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 FITZPATRICK,E. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele  
 RECIP.NAME RECIPIENT AFFILIATION  
 MURLEY,T.E. Document Control Branch (Document Control Desk)

SUBJECT: Forwards response to GL 92-08, "Thermo-Lag 330-1 Fire Barriers." Facilities do not utilize subj barriers to protect cables & conduits necessary for safe shutdown from fire damage.Fire watches posted per NRC Bulletin 92-001.

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Donald C. Cook Nuclear Plant Units 1 and 2  
Docket Nos. 50-315 and 50-316  
License Nos. DPR-58 and DPR-74  
RESPONSE TO NRC GENERIC LETTER 92-08,  
"THERMO-LAG 330-1 FIRE BARRIERS"

AEP:NRC:0692CK

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D. C. 20555

Attn: T. E. Murley

April 16, 1993

Dear Dr. Murley:

This letter provides our response to NRC Generic Letter 92-08. The specific information requested by the generic letter is provided in the attachments to this letter. As the generic letter allows, our response refers to our previous responses to Bulletin 92-01 and Supplement 1 to Bulletin 92-01.

In summary, Cook Nuclear Plant does utilize Thermo-Lag 330 to protect cables and conduits that are necessary for safe shutdown from fire damage. As a result of Bulletin 92-01, fire watches were posted in the areas of Cook Nuclear Plant where Thermo-Lag 330 material was utilized as a 1- or 3-hour barrier to protect safe shutdown equipment, including all sizes of conduits, walls, ceilings, and equipment enclosures. With respect to long-term corrective actions, we will consider application of the results of NUMARC's efforts when completed.

Our response to NRC Generic Letter 92-08 was requested to be made under oath or affirmation according to the provisions of Section 182a of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f). As such, an oath is included with this letter.

Sincerely,

E. E. Fitzpatrick  
Vice President

dgr

Attachments

cc: A. A. Blind- Bridgman  
J. R. Padgett  
G. Charnoff  
NFEM Section Chief  
A. B. Davis - Region III  
NRC Resident Inspector - Bridgman

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A029



STATE OF OHIO)  
COUNTY OF FRANKLIN)

E. E. Fitzpatrick, being duly sworn, deposes and says that he is the Vice President of licensee Indiana Michigan Power Company, that he has read the forgoing response to NRC GENERIC LETTER 92-08 and knows the contents thereof, and that said contents are true to the best of his knowledge and belief.

E E Fitzpatrick

Subscribed and sworn to me before this 16th

day of April, 19 93.

Rita D. Hill  
NOTARY PUBLIC

RITA D. HILL  
NOTARY PUBLIC, STATE OF OHIO  
MY COMMISSION EXPIRES 6-28-94



ATTACHMENT 1 TO AEP:NRC:0692CK

REPLY TO NRC GENERIC LETTER 92-08

The numbered responses provided below correspond to the associated numbered reporting requirement in the generic letter.

1. The previous responses, AEP:NRC:1176 dated July 24, 1992 and AEP:NRC:1177 dated October 5, 1992, to NRC Bulletin 92-01 and Supplement 1 identified the uses of Thermo-Lag 330-1 at Cook Nuclear Plant. These responses identified where this material was installed in the plant and that these installations were a licensing commitment intended to implement the requirements of 10 CFR 50 Appendix R.
- 2.(a) Selection of Thermo-Lag fire barriers was based upon acceptance criteria provided during the 1984 workshops by the NRC at the time of initial installation and upon qualification test reports and other literature received from Thermal Science Incorporated (TSI). Subsequent to the initial selection of the Thermo-Lag fire barriers, questions have recently arisen relative to the performance of the material and the conduct of previous tests that were used in the selection process. The NRC has now specifically declared a large number of the previous tests, and their corresponding installations, to be indeterminate. This has resulted in the need to retest, re-evaluate and potentially upgrade the barriers. The NUMARC Thermo-Lag test program is intended to provide generic testing and information necessary to identify corrective actions. The results of this program will be used in the determination of specific corrective actions to be taken for Cook Nuclear Plant Thermo-Lag installations.
- 2.(b) In general, the fire barrier configurations installed in the Cook Nuclear Plant represent the materials, workmanship, methods of assembly, dimensions, and configurations described in TSI technical notes addressing installation procedures and in test reports provided by TSI. The installed configurations for Cook Nuclear Plant were performed in accordance with guidance made available by the NRC at a series of Regional NRC workshops held in 1984. This guidance was ultimately included in NRC Generic Letter 86-10. GL 86-10 states that where exact replication of a tested configuration cannot be achieved, the field installation should meet all of the following criteria:
  1. The continuity of the fire barrier material is maintained.
  2. The thickness of the barrier is maintained.
  3. The nature of the support assembly is unchanged from the tested configuration.
  4. The application or "end use" of the fire barrier is unchanged from the tested configuration. For example, the use of a cable tray barrier to protect cable tray which differs in configuration from those that were tested would be acceptable.

