




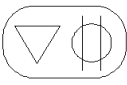


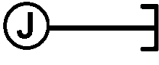

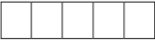



Data Outlet Drawing Symbols Used by Cerritos College

COMMUNICATIONS LEGEND FOR LOW-VOLTAGE ELECTRICAL DRAWINGS	
SYMBOL	MEANING
	DATA OUTLET BOX, FLUSH IN WALL, +18" A.F.F. (U.N.O.). INSTALL A RANDL 5-SQUARE TELECOM BOX (T-55017) WITH VERTICALLY ORIENTED SINGLE-GANG PLASTER RING AND 1" EMT FROM EACH BOX TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION.
	DATA OUTLET BOX FOR WALL-MOUNTED IP TELEPHONE, FLUSH IN WALL, +48" A.F.F. (U.N.O.). INSTALL A RANDL 5-SQUARE TELECOM BOX (T-55017) WITH VERTICALLY ORIENTED SINGLE-GANG PLASTER RING AND 1" EMT FROM EACH BOX TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION. ALLOW 12" OF CLEAR WALL SPACE FROM TOP AND SIDE EDGES OF BOX AND 24" OF CLEAR SPACE BELOW BOX.
	DATA OUTLET BOX FOR WALL-MOUNTED IP EMERGENCY TELEPHONE, FLUSH IN WALL, +48" A.F.F. (U.N.O.). INSTALL A RANDL 5-SQUARE TELECOM BOX (T-55017) WITH VERTICALLY ORIENTED SINGLE-GANG PLASTER RING AND 1" EMT FROM EACH BOX TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION. PROVIDE A FLUSH 4S BOX WITH EXTENSION AND COVER, AND AN ELECTRICAL DUPLEX IN CEILING SPACE DIRECTLY ABOVE DATA OUTLET (SEE DETAIL).
	DATA OUTLET WITHIN SURFACE MOUNTED OR IN-WALL CABINET. INSTALL 1" EMT FROM THE EMS, FIRE ALARM, LIGHTING CONTROL AND SECURITY CABINETS (AND A/V WALL BOX IF INSTALLED) TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION. NO ADDITIONAL TELECOM BOX IS REQUIRED.
	ABOVE-CEILING DATA OUTLET BOX. INSTALL A RANDL 5-SQUARE TELECOM BOX (T-55017) WITH SINGLE-GANG <u>FLAT RING</u> (D-51G000) AND 1" EMT FROM EACH BOX TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION. SET 8"-12" ABOVE SUSPENDED CEILING, BUT NOT MORE THAN 10' AFF. IF NO CEILING, PLACE AT SAME ELEVATION AS THE LOWEST CEILING OBSTRUCTION (U.N.O.). FACE RING TOWARD THE FLOOR.
	FLOOR BOX WITH DATA AND POWER OUTLETS. INSTALL A 3-1/4" DEEP WIREMOLD RFB6 FLOOR BOX WITH 1-1/4" PVC (ON-GRADE) OR EMT (ABOVE-GRADE) CONDUIT FROM EACH BOX. ROUTE TO THE CLOSEST WALL, TRANSITION TO EMT AND EXTEND TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION. INSTALL INTERNAL DUPLEX BRACKETS FOR POWER AND TWO RFB62A COMMUNICATION BRACKETS FOR DATA. INSTALL FPCTCBZ BRONZE FINISH (FOR CARPET) OR FPCTCNK NICKEL FINISH (FOR VCT) FLANGED COVER ASSEMBLY WITH MATCHING FLOOR MATERIAL SET INTO LID INSERT. SECURE MUDCAP TO PREVENT ENTRY OF CONCRETE DURING POUR. CONSULT WITH CONSTRUCTION MANAGEMENT OR DISTRICT REPRESENTATIVE FOR SPECIFIC INTERNAL CONFIGURATION DETAILS.
