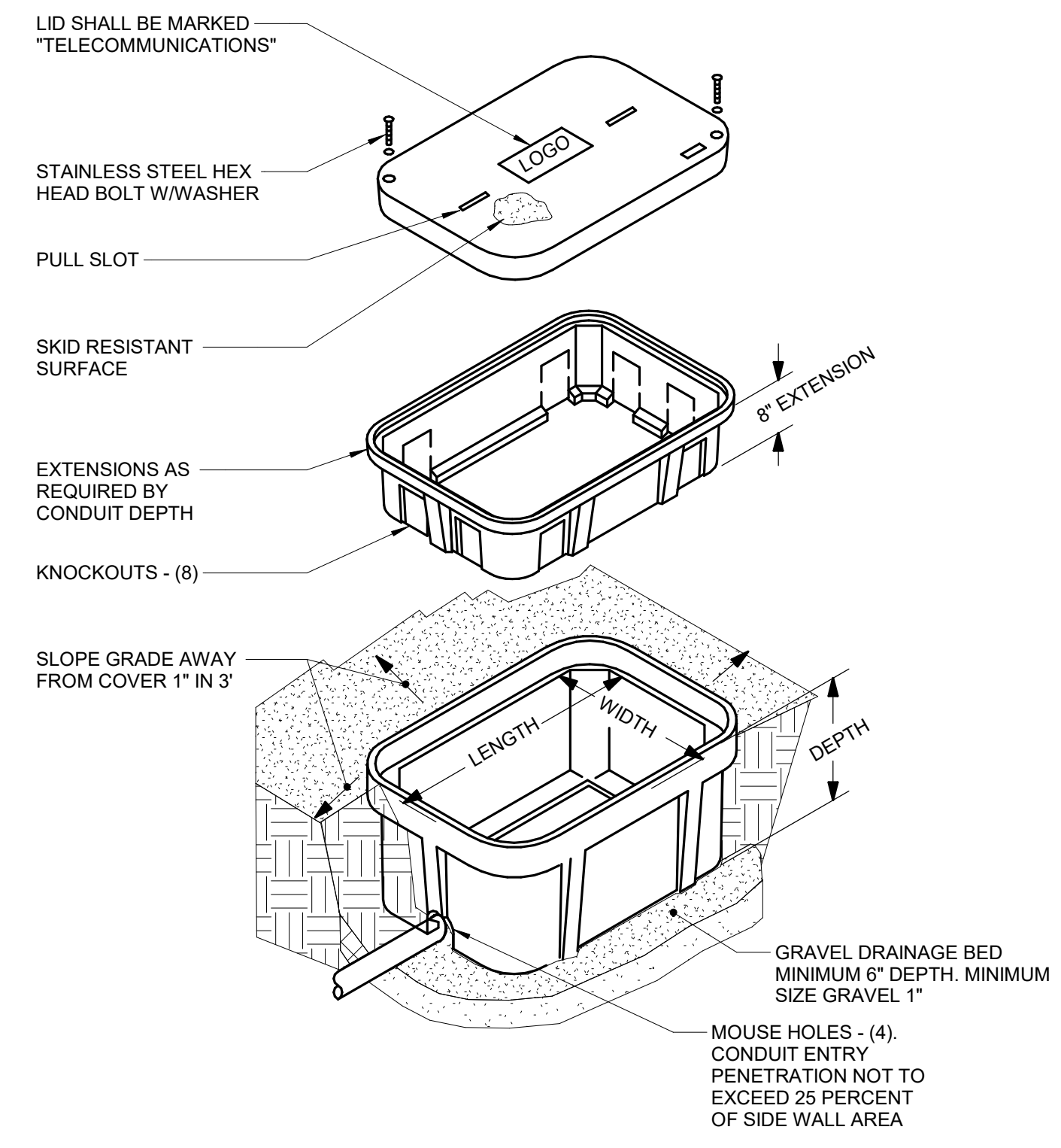
- NOTES:
 1. ALL LADDER RACK AND ACCESSORIES TO BE INSTALLED FOR A COMPLETE INSTALLATION SHALL BE FROM THE SAME MANUFACTURER.
 KEYNOTES:
 1. MOUNT THE LADDER RACK NO MORE THAN 4" ABOVE THE FLOOR MOUNTED RACK. ADJUST THE CABLE RUNWAY ELEVATION KIT AS REQUIRED.
 2. REFER TO THE INDIVIDUAL PATHWAY DRAWINGS FOR THE LADDER RACK SIZE.
 3. A MINIMUM OF (1) RADIUS DROP INTO EACH VERTICAL WIRE MANAGER. REFER TO THE INDIVIDUAL TELECOM ROOM LAYOUTS, PATHWAY LAYOUTS, AND RACK ELEVATIONS FOR QUANTITY OF WIRE MANAGERS AND ADDITIONAL INFORMATION.