However, the use of structural steel fire proofing to protect a cable tray assembly may not be acceptable.

5. The configuration has been reviewed by a qualified fire protection engineer and found to provide an equivalent level of protection.

Deviations from TSI installation procedures were evaluated and documented by design engineers and/or fire protection engineers as appropriate.

- 2.(c) The additional reduction of ampacity on cables was considered as part of the design change that installed the Thermo-Lag 330-1 material on raceways. A computer model was developed based on AIEE transaction paper 57-660 by Neher, McGrath, and Buller to calculate the temperature rise in the conductor, heat generation per foot of raceway, and ampacity. The model considers that all cables in the raceway were energized with the maximum steady state current.

A test program was developed to validate the computer model. A series of test runs simulating representative as-built tray and conduit configurations, were conducted at the AEPSC Canton Test Lab. The results of the tests validated the analytical computer model. The testing was conducted under rigid laboratory controls, with test procedures, and with engineering supervision and review, however, it was not under the auspices of a 10 CFR 50 Appendix B quality assurance program.

The calculations using this computer model confirmed that the original cable raceway design included sufficient margin to accommodate the temperature rise resulting from wrapping raceways with Thermo-Lag.

3. As discussed in 2(a) above, the identification and implementation of specific corrective actions is dependent upon the results of the NUMARC Thermo-Lag test program. Cook Nuclear Plant is a participant in the NUMARC actions related to those corrective actions, if any, needed to resolve the issues identified by your request for information in item 2 above. The specific test schedule for the NUMARC program will be provided to the NRC directly by NUMARC. Compensatory measures have been taken in accordance with plant technical specifications. These measures were described in previous responses to Bulletin 92-01 and Supplement 1.
4. Attachment 2 is a listing of the items which may be subject to corrective action. We believe that these items are those addressed by your request from item 2 above. We will provide you with a schedule for necessary corrective actions, if any, 120 days following completion of the NUMARC program.



**ATTACHMENT 2 TO AEP:NRC:0692CK**  
**INSTALLED THERMO-LAG FIRE BARRIERS**

APPENDIX R CONDUIT/CABLE TRAY LIST  
(TSI WRAPPED)