	FLOOR BOX WITH DATA, QUAD POWER AND A/V OUTLETS. INSTALL A WIREMOLD EVOLUTION EFB8 FLOOR BOX WITH 1-1/4" PVC (ON-GRADE) OR EMT (ABOVE-GRADE) CONDUIT FROM EACH BOX, CLOSEST TO TUNNEL. ROUTE TO THE CLOSEST WALL, TRANSITION TO EMT AND EXTEND TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION. INSTALL 1-1/4" PVC CONDUIT / EMT PER A/V DRAWINGS. PLACE DATA AND POWER CONDUITS ON THE SAME SIDE OF BOX USING EFB8S-DIV DIVIDER FOR SEPARATION, WITH POWER FURTHEST AWAY FROM TUNNEL. PLACE A/V CONDUIT ON OPPOSITE SIDE OF BOX. INSTALL EFB610CTBZ BRONZE FINISH (FOR CARPET) OR EFB610CTNK NICKEL FINISH (FOR VCT) SURFACE-STYLE COVER WITH MATCHING FLOOR MATERIAL SET INTO LID INSERT. INSTALL ONE GFCI DUPLEX OUTLET WITH LED NIGHTLIGHT (SEE NOTES). SECURE MUDCAP TO PREVENT ENTRY OF CONCRETE DURING POUR.
	CONNECTION POINT / PULL BOX TO ELEVATOR PHONE, +48" A.F.F. INSTALL A DEEP 4S BOX WITH 2-GANG PLASTER RING, BLANK COVER, AND 1" EMT FROM BOX TO THE SIDE OF THE CABLE TRAY AT THE SAME ELEVATION. INSTALL EMT FROM 4S BOX TO THE ELEVATOR EQUIPMENT TIE-IN.
	CAMERA OUTLET BOX, FLUSH IN EXTERIOR WALL 12' A.F.S. OR BELOW CANOPIES (U.N.O.) INSTALL A DEEP 4S BOX WITH 1" EMT FROM CAMERA BOX TO WITHIN 12" FROM ABOVE-CEILING RANDL DATA OUTLET BOX FOR EXTERIOR CAMERA, LEAVING A 12" GAP (SEE DETAIL).
	THROUGH-WALL SLEEVE, 10' A.F.S. OR BELOW CANOPIES (U.N.O.) INSTALL 8"-10" LONG 1-1/4" EMT PENETRATING 1" THROUGH EXTERIOR WALL INTO ACCESSIBLE CEILING FOR EXTERIOR WI-FI ANTENNA CABLES. IF ADJACENT TO CAMERA BOX, INSTALL 6" ABOVE TOP EDGE OF J-BOX. SEAL OUTSIDE OF CONDUIT AND BLOCK & SEAL THE INSIDE TO PREVENT RAIN INFILTRATION (SEE DETAIL).
	WIRE-TYPE CABLE TRAY (CABLOFIL CF 105, COOPER FLEXTRAY, SNAKE TRAY MEGA SNAKE, CPI ON-TRAC OR EQUIVALENT). BOND ALL SECTIONS TOGETHER AND TO ELECTRICALLY GROUNDED STRUCTURAL STEEL OR THE TELECOMMUNICATIONS GROUND BUSBAR. REFER TO STRUCTURAL DRAWINGS FOR CABLE TRAY SUPPORT DETAILS.
	TELECOMMUNICATIONS (MAIN) GROUNDING BUSBAR, TIN PLATED COPPER WITH PRE-DRILLED HOLES MEETING BICSI/TIA-607 REQUIREMENTS (HARGER, ERICO, PANDUIT, OR OTHER). PLACE 102" A.F.F. BEHIND COMMUNICATIONS RACKS. INSTALL 1/2" CONDUIT AND 6 AWG (MINIMUM) BARE COPPER WIRE TO 8" AFF FOR BONDING OF CONDUCTIVE FLOOR. REFER TO GENERAL NOTES FOR DETAILS.