4 CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL
 NO SCALE

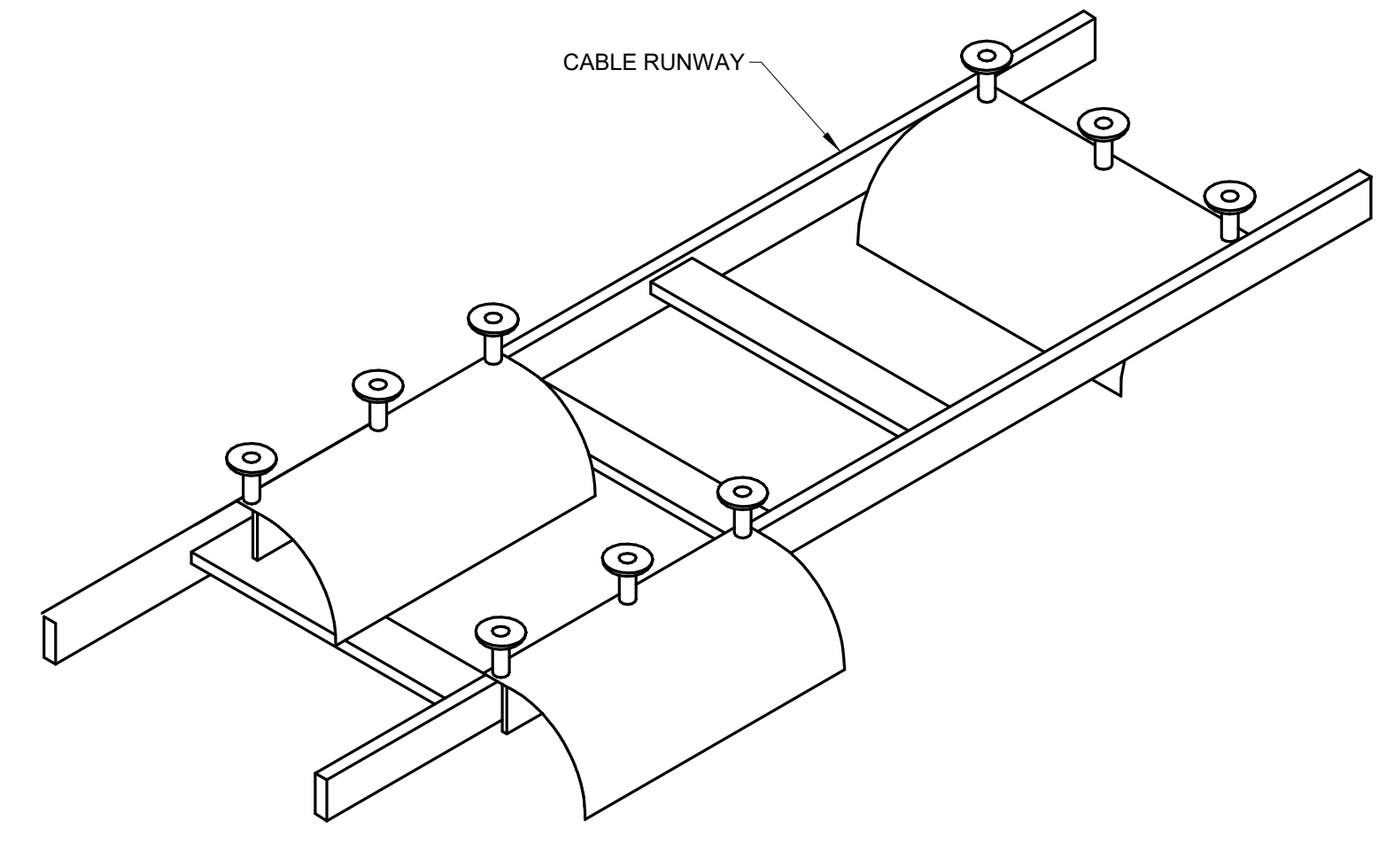
- NOTES:
 1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC. INTENDED TO DESCRIBE THE CONTROLLED SECURITY SCHEME ROUGH-IN REQUIREMENTS OF THE DOORS. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DOOR SIZE, DOOR SWING, DOOR HARDWARE, OR DOOR FUNCTIONALITY. REFER TO ARCHITECTURAL DOOR HARDWARE SCHEDULE, DOOR HARDWARE GROUPS AND DOOR HARDWARE SPECIFICATIONS FOR COMPLETE INFORMATION. MIRROR THE DETAIL AS REQUIRED.
 2. ROUGH IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR ALL CONTROLLED SECURITY SYSTEM DEVICES AND CABLING UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS WITH SELECTED DOOR MATERIALS, DOOR HARDWARE, AND CONTROLLED SECURITY DEVICES AND CABLING PRIOR TO INSTALLATION.
 3. ALL CABLING IN WALLS AND WHERE EXPOSED ON VERTICAL SURFACES SHALL BE INSTALLED IN EMT CONDUIT OR SURFACE MOUNT RACEWAY. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
 4. THE ELECTRICAL OR SECURITY CONTRACTOR SHALL NOT MODIFY ANY FIRE RATED DOOR AND/OR DOOR FRAME. REFER TO THE ARCHITECTURAL DOOR SCHEDULE, DOOR HARDWARE SCHEDULE, AND DOOR HARDWARE SPECIFICATION FOR ADDITIONAL INFORMATION. MODIFICATION TO ANY FIRE RATED DOOR AND/OR FRAME WILL REQUIRE A RE-CERTIFICATION OF THE DOOR AND FRAME WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
 5. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR ALL CONTROLLED SECURITY SCHEME ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
 6. REFER TO THE CONTROLLED SECURITY SCHEME RISER DIAGRAM ON 3/T400 FOR CABLING REQUIREMENTS AND THE CONTROLLED SECURITY SCHEME SCHEDULE ON T500 FOR ADDITIONAL INFORMATION.
 7. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC. REFER TO THE SUGGESTED MATRIX OF SCOPE RESPONSIBILITY FOR ADDITIONAL INFORMATION.

- KEYNOTES:
 1. PROVIDE JUNCTION BOXES IN THE DOOR FRAME WHERE SHOWN ON THIS DETAIL. ROUGH-IN SHALL BE PROVIDED WHETHER THE CURRENT SECURITY SCHEME UTILIZES THEM OR NOT. ALL CONDUITS SHALL BE EMT CONDUIT UNLESS OTHERWISE NOTED. FLEXIBLE CONDUIT OF ANY TYPE WILL NOT BE ACCEPTED. COORDINATE INSTALLATION WITH ON-SITE DOOR FRAME INSTALLATION CONTRACTOR.
 2. ALL DOOR POSITION SWITCHES ARE REQUIRED TO BE RECESSED UNLESS OTHERWISE NOTED. ELECTRIC HINGE MONITORS ARE NOT AN ACCEPTABLE REPLACEMENT FOR THE RECESSED DOOR POSITION SWITCH.
 3. DOUBLE GANG BACKBOX WITH SINGLE GANG PLASTER RING. REFER TO FLOOR PLAN(S) FOR ACTUAL CREDENTIAL READER TYPE AND ROUGH-IN LOCATIONS.
 4. CONDUIT SHALL ROUTE FROM THE CREDENTIAL READER TO THE SECURE SIDE OF THE DOOR. CONDUIT SHALL ROUTE TO NEAREST CABLE TRAY. PROVIDE A NYLON BUSHING ON CONDUIT END.
 5. MOUNT A MINIMUM 4" SQUARE 2-1/8" DEEP JUNCTION BOX WITH BLANK COVER PLATE ON THE SECURE SIDE OF THE DOOR ABOVE ACCESSIBLE CEILING. INSTALLING CONTRACTOR SHALL SIZE THE JUNCTION BOXES PER SYSTEM INSTALLATION REQUIREMENTS AND APPLICABLE CODES. MAINTAIN ACCESS TO THE JUNCTION BOX.
 6. PROVIDE A HORIZONTALLY MOUNTED SINGLE GANG BACKBOX FOR THE REQUEST TO EXIT SENSOR. REFER TO THE CONTROLLED SECURITY SCHEME SCHEDULE ON T500 FOR DOORS THAT REQUIRE THIS ROUGH-IN.
 7. CONDUIT SHALL ROUTE TO THE NEAREST TELECOM ROOM OR TO NEAREST CABLE TRAY. CONTRACTOR SHALL PROVIDE A NYLON BUSHING ON CONDUIT END.
 8. CONDUIT INSTALLED IN PERMANENT MULLIONS ONLY. REFER TO THE ARCHITECTURAL DOOR SCHEDULE AND DOOR HARDWARE GROUPS FOR LOCATIONS THAT REQUIRE THIS ROUGH-IN. PROVIDE A NYLON BUSHING ON THE CONDUIT END.



