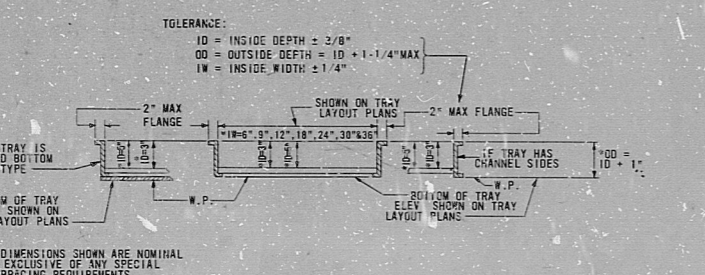


NUMBERS ASIDE OF SYMBOLS INDICATE TRAY NUMBERS AND WIDTHS. LETTERS INSIDE SYMBOLS INDICATE NUCLEAR SAFETY RELATED DIVISION. NON-NUCLEAR SAFETY RELATED DIVISION OR NON-NUCLEAR SAFETY RELATED NOT REQUIRING ANY PARTICULAR DIVISION.

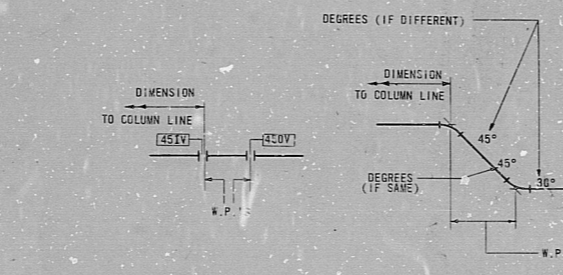
THE FOLLOWING IS A LIST OF TRAY SYMBOLS WHICH ARE USED ON THE TRAY DRAWINGS.



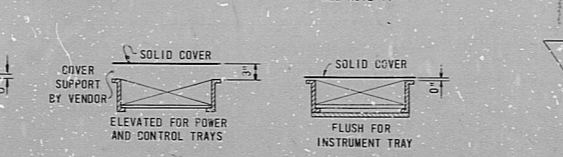
SEE DRAWING D-264-005



DESIGN DIMENSIONS SHOWN ARE NOMINAL AND EXCLUSIVE OF ANY SPECIAL BRACING REQUIREMENTS.



DETAIL A and DETAIL B diagrams showing specific details of tray connections and covers.