UNIT RFC	CONDUIT	SIZE	DRAWING	FIREZ	LENGTH	REMARKS
1 DC-1-2747	HOT SHUTDOWN UI		1-2-3486	144		3 HOUR RATING WALL & ROOF
DC-2-2692	FLOOR HATCHES 1					PER ARCHITECT TSI NOT REQD
DC-2-2693	1A1-P2	12"	1-1434R-3(J8)	44N	22'-0"	GREEN TRAY
	1A1-C5	12"	1-1434R-3(J8)	44N	22'-0"	GREEN TRAY
	1A1-C4	12"	1-1434R-3(J9)	44N	22'-0"	RED TRAY
	1A1-P1	12"	1-1434R-3(J9)	44N	22'-0"	RED TRAY
	2A2-C90	12"	1-1419R-3(K5)	4H, 6H	22'-0"	TRAY
	8504R-1	4"	1-1420-111(B5)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8756GH-1	4"	1-1420-111(B5)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
DC-2-2696	8768R-2	1-1/2"	12-1364R-1(H2)	17C	10'-0"	8768R-2 RUNS IN THIS CDT
	9747R-1	1"	12-1364R-1(D2)	17C	30'-0"	
	9748R-1	1"	12-1364R-1(D2)	17C	30'-0"	
	9874R-1	1-1/2"	12-1364R-1(C2)	17C	12'-0"	9875R-1 RUNS IN THIS CDT
	8004R-1	4"	12-1364R-5(J2, A8)	29G	30'-0"	
	98670-1	1-1/2"	12-1364R-5(H2)	29G	45'-0"	RETAGGED, RFC-01-2669, WAS 92320
	80040-2	4"	12-1364R-5(H2, D8)	29G	30'-0"	
	8004R-2	4"	12-1364R-5(H2, E8)	29G	15'-0"	
	80040-1	4"	12-1364R-5(J2, B8)	29G	15'-0"	
	86260-1	4"	12-1364R-5(C8)	29G	0'-6"	
	86270-1	4"	12-1364R-5(C8)	29G	0'-6"	
	86280-1	4"	12-1364R-5(C8)	29G	0'-6"	
	86290-1	4"	12-1364R-5(C8)	29G	0'-6"	
	8610R-1	4"	12-1364R-5(C8)	29G	0'-6"	
	8611R-1	4"	12-1364R-5(C8)	29G	0'-6"	
	8620R-1	4"	12-1364R-5(C8)	29G	0'-6"	
	8624R-1	4"	12-1364R-5(C8)	29G	0'-6"	
	9947R-1	4"	12-1364R-5(C8)	29G	0'-6"	RETAGGED, RFC-01-2669, WAS 8624R
	8610R-2	4"	12-1364R-5(E8)	29G	0'-6"	
	8619R-2	4"	12-1364R-5(E8)	29G	0'-6"	
	8620R-2	4"	12-1364R-5(E8)	29G	0'-6"	
	8994R-2	4"	12-1364R-5(E8)	29G	0'-6"	
	8979R-2	4"	12-1364R-5(E8)	29G	0'-6"	RETAGGED, RFC-02-2686, WAS 8994R
	86440-2	4"	12-1364R-5(E8)	29G	0'-6"	RETAGGED, RFC-02-2686, WAS 9987R
	86270-2	4"	12-1364R-5(E8)	29G	0'-6"	
	86280-2	4"	12-1364R-5(E8)	29G	0'-6"	
	86290-2	4"	12-1364R-5(E8)	29G	0'-6"	
	89770-2	4"	12-1364R-5(E8)	29G	0'-6"	
	PULL BOX PB-1	30"x30"x12"	12-1364R-5(C8)	29G	30"x30"x12"	
	PULL BOX PB-2	30"x30"x12"	12-1364R-5(C8)	29G	30"x30"x12"	
	PULL BOX PB-3	30"x30"x12"	12-1364R-5(D8)	29G	30"x30"x12"	
	PULL BOX PB-4	30"x30"x12"	12-1364R-5(D8)	29G	30"x30"x12"	
	8003R-1	4"	1-1401R-3(K7)	1D	6'-0"	
	8003R-1	4"	1-1402R-3(G3)	1	SLAB	
	8003R-1	4"	1-1404R-3(G3)	1	11'-3"	
	81540-2	1"	1-1407R-1(H9)	6H	2'-0"	
	8505R-1	1"	1-1407R-1(H9)	6H	2'-0"	

APPENDIX R CONDUIT/CABLE TRAY LIST  
(TSI WRAPPED)