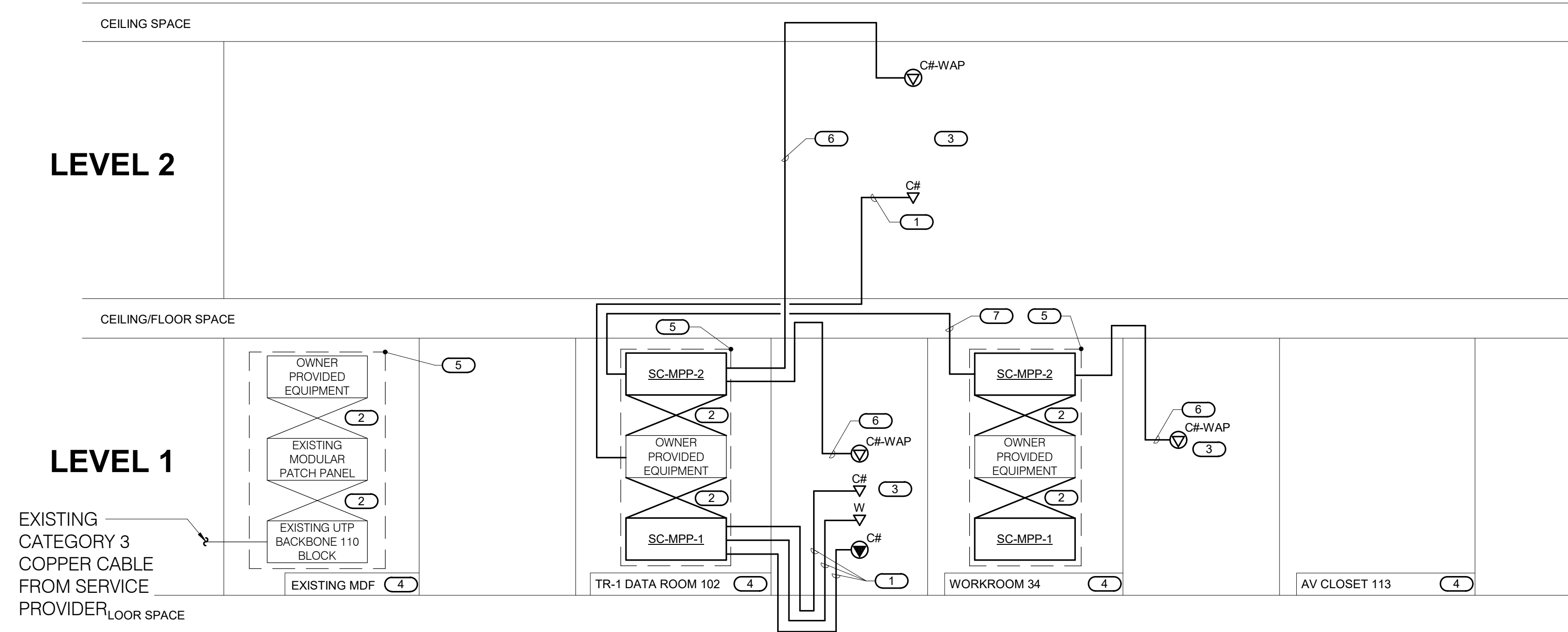
5 EXTERIOR HAND HOLE DETAIL
 NO SCALE

- NOTES:
 1. ALL DIMENSIONS ARE NOMINAL INSIDE CLEARANCES.
 2. ANY SPLICES OR DEVICES IN HANDHOLE SHALL BE SUBMERSIBLE.
 3. REFER TO SITE DEMOLITION PLAN ON SHEET TD001 FOR SCOPE OF WORK RELATED TO FIBER OPTIC CABLE DEMO AND REINSTALL.



6 CABLE RUNWAY RADIUS DROP
 NO SCALE

- NOTES:
 1. PROVIDE CABLE RUNWAY RADIUS DROPS FOR ALL AREAS WHERE CABLE TRANSITIONS ON TO OR OFF OF HORIZONTAL CABLE RUNWAY.