Add these to any other **Low Voltage General Notes**

1. ALL SYMBOLS AND DESIGNATORS SHOWN ARE NOT NECESSARILY USED IN THIS PACKAGE.
2. DIMENSIONS ARE INDICATED ON TECHNOLOGY DRAWINGS WHERE CRITICAL TO THE INSTALLATION AND PERFORMANCE OF THE EQUIPMENT. WHERE REQUIREMENTS CONFLICT WITH SPECIFICATIONS AND DESIGNS SHOWN ELSEWHERE, THE EC SHALL IMMEDIATELY BRING SUCH CONFLICTS TO THE ATTENTION OF THE ARCHITECT AND THE TECHNOLOGY CONSULTANT.
3. PROVIDE AND INSTALL A UL-APPROVED 18" X 4" WIRE-TYPE CABLE TRAY SYSTEM. PLACE ABOVE CEILING IN HALLWAYS, CORRIDORS AND OTHER EASILY ACCESSIBLE LOCATIONS IN SHORTEST PATH TOWARD NETWORK EQUIPMENT ROOM, 8" MINIMUM ABOVE CEILING GRID WITH HEADROOM FOR ACCESS.
4. ROUTE CONDUITS IN SHORTEST, MOST DIRECT PATH TO THE SIDE OF THE CLOSEST CABLE TRAY, IN WALLS CLOSEST TO THE CENTER OF BUILDING TOWARDS THE EQUIPMENT ROOM, WITH NO MORE THAN THREE 90° BENDS, 270° TOTAL. AVOID PLACING CONDUIT UNDERGROUND IF POSSIBLE, OR KEEP TO A MINIMUM.
5. IF PULL BOXES (J-BOXES) ARE REQUIRED, PROVIDE 8" X 8" MINIMUM SIZE ON 1" CONDUIT, AND LARGER SIZE WITH LARGER CONDUIT, UNLESS NOTED OTHERWISE.
6. CABLE PATHWAY DISTANCE FROM NETWORK EQUIPMENT ROOM THROUGH CABLE TRAY AND CONDUIT TO OUTLET BOX SHALL NOT EXCEED 270 FT.
7. INSTALL CONDUIT IN A CONTINUOUS LENGTH (NO DAISY-CHAINING) UP TO 100 FT. IN LENGTH FROM EACH / EVERY OUTLET BOX TO THE CABLE TRAY FOR THAT FLOOR. SECOND-FLOOR CONDUIT TO FIRST-FLOOR CABLE TRAY IS UNACCEPTABLE. USE MORE CABLE TRAY TO MINIMIZE CONDUIT LENGTHS.
8. PROVIDE AND INSTALL 2" CONDUIT FOR USE WITH IN-FLOOR CABLE TROUGH, WITH 90° SWEEP INTO FLOOR DUCT.
9. NO FLEX CONDUIT TO BE USED WITHOUT PRIOR APPROVAL, REGARDLESS OF CEC ALLOWANCES.
10. INSTALL PLASTIC BUSHINGS AT OPEN ENDS OF METALLIC CONDUITS (ARLINGTON INDUSTRIES EMTXXX OR OTHER).
11. INSTALL PULL STRING OR NYLON CORD IN ALL CONDUITS.
12. PROVIDE AND INSTALL CONDUIT, J-BOXES, CABLE TRAYS, PANELS, FLOOR BOXES, AND ENCLOSURES. BOND CABLE TRAY TO THE TMGB. ALL GROUNDING AND BONDING REQUIRED BY CEC TITLE 24.
13. ALL BOXES AND CONDUIT IN WALLS AND CEILINGS SHALL BE FLUSH MOUNTED OR CONCEALED UNLESS NOTED OTHERWISE.
14. MOUNTING HEIGHTS NOTED ARE TO THE BOTTOM OF DEVICE UNLESS NOTED OTHERWISE. EXTERIOR CAMERA BOXES AND THROUGH-WALL SLEEVE HEIGHTS ARE TO EXTERIOR FINISHED SURFACE.