- NOTES: 1. ALL 12-BAY POWER TRAYS TO BE LADDER TYPE WITH 3 INCH USABLE DEPTH (INSIDE DIMENSION), AND 3/8 INCH RADIUS FITTINGS UNLESS OTHERWISE NOTED. (MAXIMUM RUNG SPACING 9")
2. ALL SINGLE LAYER POWER TRAYS TO BE LADDER TYPE WITH 3 INCH USABLE DEPTH (INSIDE DIMENSION), AND 3/8 INCH RADIUS FITTINGS UNLESS OTHERWISE NOTED. (MAXIMUM RUNG SPACING 9")
3. ALL RADIUS LAYER POWER AND CONTROL TRAYS TO BE LADDER TYPE WITH 3 INCH USABLE DEPTH (INSIDE DIMENSION), AND 3/8 INCH RADIUS FITTINGS UNLESS OTHERWISE NOTED. (MAXIMUM RUNG SPACING 9")
4. SPLICES FOR SEISMIC SUPPORTED 30 TON WIDE TRAY SHALL BE MADE BY MEANS OF TWO SPLICE PLATES ON BOTH SIDES OF TRAY
5. DIMENSIONS SHOWN ON THE VERTICAL TRAY RUNS ARE TO THE OUTSIDE BOTTOM OF TRAY
6. ALL TRAYS ENTERING ELECTRICAL EQUIPMENT SHALL BE TERMINATED WITH "TRAY TO BOX CONNECTORS"
7. ALL BARRIERS SHOWN OUTSIDE OF TRAYS ARE FIRE BARRIERS PLACED BETWEEN TRAYS OF DIFFERENT DIVISIONS OR BETWEEN ANY DIVISION AND NON-DIVISIONAL TRAYS OR BETWEEN ANY UNIT 1 & UNIT 2 TRAYS (EXCEPT NON-DIVISIONAL) UNLESS OTHERWISE SPECIFIED AS A FIRE BARRIER. FIRE BARRIERS ARE PLACED BETWEEN TRAYS AND A BARRIER. ALL BARRIERS OUTSIDE OF TRAYS ARE TO BE INSTALLED AFTER CABLES ARE PULLED.
8. VERTICAL TRAYS PENETRATING FLOORS SHALL HAVE VENTILATED, FLAT, FLUSH COVERS INSTALLED FOR A DISTANCE OF 6 FEET UP FROM THE FLOOR (EXCEPT INSTRUMENT TRAYS)
9. ALL TRAYS ENTERING ELECTRICAL EQUIPMENT SHALL BE TERMINATED WITH "TRAY TO BOX CONNECTORS"
10. 6 INCHES HAS BEEN USED AS THE LARGEST POSSIBLE OFFSET PAST THE POINT OF TANGENCY FOR ALL FITTING DIMENSIONS. IN THE EVENT THAT A FITTING HAS AN OFFSET PAST THE POINT OF TANGENCY WHICH IS LESS THAN 6 INCHES, THE INSTALLING CONTRACTOR SHALL ADJUST THE DIMENSIONS SHOWN ON THE DRAWINGS TO COMPENSATE FOR THE SMALLER OFFSET. (SEE DETAIL C)
11. DIMENSIONS IN PLAN VIEW SHALL BE TO THE W.P. (WORKING POINT) ONLY OF FITTINGS. W.P. IS ALWAYS THE POINT AT WHICH THE EXTENSION OF THE POINTS OF TANGENCY OF THE FITTING INTERSECT, AND AT THE BOTTOM OF THE TRAY ELEVATION SHOWN. (SEE DETAILS "B" AND "C")
12. TRAY WIDTH REDUCTIONS TO BE MADE WITHOUT USE OF FITTINGS
REDUCER CONNECTOR PLATES TO BE USED TO JOIN TRAYS OF UNEQUAL WIDTHS. (TO INSURE ELECTRICAL CONTINUITY)
13. INSTRUMENT TRAYS TO HAVE "DOLU, REMOVABLE, FLAT, FLUSH COVERS THROUGHOUT THE RUN. (SEE DETAIL E). INSTRUMENT TRAYS TO HAVE NO COVERS IN CONTROL ROOM CABLE SPREADING AREA.
14. POWER AND CONTROL TRAYS TO BE ELEVATED, REMOVABLE, FLAT, SOLID COVERS (SEE DETAIL E) WHERE INDICATED (SEE LEGEND FOR SYMBOLS).