UNIT RFC	CONDUIT	SIZE	DRAWING	FIREZ	LENGTH	REMARKS
1 DC-2-2696	PULL BOX B1	12"x12"x6"	1-1407R-1(H9)	6H	12"x12"x6"	
	1A2-P8	12"	1-1417R-3(H8)	5, 6H	36'-0"	RED TRAY
	1A2-P8	12"	1-1419R-3(H1)	6H	1'-0"	RED TRAY
	1A2-C46	12"	1-1417R-3(H6)	5	2'-0"	RED TRAY
	1A2-C50	12"	1-1417R-3(H7)	5, 6H	30'-0"	RED TRAY
	1A2-C50	12"	1-1419R-3(H1)	6H	1'-0"	RED TRAY
	8026R-1	1/2"	1-1417R-3(H6)	5	3'-0"	RED TRAY
	1A2-C56	12"	1-1419R-3(H2)	6H, 6H	110'-0"	RED TRAY
	1A2-P9	12"	1-1419R-3(H1)	6H	16'-0"	RED TRAY
	1A2-C54	12"	1-1419R-3(H1)	6H	12'-0"	RED TRAY
	1A2-C54	12"	1-1420R-1(C5)	79	10'-0"	GREEN TRAY
	1A2-C20	12"	1-1429R-1(L4)	44N	GREEN TRAY	
	1A2-C20	12"	1-1434R-3(L4)	44N	15'-0"	GREEN TRAY
	PULL BOX B7	12"x12"x6"	12-1364R-1(C2)	17C	12"x12"x6"	
	PULL BOX B7	12"x12"x6"	12-1364R-1(H2)	17C	12"x12"x6"	
	1A2-P8-H4	4'-9"x2'-0"	1-1417R-3(H6)	5	4'-9"x2'-0"	RED PAN
	1A2-C56-H21	4'-0"x2'-3"	1-1419R-3(H1)	6H	4'-0"x2'-3"	RED PAN
	1A2-C56-H1	3'-6"x3'-6"	1-1419R-3(B5)	6H	3'-6"x3'-6"	RED PAN
	8000R-1	4"	1-1420-111(B9)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8001R-1 (SPARE)	4"	1-1420-111(B9)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8002R-1	4"	1-1420-111(B9)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8003R-1	4"	1-1420-111(B9)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8004R-1	4"	1-1420-111(B9)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8005R-1 (SPARE)	4"	1-1420-111(B9)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8007R-1	4"	1-1420-111(B9)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8008R-1	4"	1-1420-111(B8)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8079R-1 (SPARE)	4"	1-1420-111(B8)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8503R-1	4"	1-1420-111(B8)	15	16'-0"	CDTS ENCASED IN CONCRETE PILAS

APPENDIX R CONDUIT/CABLE TRAY LIST  
(TSI WRAPPED)

