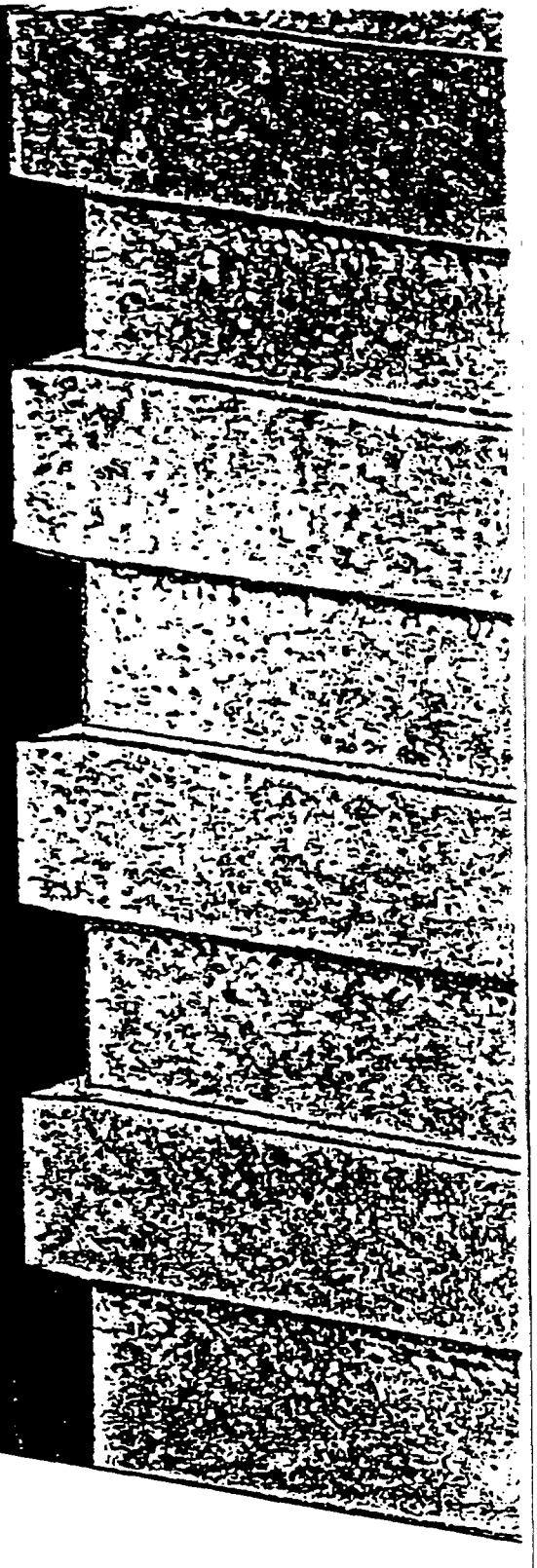
DETRICK'S

MULTIPLE SUPPORT ARCH



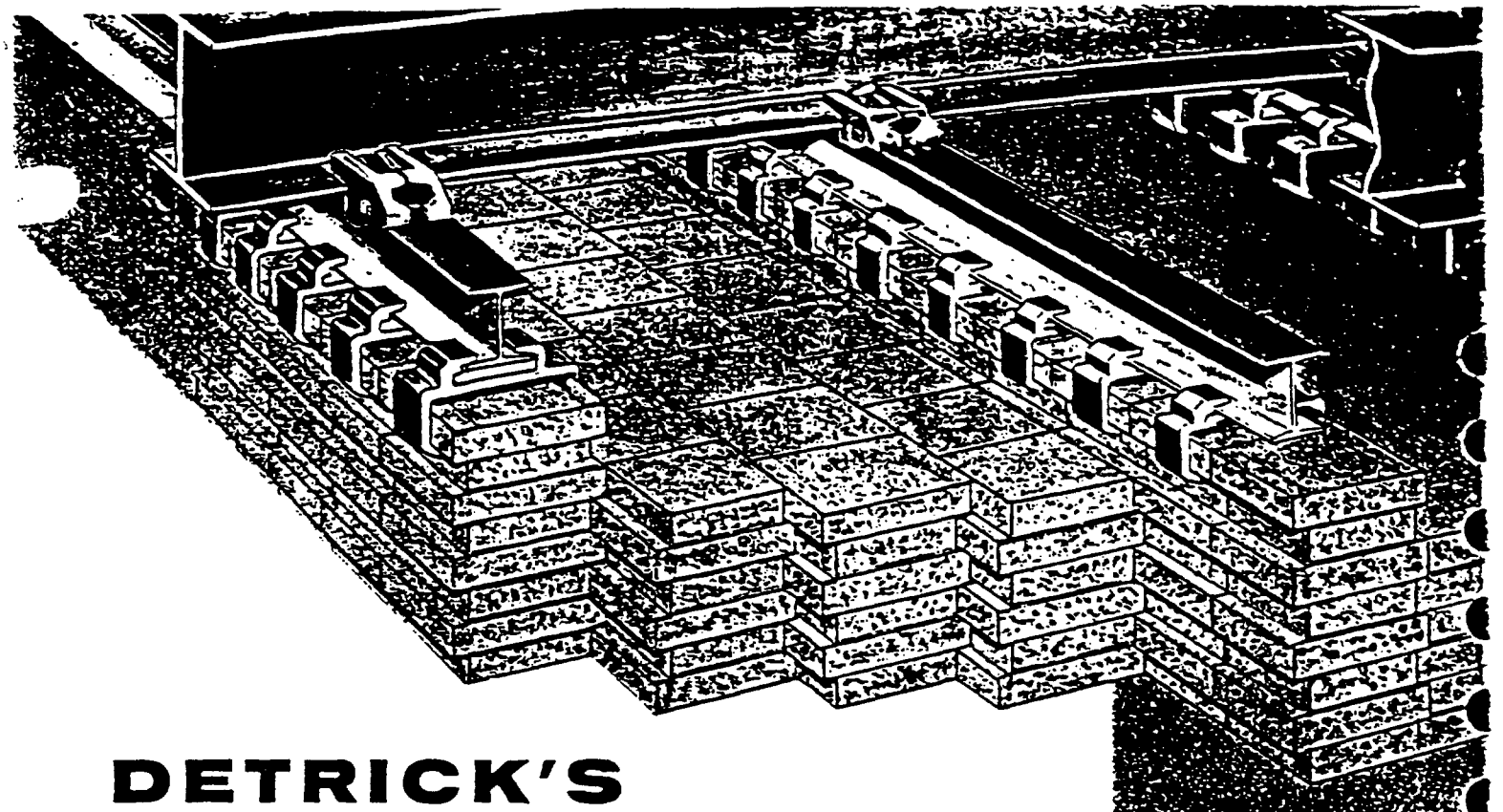
A New Principle of

ARCH DESIGN

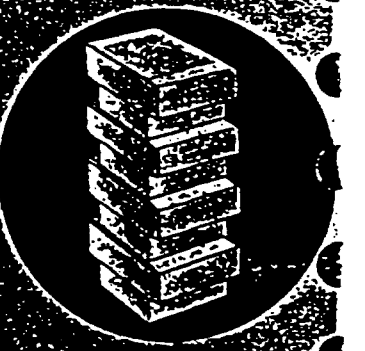
DETRICK Heat ENCLOSURES

BULLETIN D-53

PLAINTIFF'S EXHIBIT
MHD-189



DETRICK'S
NEW PRINCIPLE
of ARCH DESIGN





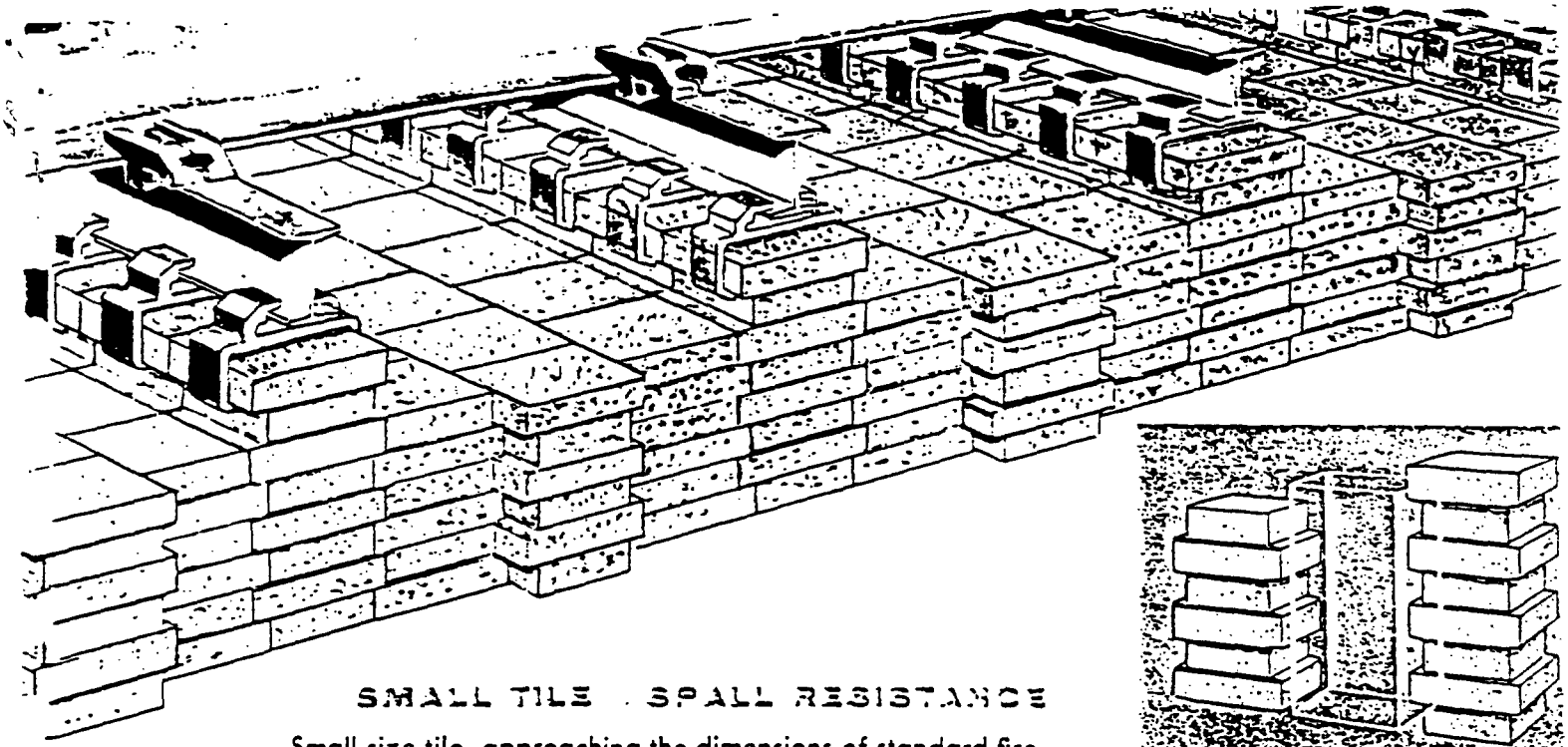


NEW IN CONCEPT ; NEW IN PERFORMANCE

Greater structural strength . . . higher thermal efficiency . . . reduced maintenance through longer roof life. These are the performance proved advantages brought to refractory arch design by the latest achievements of Detrick engineering . . . the Multiple Support principle, featuring smaller filler tile with large rugged