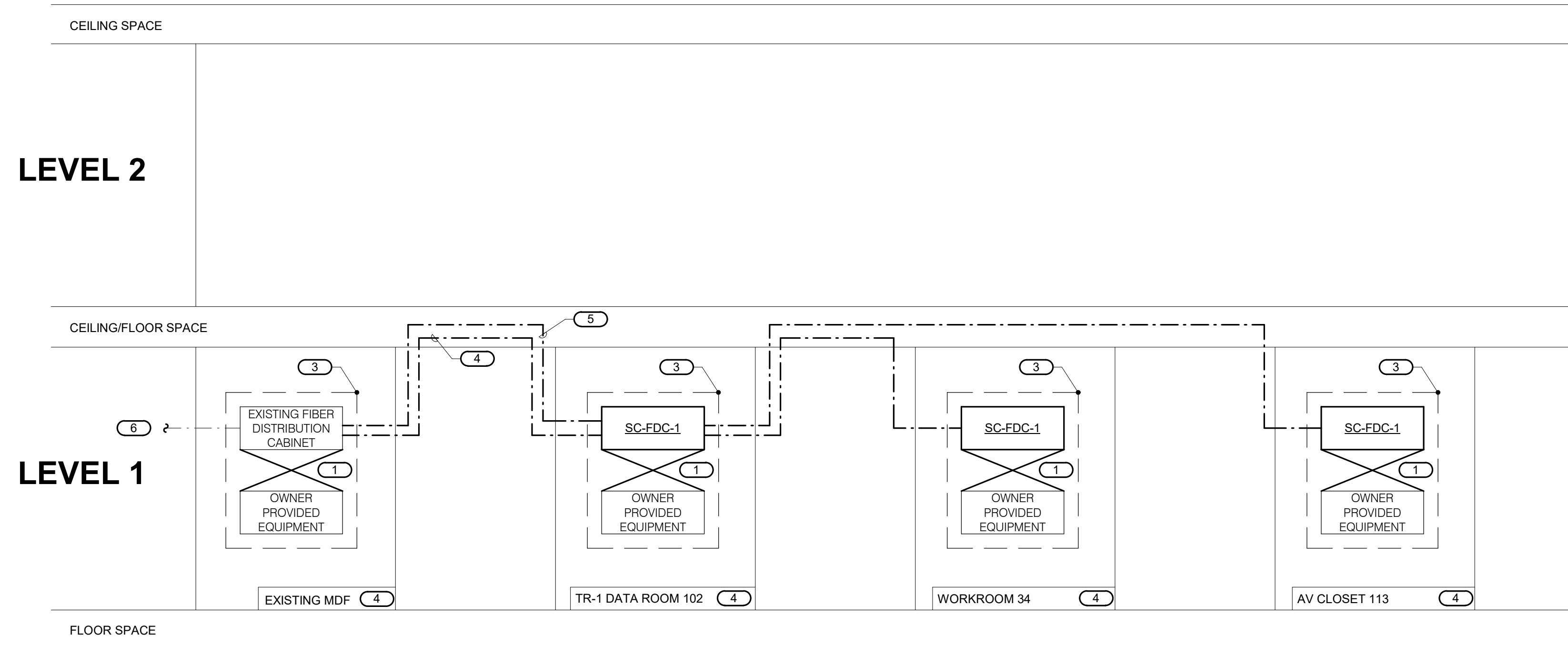


1 TECHNOLOGY COPPER RISER DIAGRAM

NO SCALE

NOTES:
 1. THIS RISER DIAGRAM SHOWS ONLY A SMALL PORTION OF THE LARGER EXISTING FACILITY AND SHOWS ONLY NEW AND EXISTING WORK DIRECTLY RELATED TO THIS PROJECT.
 2. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CABLE TYPES. INFORMATION OUTLETS SHOWN ARE TYPICAL OF THE INFORMATION OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES OF INFORMATION OUTLETS AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

KEYNOTES:
 1. 24 GAUGE 4-PAIR CATEGORY 6 UNSHIELDED TWISTED PAIR CABLE, PLENUM RATED. REFER TO SPECIFICATIONS FOR REQUIREMENTS.
 2. ALL CROSS-CONNECT WIRE AND UTP COPPER PATCH CABLES FURNISHED AND INSTALLED BY THIS CONTRACTOR. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.
 3. INFORMATION OUTLET LOCATIONS SHOWN ARE TYPICAL. REFER TO FLOOR PLANS FOR ACTUAL QUANTITY AND LOCATIONS OF INFORMATION OUTLETS. REFER TO INFORMATION OUTLET SCHEDULE ON DRAWING T500 FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH INFORMATION OUTLET CONFIGURATION TYPE AND FOR OTHER INDIVIDUAL REQUIREMENTS FOR EACH OUTLET CONFIGURATION TYPE.
 4. REFER TO COVERPAGE AND FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.
 5. RACK AS DEFINED ON THE TELECOM ROOM LAYOUT. REFER TO THE TELECOM ROOM REFERENCES MATRIX ON THE COVERPAGE FOR LOCATION.
 6. 24 GAUGE 4-PAIR CATEGORY 6A UNSHIELDED TWISTED PAIR CABLE, PLENUM RATED. REFER TO SPECIFICATIONS FOR REQUIREMENTS.
 7. PROVIDE (4) CATEGORY 6A CABLES FROM NEW TR TO WALL MOUNTED ENCLOSURE IN MAINTENANCE OFFICE. TERMINATE TO CATEGORY 6A RJ45 JACKS. REFER TO SITE PLAN ON SHEET T001 FOR ADDITIONAL INFORMATION.

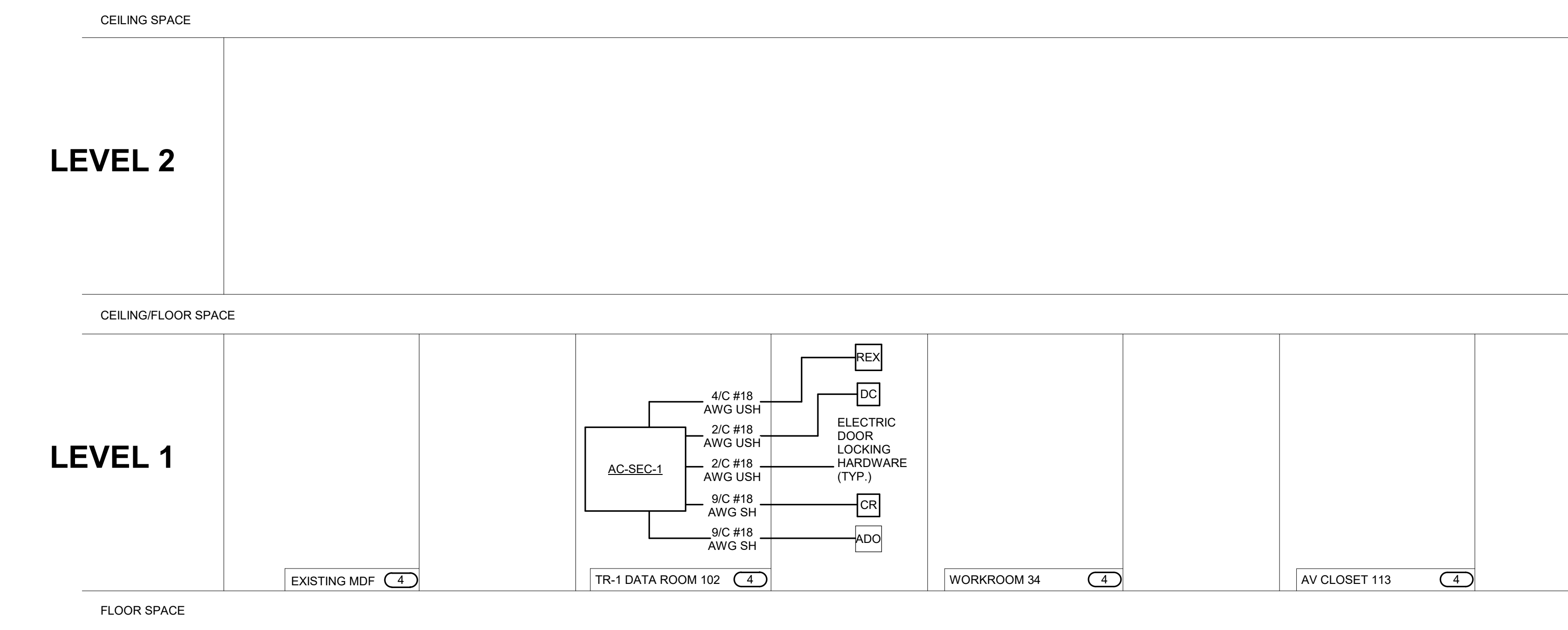


2 TECHNOLOGY FIBER OPTIC RISER DIAGRAM

NO SCALE

NOTES:
 1. THIS RISER DIAGRAM SHOWS ONLY A SMALL PORTION OF THE LARGER EXISTING FACILITY AND SHOWS ONLY NEW AND EXISTING WORK DIRECTLY RELATED TO THIS PROJECT.
 2. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CABLE TYPES. INFORMATION OUTLETS SHOWN ARE TYPICAL OF THE INFORMATION OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES OF INFORMATION OUTLETS AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 3. REFER TO SITE DEMOLITION PLAN ON SHEET TD001 FOR SCOPE OF WORK RELATED TO FIBER OPTIC CABLE DEMO AND REINSTALL.