UNIT RFC	CONDUIT	SIZE	DRAWING	FIREZ	LENGTH	REMARKS
2 DC-1-2676	FLOOR HATCHES 2					PER ARCHITECT TSI NOT REQD
DC-12-2912	80180R-2	1-1/2"	2-1419AR-2(E9,D6)	6S	30'-0"	
DC-2-2663 ADD#1	19190-2	1"	2-1414R-0(H2,H3)	26	3'-0"	
	19190-2	1"	2-1422R-0(H2,L3)	26, 27	16'-0"	
	19190-2	1"	2-1415R-0(K1,A9)	27, 5	14'-0"	
	19190-2	1"	2-1417R-2(A1,E1)	5	45'-0"	
	20095-2	1"	2-1414R-0(H2,H3)	26	3'-0"	
	20095-2	1"	2-1422R-0(H2)	26	1'-0"	
	20145-2	1"	2-1414R-0(H2,H3)	26	3'-0"	
	20145-2	1"	2-1422R-0(H2,L3)	26, 27	16'-0"	
	20145-2	1"	2-1415R-0(K1,F5)	27	55'-0"	
	1936R-1	1-1/2"	2-1417R-2(F7,H7)	22	90'-0"	
	1936R-1	1-1/2"	2-1427R-0(A7,E7)	22	40'-0"	
	20094-2	1"	2-1427R-0(E7,K5)	23	45'-0"	
DC-2-2692	CCM PUMPS U1&2		1-2-3156	44S		3 HOUR RATING WALL
DC-2-2693	2A2-C36	12" WIDE	2-1419R-5(C6)	6H, 6S	30'-0"	GREEN TRAY
	2A2-P3	12" WIDE	2-1419R-5(C6)	6H, 6S	32'-0"	GREEN TRAY
	2A2-C37	12" WIDE	2-1419R-5(C6)	6H, 6S	30'-0"	GREEN TRAY
	1A1-P4	12" WIDE	2-1434R-4(A6,D6)	44H, 44S	30'-0"	GREEN TRAY
	1A1-C9	12" WIDE	2-1434R-4(A6,D6)	44H, 44S	30'-0"	GREEN TRAY
	1A1-C4	12" WIDE	2-1434R-4(A9,D9)	44H, 44S	20'-0"	RED TRAY
	1A1-P1	12" WIDE	2-1434R-4(A9,D9)	44H, 44S	20'-0"	RED TRAY
DC-2-2696	8003R-2	4"	2-1401R-1(G7)	1H	5'-3"	
	8003R-2	4"	2-1402R-1(K3)	1	SLAB	
	8003R-2	4"	2-1404R-1(K3)	1	11'-3"	
	81550-2	1"	2-1407R-1(B7,B8)	5	4'-0"	
	PULL BOX	12"x12"x6"	2-1407R-1(B7)	5	12"x12"x6"	FOR CDT. 81550-2
	8506R-1	1"	2-1407R-1(B8,B9)	5	4'-0"	
	PULL BOX	12"x12"x6"	2-1407R-1(B8)	5	12"x12"x6"	FOR CDT. 8506R-1
	9747R-2	1"	2-1419AR-2(A9,B4)	6H	50'-0"	
	9747R-2	1"	12-1364R-1(F1,H2)	17C	40'-0"	
	9748R-2	1"	2-1419AR-2(A9,B4)	6H	50'-0"	
	9748R-2	1"	12-1364R-1(F1,H2)	17C	40'-0"	
	8766R-2	1-1/2"	2-1419AR-2(C4,E9)	6H, 6S	45'-0"	
	9767R-2 (SPARE)	1-1/2"	2-1419AR-2(C4,D6)	6H, 6S	35'-0"	
	8744R-2	3"	2-1419AR-2(E9,H5)	6S	120'-0"	
	8744R-2	3"	2-1426R-1(A5,B1)	6S	45'-0"	
	8152R-2	1-1/2"	2-1434R-4(B4,G7)	44H, 44S	70'-0"	
	PULL BOX	12"x12"x6"	2-1434R-4(G7)	44S	12"x12"x6"	
	TERM BOX B4	18"x18"x6"	2-1434R-4(G7)	44S	18"x18"x6"	
	8344G-2	1"	2-1438R-1(E7)	44S	4'-0"	
	8344G-2	1"	2-1455R-2(K1,L3)	44S	35'-0"	
	8333G-2	1"	2-1438R-1(E7)	44S	4'-0"	
	8333G-2	1"	2-1455R-2(K1,L3)	44S	35'-0"	

APPENDIX R CONDUIT/CABLE TRAY LIST  
(TSI WRAPPED)