treads and individual suspension of each hanger tile from its own exposed and accessible support casting.

TESTED AND PROVED IN SERVICE

Severe and extended service tests have established the Detrick Multiple Support principle as a major advance in refractory engineering. It may be applied to any type of heat enclosure regardless of span or contour with the assurance of top performance and economy.



SMALL TILE . SPALL RESISTANCE

Small size tile, approaching the dimensions of standard firebrick, permits closer tolerance in manufacture . . . assures more accurate sizing, more uniform burning, with greater resistance to spalling.

EXPOSED AND ACCESSIBLE SUPPORT CASTINGS

Each hanger tile has an individual support casting completely exposed above the arch proper . . . providing greater strength and effective heat drainage. Replacement is simple . . . replacement costs are low, because of individual small size castings.

LARGE RUGGED TREADS

Large rugged treads provide positive support of adjacent tile . . . no danger of disengaging . . . holds possible spalled portion of individual tile in place. Provides positive alignment of tile for easy erection.

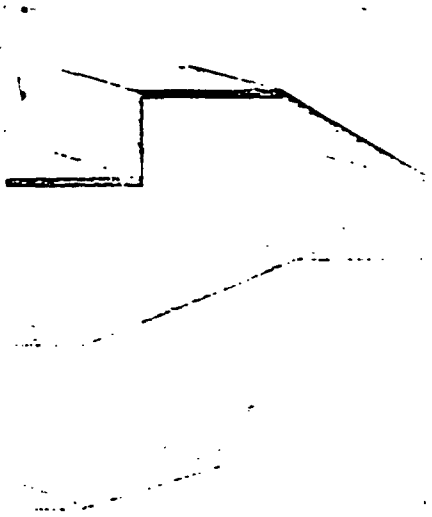
SIMPLE SUSPENSION) FAST, EASY INSTALLATION

Smaller tile . . . smaller support casting . . . simple suspension, makes installation a fast and easy job. No forms required for erection of the tile and castings.