KEYNOTES:
 1. ALL CROSS-CONNECT WIRE AND UTP COPPER PATCH CABLES FURNISHED AND INSTALLED BY THIS CONTRACTOR. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.
 2. REFER TO COVERPAGE AND FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.
 3. RACK AS DEFINED ON THE TELECOM ROOM LAYOUT. REFER TO THE TELECOM ROOM REFERENCES MATRIX ON THE COVERPAGE FOR LOCATION.
 4. 12-STRAND OS2 SINGLEMODE FIBER OPTIC CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 5. 12-STRAND OS2 SINGLEMODE FIBER OPTIC CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 6. NEW SINGLEMODE FIBER OPTIC CABLE SPLICED TO EXISTING CABLE IN HANDHOLE AT SUGAR AVENUE. REFER TO SHEETS T001 AND T001 FOR ADDITIONAL INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

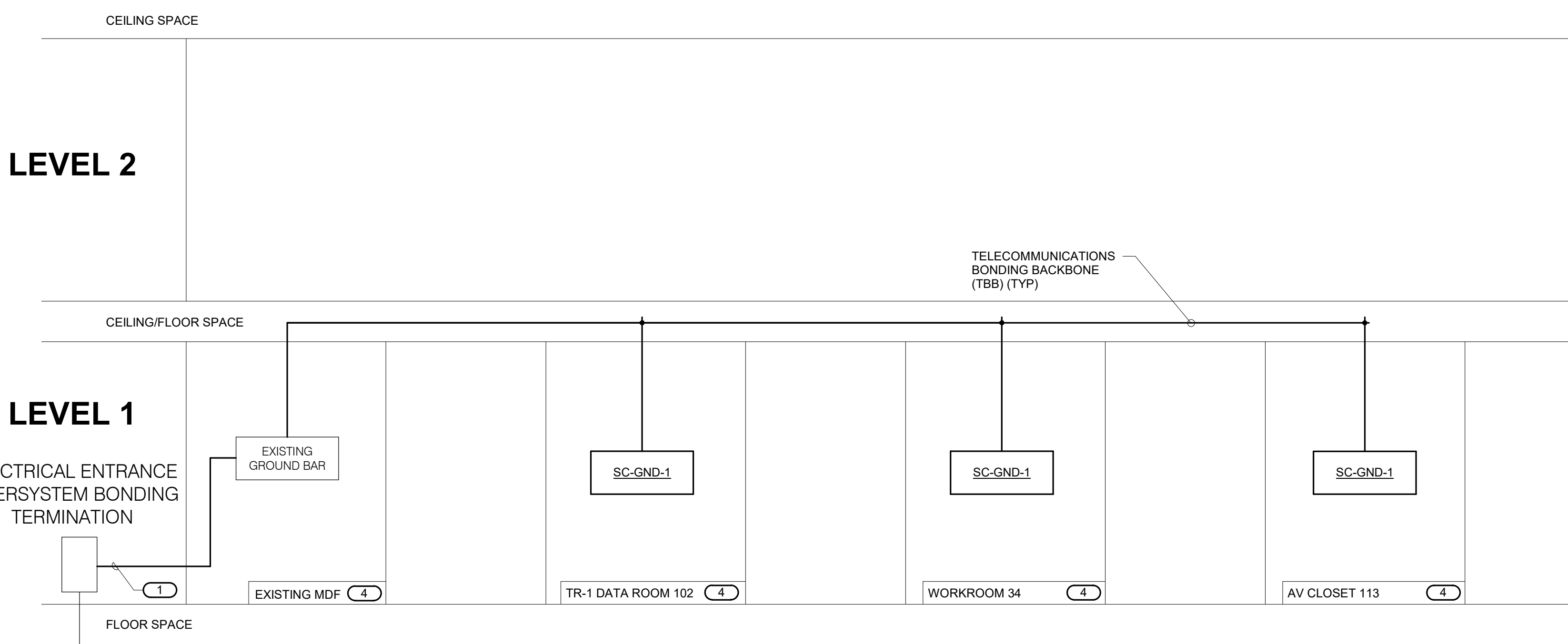


3 ACCESS CONTROL RISER DIAGRAM

NO SCALE

NOTES:
 1. THIS DIAGRAM IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL DEVICE QUANTITIES OR LOCATIONS. ALL DEVICES SHOWN ARE TYPICAL AND MAY NOT REFLECT EVERY WIRE OR CONNECTION THAT MUST BE MADE. WIRING SHOWN ON THIS DIAGRAM REFLECTS THE REQUIREMENTS FOR THE BASIS OF DESIGN MANUFACTURER. ANY CHANGES REQUIRED DUE TO THE T.C.'S SELECTION OF AN ALTERNATE MANUFACTURER, INCLUDING ANY POWER REQUIRED FOR FIELD LOCATED SECURITY CONTROLLERS, SHALL BE INCLUDED IN THE T.C.'S BID.

KEYNOTES:
 1. REFER TO COVERPAGE AND FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.



4 TECHNOLOGY BONDING RISER DIAGRAM

NO SCALE

NOTES:
 1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CONDUCTOR TYPE. ALL CONNECTIONS AND SYSTEM DEVICES SHOWN ARE TYPICAL AND NOT REPRESENTATIVE OF ACTUAL PROJECT QUANTITIES. REFER TO FLOOR PLANS AND ENLARGED FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 2. ALL CONDUCTORS IN THE TECHNOLOGY BONDING SYSTEM SHALL BE MINIMUM SIZE OF 30 AWG PLENUM RATED COPPER (GREEN OR MARKED WITH A DISTINCTIVE GREEN COLOR) UNLESS CONDUCTOR LENGTH IS LESS THAN 66 FEET. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING CRITERIA FOR CONDUCTORS LESS THAN 66 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 3. ALL BONDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY COMPRESSION LUGS. EXOTHERMIC WELDING OR IRREVERSIBLE COMPRESSION CONNECTORS. SOLDER IS NOT AN ACCEPTABLE MEANS OF CONNECTION. SHEET METAL SCREWS SHALL NOT BE USED TO CONNECT TELECOMMUNICATIONS BONDING CONDUCTORS TO EQUIPMENT. WHERE NECESSARY, REMOVE PAINT AND/OR USE PAINT-PIERCING WASHERS TO PROVIDE PROPER ELECTRICAL BOND AT ALL CONNECTIONS.
 4. REFER TO 217401 FOR TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.
 5. REFER TO TELECOM ROOM REFERENCES SCHEDULE ON DRAWING T001 FOR TELECOMMUNICATIONS ROOM NUMBER AND LOCATION INFORMATION.