15. TRAY NUMBERS THAT ARE DIFFERENT, SHOWN ON EITHER SIDE OF A FITTING, INDICATES THAT THE TRAY NUMBER CHANGES AT THE CENTER POINT OF THAT FITTING.
16. (BLANK)
17. TRAYS SHALL HAVE SELF-ADHERING MARKERS AFFIXED PER NOTES 2, 3 AND 4 ON DWG. D-264-002 AND MARKER INSTALLATION NOTES ON DWG. D-264-005. MARKERS ARE COLOR CODED AND SHALL IDENTIFY THE TRAY NUMBER AND TRAY SYMBOL.
18. POWER OR CONTROL TRAYS, WHICH ARE THE TOP TRAY, SHALL HAVE ELEVATED, REMOVABLE, FLAT, SOLID COVERS WHEN RUN UNDER CRATING PLATFORMS. COVER SHALL BE AS WIDE AS THE WIDEST TRAY IN THE STACK.
19. NON-SEISMIC TRAY SUPPORTS SHALL BE DESIGNED FOR A SAFETY FACTOR OF 2. IT SHALL BE THE DEADLOAD WEIGHT OF THE TRAY AND CABLE. CABLE WEIGHT IN A TRAY SHALL BE CONSIDERED TO BE 25 POUNDS PER SQUARE FOOT OF TRAY AREA. THE DEADLOAD WEIGHT SHALL ALSO INCLUDE AN ALLOWANCE OF 10 POUNDS PER FOOT OF LENGTH BETWEEN TRAY SUPPORTS FOR CABLE WEIGHT, AND THE WEIGHT OF A 200 LB. MAN. THE MAXIMUM SPACING BETWEEN SUPPORTS SHALL BE 10 FEET. EACH STRAIGHT RUN OF TRAY SHALL INCLUDE AT LEAST ONE SUPPORT WHICH IS CAPABLE OF RESTRICTING LONGITUDINAL MOVEMENT OF THE TRAY DUE TO CABLE PULLING. MAXIMUM CABLE TRAY CANTILEVERING DISTANCE SHALL BE 3 FEET 4 INCHES.
20. FOR SEISMIC SUPPORTS, PLANS AND DETAILS, SEE DRAWING SERIES "S-1000". ATTACHMENT OF TRAYS TO SEISMIC SUPPORTS SHALL CONSIST OF WELDING THE TRAY SIDEWALL TO THE SUPPORT MEMBER USING TYPE E80XX WELDING ELECTRODES.
21. ALL INSTRUMENT TRAYS TO BE LADDER TYPE WITH A SOLID CORRUGATED STEEL BOTTOM WELDED TO SIDE RAILS AND 3/8" RIGID OR 1/2" CENTERS TO ACCOMMODATE CABLE TIES) WITH 3 INCH MINIMUM USABLE DEPTH (INSIDE DIMENSION) AND 12 INCH RADIUS FITTINGS UNLESS OTHERWISE NOTED (MAXIMUM RUNG SPACING 12"). FOR SEISMIC INSTRUMENT CABLE IN VERTICAL INSTRUMENT TRAY, SEE DETAIL "D". DWG. D-264-002.
22. (BLANK)
23. A BASKET WEAVE TYPE CABLE GRIP SHALL BE INSTALLED ON CABLES IN VERTICAL RACEWAY RUNS (IF GREATER THAN 20 FEET) TO SUPPORT THE WEIGHT OF THE CABLE. ONE CABLE SUPPORT SHALL BE PROVIDED AT THE TOP OF THE VERTICAL RACEWAY. (SEE DETAIL E, DWG. D-264-002). A SUPPORT FOR EACH ADDITIONAL INTERVAL OF SPACING (AS SPECIFIED IN TABLE 1, DWG. D-264-002) IS REQUIRED, EXCEPT WHEN THE TOTAL VERTICAL RISE IS LESS THAN 25% OF THE SPACING. (SEE DETAIL F, DWG. D-264-002). THESE SUPPORTS ARE IN ADDITION TO THE CABLES TIED, INSTALLED AT 36 INCH MAXIMUM SPACING TO THE RUNS.
24. RAY AND FLOOR OPENINGS ARE IDENTIFIED BY DISCIPLINE, AREA, LEVEL AND NUMBER.
E-2.