MONOLITHIC REFRACTORY COMBINATION

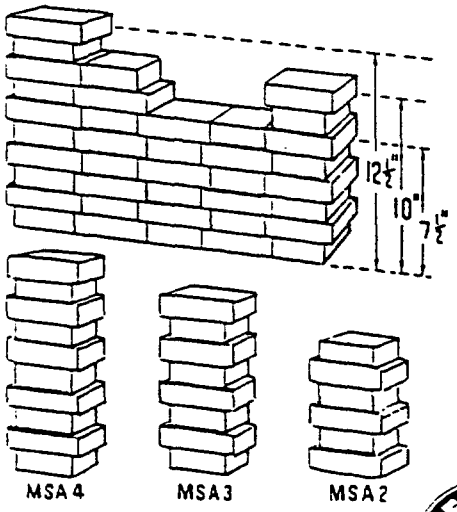
The large rugged treads on the hanger tile effectively support plastic firebrick or castable refractory . . . making it possible to use this flexible material for speedy repairs. Monolithic refractory can also be used in combination with Multiple Support construction as a part of the overall arch design.

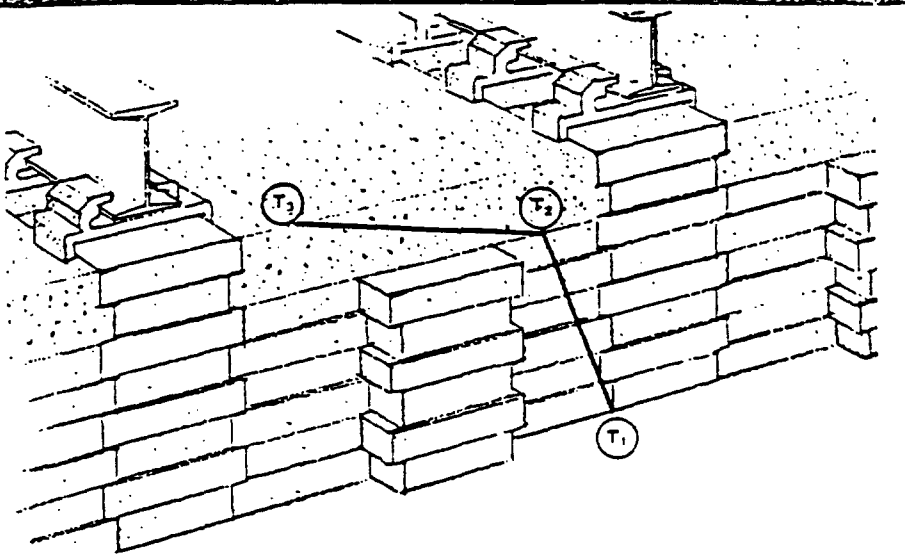




FLEXIBLE DESIGN

The Multiple Support Arch has all the flexibility of suspended arch construction . . . can be applied to any span or any type of contour. Hanger and filler tile are furnished in various depths . . . providing a ... of burning depths for the proper. Hanger tile can also be used for support of monolithic sections . . . which allows for greater flexibility around complicated contours or openings required in the arch structure.





INSULATION APPLICATION

Multiple Support Arch construction can be furnished in a variety of thicknesses and insulation application. The temperature tables below are based on a 2½" pour of Decrete 40 insulation in combination with 7½" and 10" tile. The Decrete 40 pour provides maximum tightness, efficient insulation and fast application.

If service conditions require, the Multiple Support Arch may be insulated with a combination of block and castable up to the thermal limits of the refractory.

7½" TILE — 2½" INSULATION				10" TILE — 2½" INSULATION			
T_1	T_2	T_3	HEAT LOSS	T_1	T_2	T_3	HEAT LOSS
1600	1215	192	454	1600	1129	182	411
1800	1368	209	533	1800	1271	198	483
2000	1521	227	617	2000	1414	215	559
2200	1675	245	706	2200	1558	231	638
2400	1830	264	798	2400	1702	248	722
2600	1985	282	895	2600	1848	266	809

- T_1 T_2 T_3 = DEGREES FAHRENHEIT
- HEAT LOSS = BTU PER SQ. FT. PER HOUR
- EMISSIVITY — BASED ON 80° AIR AT 5 M.P.H.
- INSULATION = DECRETE 40 — CASTABLE

DETRICK Heat ENCLOSURES

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