KEYNOTES:
 1. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT). BCT SHALL BE THE SAME SIZE AS THE TBB OR LARGER. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING REQUIREMENTS.
 2. REFER TO COVERPAGE AND FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.

BONDING CONDUCTOR SIZING SCHEDULE	
CONDUCTOR LENGTH IN FEET	MINIMUM ACCEPTABLE SIZE - AWG
LESS THAN 13'	6
14' - 20'	4
21' - 26'	3
27' - 33'	2
34' - 41'	1
42' - 52'	1/0
53' - 66'	2/0
GREATER THAN 66'	3/0

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 608.251.3600 tel

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IMEG Corp.
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 608.223.9600 tel

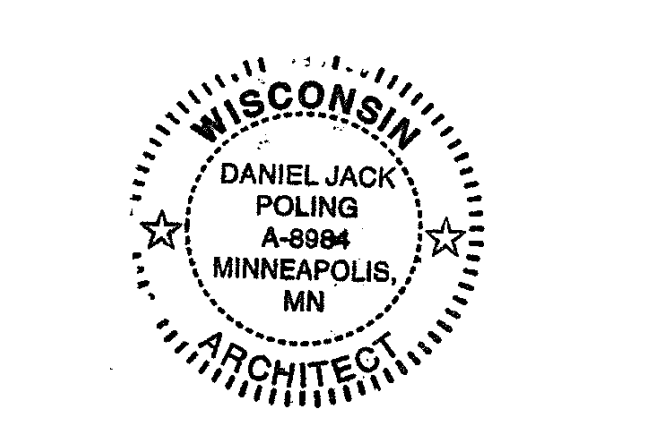
MEP Engineer
MEP Associates, LLC
 860 Blue Garden Road, Suite 175, Elgin, IL 60121
 651.379.9120 tel

Fire Protection Engineer and Code Consultant
Summit Fire Consulting
 575 Minnehaha Ave West, St. Paul, MN 55103
 651.251.1880 tel

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Rough Brothers, Inc.
 5513 Vine Street, Cincinnati, OH 45217
 513.242.0310 tel

Olbrich Botanical Gardens Expansion Phase 1
 BPW Project #8162
 3330 Atwood Avenue
 Madison, WI 53704

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin. ARCHITECT SEAL



Signature: *[Signature]*
 Print Name: Jack Poling
 Date: JUNE 4, 2018 License No.: A-9894

MARK	DATE	DESCRIPTION
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	03.30.2018	70% CD SUBMISSION
	05.04.2018	90% CD SUBMISSION
	06.01.2018	BID ISSUE
	06.04.2018	PERMIT ISSUE

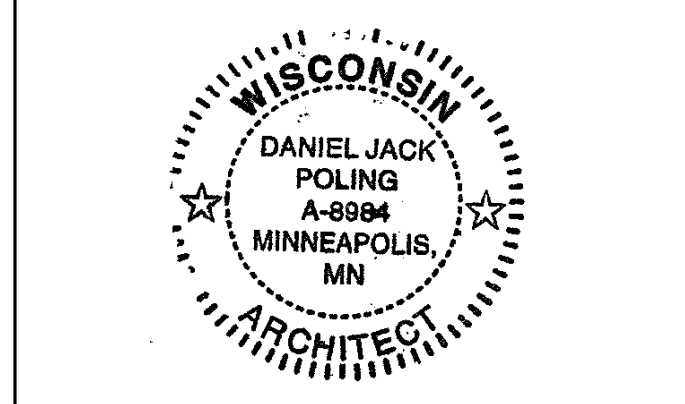
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 PROJECT PHASE: BID DOCUMENTS
 DRAWN BY: BHASON CHECKED BY: DONPAU
 Design: 2017 Copyright: West, Shuman & Reynolds, LLC

RISER DIAGRAMS - TECHNOLOGY

EXHIBIT O
T400

Drawing: 2017 Copyright: West, Shuman & Reynolds, LLC. 10/25/2018 4:44:18 PM. C:\Users\jpoling\OneDrive\Documents\2017016\03_Coverpages\Cover Page 400.dwg (partial)

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin. ARCHITECT SEAL.

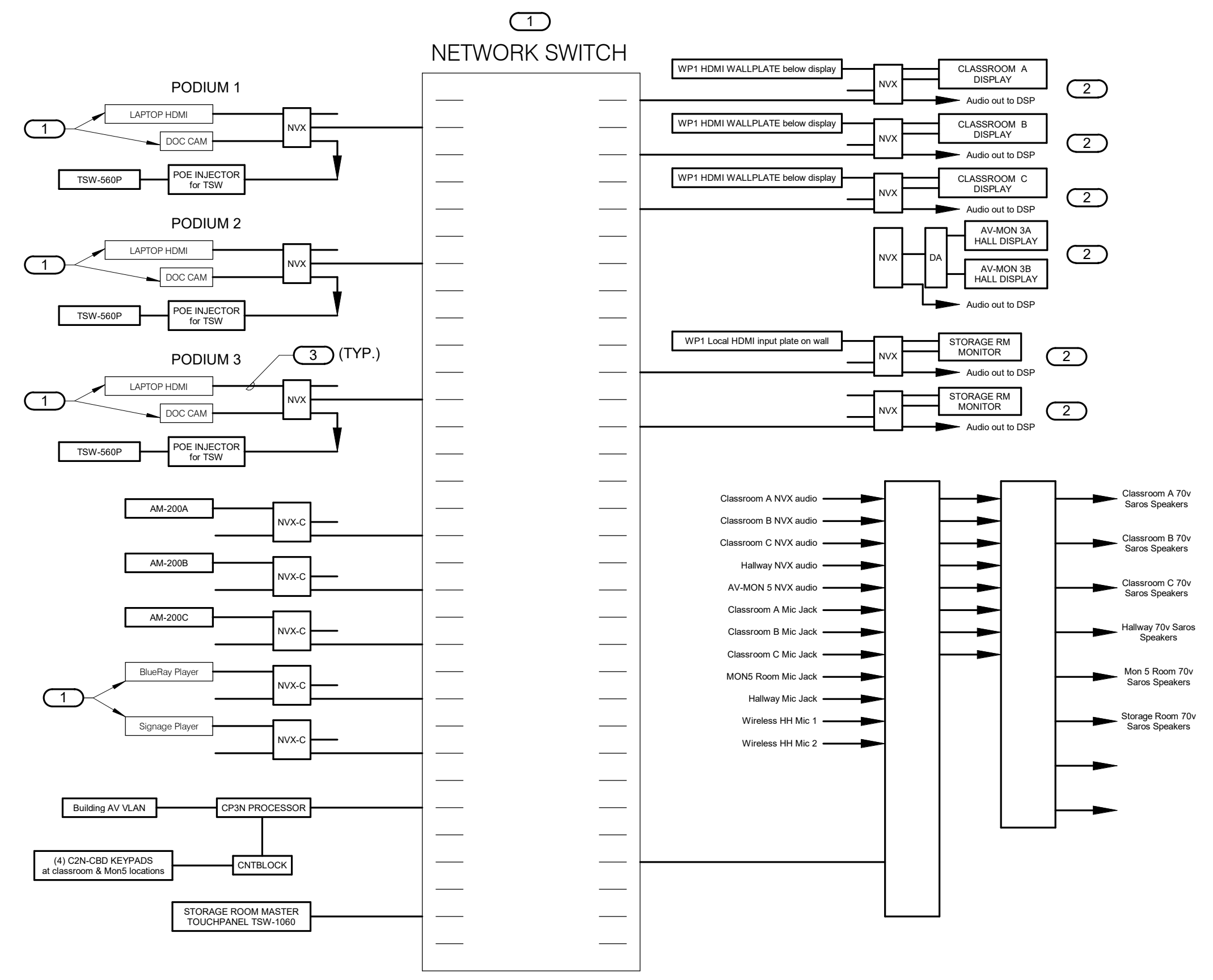
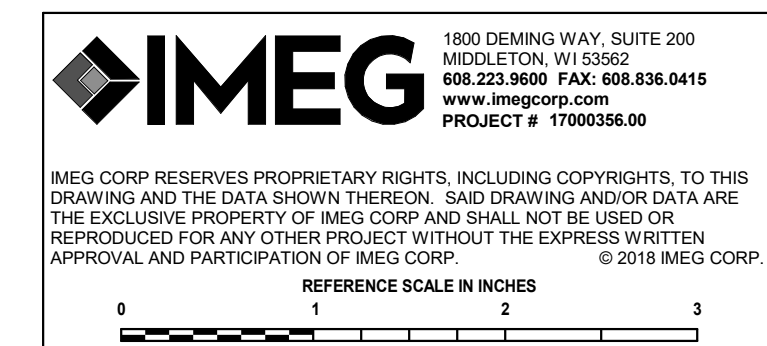