- REFERENCES: D-264-002 CABLE TRAY LAYOUT-DETAILS
D-264-012 CABLE TRAY LAYOUT-TURBINE BUILDING-EAST-EL. 577'-0"
D-264-013 CABLE TRAY LAYOUT-TURBINE BUILDING-EL. 577'-0"
D-264-014 CABLE TRAY LAYOUT-TURBINE BUILDING-WEST-EL. 577'-0"
D-264-021 CABLE TRAY LAYOUT-TURBINE BUILDING-LINE OIL AREA-EL. 593'-8"
D-264-024 CABLE TRAY LAYOUT-TURBINE BUILDING-WEST-EL. 595'-0"
D-264-025 CABLE TRAY LAYOUT-TURBINE BUILDING-WEST-EL. 605'-0"
D-264-031 CABLE TRAY LAYOUT-TURBINE BUILDING-LINE OIL AREA-EL. 620'-8"
D-264-032 CABLE TRAY LAYOUT-TURBINE BUILDING-EAST-EL. 624'-8"
D-264-033 CABLE TRAY LAYOUT-TURBINE BUILDING-EL. 624'-8"
D-264-034 CABLE TRAY LAYOUT-TURBINE BUILDING-EL. 624'-8"
D-264-035 CABLE TRAY LAYOUT-TURBINE BUILDING-EL. 624'-8"
D-264-036 CABLE TRAY LAYOUT-TURBINE BUILDING-LAYDOWN AREA-EL. 620'-8"
D-264-037 CABLE TRAY LAYOUT-MAIN TRANSFORMER AREA-EL. 620'-8"
D-264-022 CABLE TRAY LAYOUT-TURBINE BUILDING-EAST-EL. 605'-0"
D-264-001 CABLE TRAY LAYOUT-HEATER BAY-EAST-EL. 520'-8"
D-264-002 CABLE TRAY LAYOUT-HEATER BAY-WEST-EL. 580'-8"
D-264-003 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 580'-8" AND 593'-8"
D-264-004 CABLE TRAY LAYOUT-COSTE DENIN AREA-EL. 588'-8"
D-264-005 CABLE TRAY LAYOUT-COSTE DENIN AREA-WEST-EL. 548'-8" AND 568'-8"
D-264-006 CABLE TRAY LAYOUT-OFF-GAS BUILDING-EL. 584'-8"
D-264-007 CABLE TRAY LAYOUT-OFF-GAS BUILDING-EL. 602'-8"
D-264-008 CABLE TRAY LAYOUT-HEATER BAY-EAST-EL. 600'-8"
D-264-009 CABLE TRAY LAYOUT-HEATER BAY-WEST-EL. 600'-8"
D-264-010 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-011 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-012 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-013 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-014 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-015 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-016 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-017 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-018 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-019 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-020 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
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D-264-026 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-027 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-028 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-029 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-030 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-031 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
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D-264-038 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-039 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-040 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-041 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-042 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-043 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-044 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-045 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-046 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-047 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-048 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-049 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-050 CABLE TRAY LAYOUT-COSTE DENIN AREA-EAST-EL. 593'-8"
D-264-051 CABLE TRAY LAYOUT-SECTIONS AND DETAILS