15. IF SURFACE RACEWAY (WIREMOLD) IS NOTED ON THE DRAWING, THESE SYMBOLS DENOTE POSITION OF OUTLETS ON THE RACEWAY. SIZE THE CONDUIT / FEED TO THE RACEWAY APPROPRIATELY TO ACCOMMODATE THE NUMBER OF CABLES TO BE INSTALLED, BUT NO SMALLER THAN 1-½". PROVIDE 1 CONDUIT FOR EVERY 10 DATA CABLES.
16. PROVIDE AND INSTALL FOUR SIDE-BY-SIDE 4" CONDUIT SLEEVES TO PENETRATE THE EQUIPMENT ROOM AND FIRE-RATED WALLS. CENTER OVER CABLE TRAY SECTIONS. BOND CONDUIT SLEEVES TO CABLE TRAY. INSTALL FIRE-BLOCKING AROUND SLEEVES.
17. PROVIDE AND INSTALL ONE ELECTRICAL DUPLEX FOR EACH DATA OUTLET, AND ABOVE EMERGENCY PHONES.
18. PROVIDE AND INSTALL ONE PASS & SEYMOUR 2095NTLTRW (20A) GFCI DUPLEX RECEPTACLE WITH LED NIGHTLIGHT IN EVOLUTION-SERIES FLOOR BOXES.
19. PROVIDE AND INSTALL ONE ¼" X 4" X 12" TELECOMMUNICATIONS (MAIN) GROUNDING BUSBAR, TIN PLATED COPPER WITH PRE-DRILLED HOLES PER BICSI/TIA-607 PATTERN IN EACH EQUIPMENT ROOM. PLACE AT 8' 6" A.F.F. BEHIND FIRST EQUIPMENT RACK, BOND TOGETHER AND TO MAIN BUILDING GROUND IN ACCORDANCE WITH THE CEC AND ANSI/TIA-607.
20. INSTALL ½" CONDUIT FROM GROUNDING BUSBAR TO 8" ABOVE THE FLOOR WITH #6 OR LARGER COPPER WIRE FOR BONDING OF FLOOR GROUNDING STRIP.
21. PROVIDE AND INSTALL ¼" POLYPROPYLENE OR NYLON PULL ROPE IN EACH OF THE CONDUITS FROM THE COMMUNICATIONS VAULT TO THE EQUIPMENT ROOM.
22. PROVIDE AND INSTALL EXPANDABLE BLANK DUCT PLUGS WITH INTERNAL ROPE ATTACHMENT (VIKIMATIC OR EQUIVALENT) ON UNUSED 2" AND 4" CONDUIT IN THE EQUIPMENT ROOM AND IN THE COMMUNICATIONS VAULT.
23. IN NO CASE SHALL A PULL BOX BE INSTALLED ON 2" - 4" CONDUITS TO CHANGE DIRECTION OF OSP COMMUNICATIONS CABLE. USE ONLY ALUMINUM "SMART LB" PRODUCTS FROM MADISON ELECTRIC PRODUCTS. BLUEKOTE UNIVERSAL CONDUIT BODY (LU) FROM THOMAS & BETTS MAY BE SUBSTITUTED WITH PRIOR APPROVAL.
24. OMISSIONS FROM THE DRAWINGS OR SPECIFICATIONS OR THE MISDESCRIPTION OF DETAILS OF WORK WHICH ARE MANIFESTLY NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS AND SPECIFICATIONS, OR WHICH ARE CUSTOMARILY PERFORMED, SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMITTED OR MISDESCRIBED DETAILS OF THE WORK BUT SHALL BE PERFORMED AS IF FULLY AND CORRECTLY SET FORTH AND DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS.

25. REFER TO DETAIL DRAWINGS FOR EMERGENCY PHONE, WAP, CAMERA AND THROUGH-WALL ANTENNA SLEEVE INSTALLATION.

Legend and General Notes are available in electronic format (Word docx or pdf)