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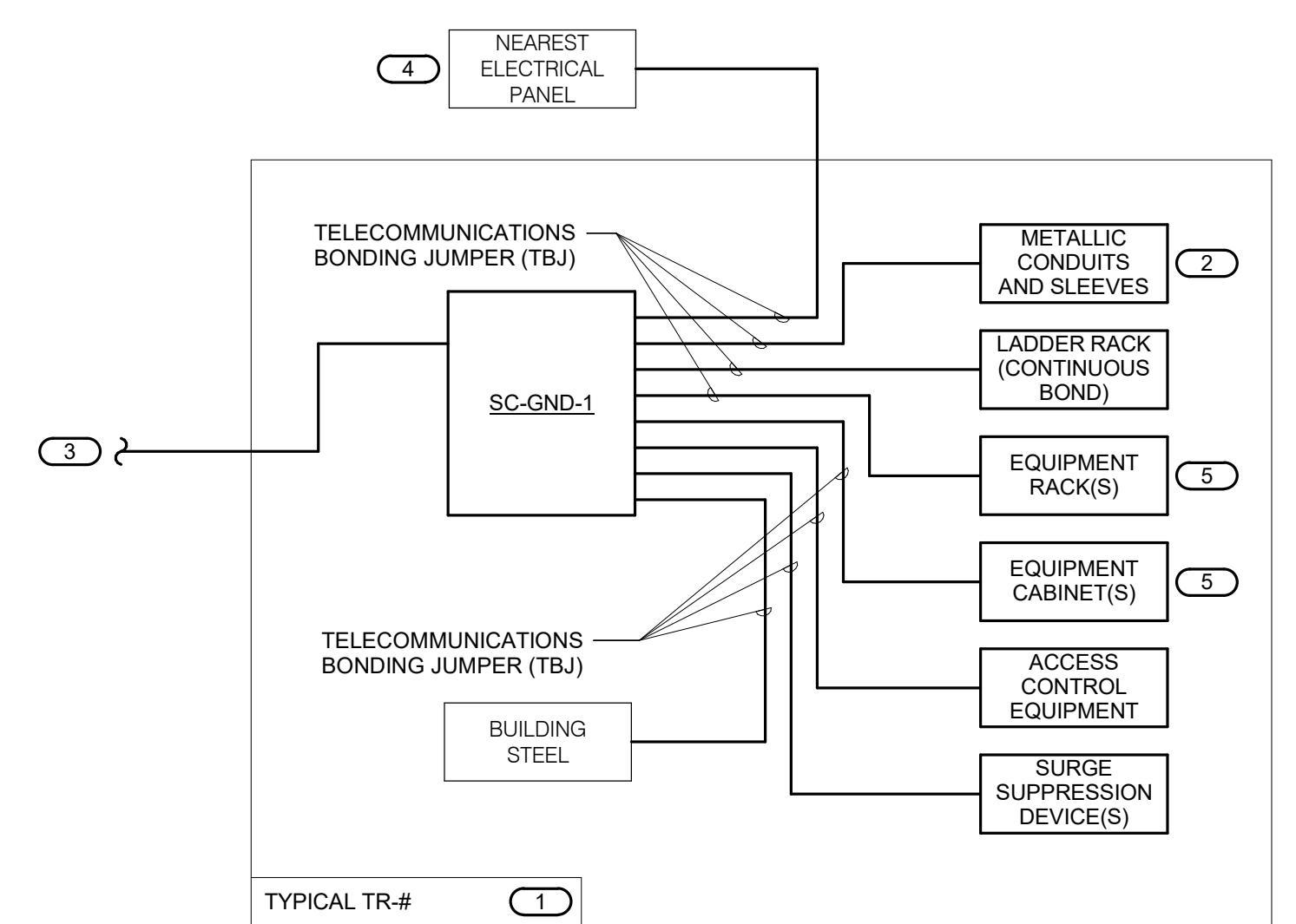
PROJECT NO. 2017016
 PROJECT PHASE BID DOCUMENTS
 DRAWN BY: BHASON CHECKED BY: DONPAU
 Design: 2017 Copyright: Mark, Shuman & Associates, Ltd.