UNIT RFC	CONDUIT	SIZE	DRAWING	FIREZ	LENGTH	REMARKS
2 DC-2-2696	2E-C9	12" WIDE	2-1426R-1(L9)	8S	3'-0"	GREEN PILASTER
	2E-C10	12" WIDE	2-1426R-1(L9)	8S	3'-0"	GREEN PILASTER
	125C-2	4"x1"	2-1419AR-2(D5)	6S	4'-0"	
	8544G-2	4"	2-1426-09(H7)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8000G-2	4"	2-1426-09(H3)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8001G-2	4"	2-1426-09(H3)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8002G-2	4"	2-1426-09(H3)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8003G-2	4"	2-1426-09(H3)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8004G-2	4"	2-1426-09(H3)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8007G-2	4"	2-1426-09(H3)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8048G-2	4"	2-1426-09(H4)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	8545G-2	4"	2-1426-09(H4)	19	16'-0"	CDTS ENCASED IN CONCRETE PILAS
	2A2-C66	12" WIDE	2-1417R-2(C9)	6H	7'-0"	RED TRAY
	2A2-C66	12" WIDE	2-1419R-2(C1,C3)	6H	18'-0"	RED TRAY
	2A2-C62-H1	5'-6"x2'-9"	2-1419R-5(L5)	6S	3'-6"x2'-9"	RED PAN
	2A2-C75	12" WIDE	2-1419R-5(C3,C4)	6H	10'-0"	RED TRAY-ENDS IN PAN
	2A2-C58	12" WIDE	2-1419R-5(C4)	6H	4'-0"	RED TRAY-ENDS IN PAN
	2A2-C58	12" WIDE	2-1429R-1(B4)	44H	SLAB	RED TRAY-ENDS IN PAN
	2A2-C58	12" WIDE	2-1434R-4(B4)	44H	12'-0"	RED TRAY-ENDS IN PAN
	2A2-C59	12" WIDE	2-1419R-5(B3,B4)	6H	11'-0"	RED TRAY-ENDS IN PAN
	2A2-C62-H16	5'-3"x2'-0"	2-1419R-5(B4,C4)	6H	5'-3"x2'-0"	FOR R T 2A2-C59,-C58,-C75,-C62
	2A2-C59-H3	2'-9"x2'-6"	2-1419R-5(B3)	6H	2'-9"x2'-6"	FOR R T 2A2-C59,-C60,-C60
	2A2-C62	12" WIDE	2-1419R-5(C4,L5)	6H, 6S	80'-0"	RED TRAY-ENDS IN PAN
	1A-C55	12" WIDE	2-1419R-5(A1)	6H	2'-0"	RED PILASTER
	1A2-P9	12" WIDE	2-1419R-5(A1)	6H	3'-0"	RED TRAY
	1A2-P9	12" WIDE	2-1419R-5(N1)	6H	12'-0"	RED TRAY
	1A2-P9	12" WIDE	2-1506R-2(C6)	6H		RED TRAY
	1A2-C54	12" WIDE	2-1419R-5(A1)	6H	3'-0"	RED TRAY
	1A2-C54	12" WIDE	2-1419R-5(N1)	6H	11'-0"	RED TRAY
	2A2-C60	12" WIDE	2-1506R-2(C6)	6H		RED TRAY
	2A2-C60	12" WIDE	2-1419R-5(B3)	6H	2'-0"	RED TRAY
	2A2-C60	12" WIDE	2-1510R-2(K6)	6H		RED TRAY
	2A2-C60	12" WIDE	2-1419R-5(B3)	6H	2'-0"	RED TRAY
	2A2-C60	12" WIDE	2-1510R-2(K6)	6H		RED TRAY
	2A-C15	12" WIDE	2-1419R-5(B3)	6H		RED PILASTER
	2A-C15	12" WIDE	2-1510R-2(K6)	6H	3'-0"	RED PILASTER
	2A2-C14	12" WIDE	2-1419R-5(B3)	6H		RED PILASTER
	2A2-C14	12" WIDE	2-1510R-2(K6)	6H	3'-0"	RED PILASTER
	2A2-C62-H16	5'-6"x2'-0"	2-1419AR-2(B4)	6H	5'-6"x2'-0"	RED? PAN
	2A2-C99	12" WIDE	2-1426R-1(L9)	8S	14'-0"	GREEN TRAY
	2A2-C55	12" WIDE	2-1426R-1(L9)	8S	12'-0"	GREEN TRAY
	2A-C6	12" WIDE	2-1429R-1(A3)	44H		GREEN PILASTER
	2A-C6	12" WIDE	2-1510R-2(J5)	44H	6'-0"	GREEN PILASTER
	2A-C3	12" WIDE	2-1434R-4(A3)	44H		GREEN PILASTER
	2A-C3	12" WIDE	2-1440R-1(A3)	44H		GREEN PILASTER
	2A-C3	12" WIDE	2-1510R-2(J5)	44H		GREEN PILASTER
	2A1-C24	12" WIDE	2-1440R-1(A3)	44H	9'-0"	GREEN TRAY
	2A1-C24	12" WIDE	2-1510R-2(J4)	44H	7'-0"	GREEN TRAY

APPENDIX R CONDUIT/CABLE TRAY LIST  
(TSI WRAPPED)

UNIT RFC -----	CONDUIT -----	SIZE -----	DRAWING -----	FIREZ -----	LENGTH -----	REMARKS -----
2 DC-2-2748	HOT SHUTDOWN U2		1-2-3486	145		3 HOUR RATING WALL & ROOF
MM-02-132	12467-2	1"	2-1418R-0(L9)	24	15'-0"	