- NOTES: 25. WHEN THE INSTALLATION REQUIRES FIELD CUTTING OF STRAIGHT LENGTHS OF SAFETY RELATED LADDER TYPE POWER OR CONTROL CABLE TRAYS, EITHER OF THE FOLLOWING SHALL APPLY AT THE OPTION OF THE CONTRACTOR:
1. A MAXIMUM RUNG SPACING OF 12" (IN LIEU OF 9" MAXIMUM) MAY BE USED AT TRAY FITTINGS WHEN BOTH OF THE FOLLOWING CONDITIONS ARE SATISFIED:
A. THE TRAY SPLICE JOINT NEAREST THE FIELD CUT SHALL BE SUPPORTED WITHIN 2'-0" OF THE JOINT.
B. THE MAXIMUM SUPPORT SPACING BETWEEN THE SUPPORT NEAREST THE SPLICE JOINT AND THE SUPPORT ON THE OPPOSITE SIDE OF THE SPLICE JOINT DOES NOT EXCEED 8'-0".
2. THE CONTRACTOR MAY ADDITIONAL TRAY RUNS BY FIELD WELDING IN ORDER TO MAINTAIN 9" MAXIMUM RUNG SPACING. THE WORK SHALL BE DONE BY A PROCEDURE WHICH HAS BEEN APPROVED BY THE PROJECT ORGANIZATION.
WHEN THE INSTALLATION REQUIRES FIELD CUTTING OF STRAIGHT LENGTHS OF SAFETY RELATED SOLID BOTTOM INSTRUMENT TRAY IN ORDER TO PROPERLY FIT UP WITH TRAY FITTINGS, THE MAXIMUM CLEAR SPACING BETWEEN THE OVERSIZED "END RINGS" OF THE FITTING AND THE FIRST REGULAR RING (8-44 CHANNEL RUNS) ON THE STRAIGHT SECTION SHALL BE 12-1/2".
THE ABOVE RUNG SPACING CRITERIA SHALL NOT APPLY TO VERTICALLY OR HORIZONTALLY ADJUSTABLE SPLICE PLATE LOCATIONS. STRAIGHT LENGTHS OF TRAY ATTACHING TO THESE FITTINGS MAY BE FIELD TRIMMED AS LONG AS THE CLEAR SPACING TO THE FIRST RING ON THE STRAIGHT SECTION DOES NOT EXCEED 4-1/2" FOR LADDER TRAY AND 12-1/2" TO THE FIRST 8-44 CHANNEL RING FOR SOLID BOTTOM TRAY.
FOR NON-SAFETY RELATED TRAY INSTALLATION, THE FOLLOWING SHALL APPLY:
1. LADDER TYPE TRAY - MAXIMUM RUNG SPACING AT FIELD CUTS SHALL BE 12".
2. SOLID BOTTOM TRAY - THE TRAY MAY BE FIELD TRIMMED AS REQUIRED TO PROVIDE PROPER FIT UP.
26. CONTROL TRAYS (OUTDOORS) TO HAVE SOLID, REMOVABLE, PEAKED, FLUSH COVERS (SEE DETAIL E) WHERE INDICATED (SEE LEGEND FOR SYMBOL).
27. FOR NON-SAFETY/NON-SEISMIC TRAY ONLY, THE CONTRACTOR MAY MODIFY FITTINGS FOR LADDER AND SOLID BOTTOM TYPE TRAY AS REQUIRED BY FIELD CUTTING AND REMELDING IN ORDER TO REDUCE STANDARD FITTING WIDTHS AND ALLOW SUBSTITUTION FOR SMALLER WIDTH FITTINGS WHICH ARE NOT READILY AVAILABLE TO SUPPORT FIELD INSTALLATIONS. AFTER CUTTING, ALL FITTINGS SHALL BE REMELDED USING THE TYPICAL WELDS AS PROVIDED ON VENDOR SUPPLIED TRAY, UNLESS APPROVED OTHERWISE BY THE ENGINEER. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH APPROVED WELDING PROCEDURES. IN ADDITION TO THE ABOVE, 90° ELBOW FITTINGS (OR ANY OTHER DEGREE FITTINGS AS APPROPRIATE) MAY BE CUT AS REQUIRED TO OBTAIN ELBOW FITTINGS OF A LESSER DEGREE OF BEND.

TERA APERTURE CARD
NUCLEAR SAFETY RELATED

Table with columns for CONSTRUCTION, LIMITED CONSTRUCTION, PRELIMINARY NOT FOR CONSTRUCTION BIDDING PURPOSES, DATE, RELEASED FOR, ENGR., THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, PERRY NUCLEAR POWER PLANT, UNIT 2, ELECTRICAL, CABLE TRAY LAYOUT, LEGEND, NOTES, REFERENCES, AND STANDARD DETAILS, GILBERT ASSOCIATES, INC., ENGINEERS AND CONSULTANTS, MONTHLY APPROVALS, DRAFTING, CHECKED, ARCHITECTURAL, CIVIL, STRUCTURAL, ELECTRICAL, MECHANICAL, PIPING, PLUMBING, and a grid for REVISIONS.



R.P.S

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