**RISER DIAGRAMS -
 TECHNOLOGY**



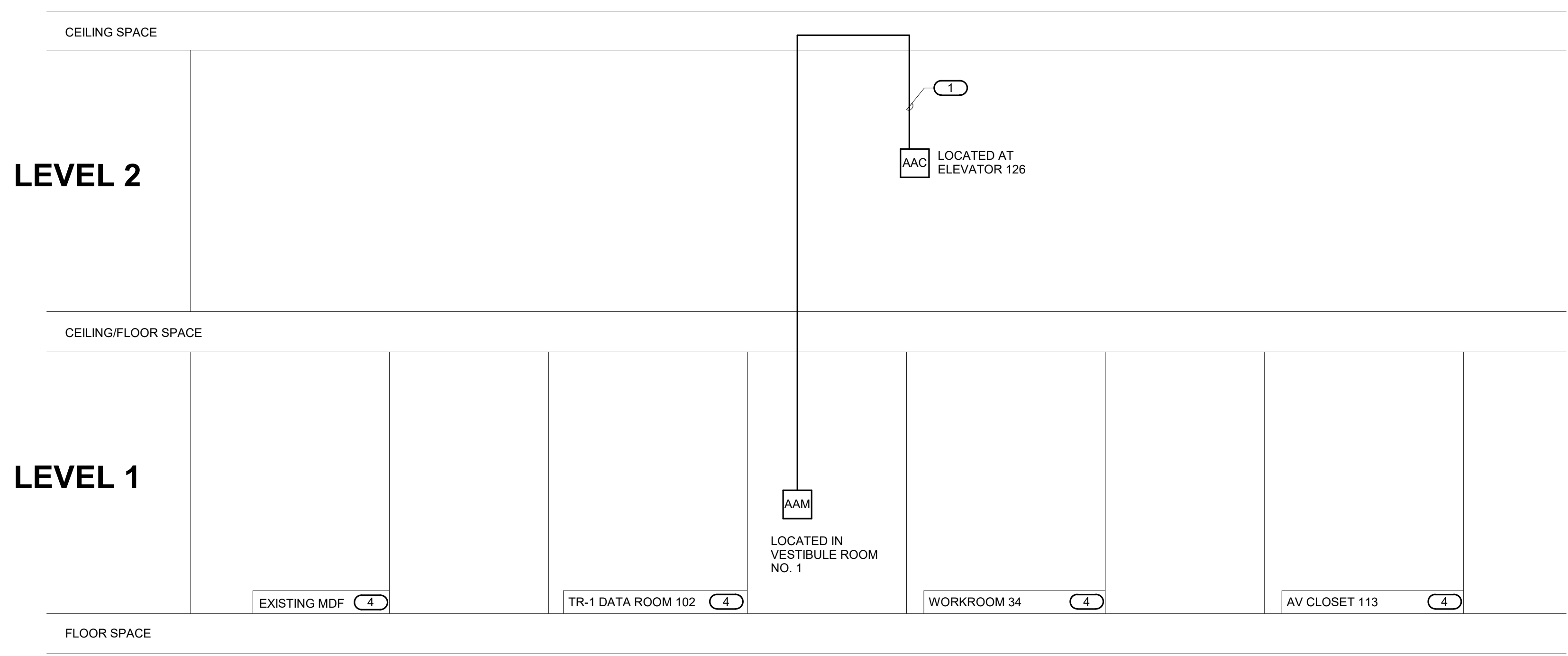
1 CLASSROOM AV RISER DIAGRAM
 NO SCALE

- NOTES:
 1. THIS RISER IS DIAGMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CABLE TYPE. DEVICES SHOWN ARE TYPICAL OF THE DEVICES IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES OF DEVICES.
 2. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE ON T500 FOR ADDITIONAL INFORMATION.
- KEYNOTES:
 1. OWNER FURNISHED OWNER INSTALLED.
 2. OWNER FURNISHED CONTRACTOR INSTALLED.
 3. CONTRACTOR FURNISHED CONTRACTOR INSTALLED.



2 TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM
 NO SCALE

- NOTES:
 1. THIS FLOW DIAGRAM IS DIAGMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS FLOW DIAGRAM IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CONDUCTOR TYPE. ALL CONNECTIONS AND SYSTEM DEVICES SHOWN ARE TYPICAL AND NOT REPRESENTATIVE OF ACTUAL PROJECT QUANTITIES. REFER TO FLOOR PLANS AND ENLARGED FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 2. ALL CONDUCTORS IN THE TECHNOLOGY BONDING SYSTEM SHALL BE MINIMUM SIZE OF 30 AWG PLENUM RATED COPPER GREEN OR MARKED WITH A DISTINCTIVE GREEN COLOR UNLESS CONDUCTOR LENGTH IS LESS THAN 66 FEET. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING CRITERIA FOR CONDUCTORS LESS THAN 66 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 3. ALL BONDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY COMPRESSION LUGS, EXOTHERMIC WELDING, OR IRREVERSIBLE COMPRESSION CONNECTORS. SOLDER IS NOT AN ACCEPTABLE MEANS OF CONNECTION. SHEET METAL SCREWS SHALL NOT BE USED TO CONNECT COMMUNICATIONS BONDING CONDUCTORS TO EQUIPMENT. WHERE NECESSARY, REMOVE PAINT AND/OR USE PAINT-PIERCING WASHERS TO PROVIDE PROPER ELECTRICAL BOND AT ALL CONNECTIONS.
 4. REFER TO 217300 FOR BONDING BUS BAR DETAIL AND ADDITIONAL INFORMATION AND REQUIREMENTS FOR SC-GND-1.
- KEYNOTES:
 1. REFER TO TELECOM ROOM REFERENCES SCHEDULE ON DRAWING T000 FOR TELECOMMUNICATIONS ROOM NUMBER AND LOCATION INFORMATION.
 2. INCLUDES HORIZONTAL AND VERTICAL CONDUIT SLEEVES FOR TECHNOLOGY CABLING.
 3. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT), TO EXISTING ELECTRICAL ENTRANCE INTERSYSTEM BONDING TERMINATION. REFER TO 417400 FOR TECHNOLOGY BONDING RISER DIAGRAM FOR CONTINUATION AND ADDITIONAL INFORMATION AND REQUIREMENTS.
 4. REFER TO THE ELECTRICAL DRAWINGS FOR LOCATION.
 5. PROVIDE SC-GND-2 RACK MOUNT TECHNOLOGY BONDING BUSBAR AT EACH EQUIPMENT RACK.



3 AREA OF RESCUE RISER DIAGRAM
 NO SCALE

- NOTES:
 1. THIS RISER IS DIAGMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CABLE TYPE. DEVICES SHOWN ARE TYPICAL OF THE DEVICES IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- KEYNOTES:
 1. ONE (1) 18 GAUGE 2-CONDUCTOR CABLE, PLENUM RATED. REFER TO SPECIFICATIONS FOR REQUIREMENTS.

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 Project: Olbrich Botanical Gardens, Expansion Phase 1
 Drawing Title: Riser Diagrams - Technology
 Date: 06/04/2018

