CSI Div. 3 • A.I.A. File No. 37-B-1

wall, formboard and roof deck systems

FLINTKOTE®

1970 catalog

FLINTROCK®

CSI Div. 3 • A.I.A. File No. 37-B-1

features

THE FLINTKOTE COMPANY
INSULROCK PRODUCTS
RICHMOND VIRGINIA
Underwriters' Laboratories, Inc.
LISTED
STRUCTURAL CEMENT FIBER UNIT
NOT OVER 1000 BD. FT. ISSUE NO.
FIRE HAZARD CLASSIFICATION
BASED ON 100 FOR UNTREATED RED OAK
FLAME SPREAD 10
FUEL CONTRIBUTED 15
SMOKE DEVELOPED 0
WIND UPLIFT CLASS 90
ROOF DECK CONSTRUCTION NO. NM 506

NON-COMBUSTIBLE:
INSULROCK panels meet requirements of the National Board of Fire Underwriters for non-combustibility and are listed by Underwriters' Laboratories, Inc., under label Service No. 40 U8.20. INSULROCK panels are also rated incombustible under Federal Specifications SS-A-118-b, Class "A".

DESCRIPTION:
INSULROCK roof decking and formboard are manufactured under rigid testing and control procedures from select, chemically treated, long wood fibers that are coated and pressure bonded with a fire-retarding, moisture resistant Portland Cement binder. INSULROCK panels are lightweight, insulating, acoustical, non-combustible and resistant to termites, fungus and rot.

DISTRIBUTION:
Available nationally through franchised distributors. Also available for shipment to Canada and most foreign countries. Write to: General Sales Office, 480 Central Ave., East Rutherford, New Jersey 07073, for the names of distributors in your area.

DESIGN FEATURES:
STRUCTURAL: INSULROCK tile and plank panels are capable of supporting a minimum uniformly distributed load of 200 pounds per square foot over recommended spans. Test procedure ASTM E72-61.

DIMENSIONAL STABILITY:
Expansion, both linear and transverse, does not exceed 0.2% when tested by exposure to a 50% relative humidity followed by exposure to 97% relative humidity both at temperature of 70°F. Complies with Federal Specification LLL-I-535, and ASTM D-1037.

DURABILITY:
INSULROCK panels do not show damage or deterioration from termites or fungi in prolonged laboratory exposure. The Portland Cement coated wood fibers are also highly resistant to rot. Special treatment bonds surface fibers for abrasion resistance.

FIRE RATED:
INSULROCK panels have been tested in accordance with Standard Method of Fire Tests of Building Construction ASTM E-119 and have received a 4-hour rating. 3 inch thick panels assembled into a partition have attained a 2-hour fire resistance rating when run in accordance with ASTM Method of Test E-119.

WIND UPLIFT RESISTANT:
INSULROCK tested by Underwriters' Laboratories, Inc., and rated Class 90 (90 P.S.F.) — Construction No. NM 506.

LIGHTWEIGHT:
INSULROCK panels adapt well to all types of roof framing. The low dead load frequently permits a lighter framing than that required for heavier deck materials.

INSULATING:
INSULROCK panels have a built-in K-Factor of 0.51.

ACOUSTICAL:
INSULROCK panels have an N.R.C. of up to .85 depending upon thickness. This property provides multi-purpose functional roof deck systems that allow economy, rapid erection, and a great latitude in design flexibility.

APPEARANCE:
INSULROCK panel's random textured surface is both attractive and durable.

LIGHT REFLECTANCE:
INSULROCK deck's attractive factory primed white underside has a measured 60-70% light reflectance. Many installations require no further painting beyond some touching up to effect an attractive interior finish. When ceiling finish is to be aesthetically critical or when concrete or other type fill is to be poured over the top of the INSULROCK deck, a field coat of paint may be necessary. INSULROCK deck may be painted with practically any type nonbridging paint. If the INSULROCK deck becomes wet, allow it to dry prior to painting.

roof deck systems

TILE SYSTEMS

For spanning between purlins on bulb tees. These systems use the bulb tee sub-purlin and INSULROCK panels which have a Flo-easy chamfer on the longitudinal sides, and square cut ends for meeting over purlins or tongue and grooved ends with painted bevels for meeting between purlins.

PLANK SYSTEMS

Standard Plank For spanning between purlins. This system uses an INSULROCK panel that is clipped or nailed to the purlin. The application is completely dry. The panels are tongue and grooved with painted bevels on the longitudinal sides with square cut ends.

Long Span Plank For application direct to purlins. This system uses a specially formulated INSULROCK panel. The application is completely dry and allows an additional six inches in spans over Standard Plank Systems. The panels are tongue and grooved with painted bevels on the longitudinal sides and have square cut ends.

DUAL-TEE™ SYSTEM

For spanning between purlins. This system combines a painted DUAL-TEE sub-purlin with INSULROCK panels. The application is completely dry and provides a suitable surface for the attachment of the roofing membrane. The panels are kerfed on the longitudinal sides and have square cut ends.

FORMBOARD SYSTEMS

STRUCTO-FORM™ Formboard for use as a permanent formboard in the application of structural concretes. This system may use INSULROCK tile or plank panels. The STRUCTO-FORM formboard provides a good bonding surface.

INSUL-FORM™ Formboard for use as a permanent formboard in the use of lightweight and gypsum concretes. This system provides a formboard that readily bonds to the concrete as well as being conducive to good deck drying characteristics. The panels are one inch thick with square cut longitudinal sides and ends.

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acoustical wall system

For application on interior wall surfaces. This system uses INSULROCK panels and DUAL-TEE structural members with special galvanized steel clips. Intended primarily for installation in structures where noise control is a vital factor — an absorber of inside sounds, a barrier against outside sounds.

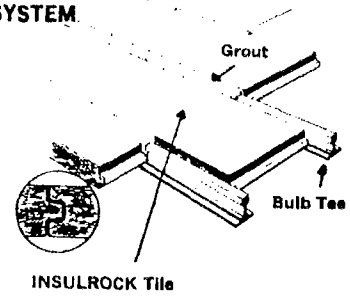
FLINTKOTE **INSULROCK PRODUCTS**
480 Central Avenue, E. Rutherford, N. J. 07073

Member Structural Cement Fiber Products Association

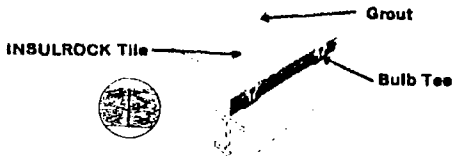
roof deck tile systems

Tile Systems:
Two types of tile systems combining INSULROCK tiles with bulb tee sub-purlins for spanning between purlins.

STANDARD TILE SYSTEM



REGULAR TILE SYSTEM



STANDARD TILE SYSTEM (tongue & groove ends) — This system uses the bulb tee sub-purlin and INSULROCK standard tile. Sides are chamfered for grout application and ends are tongue and groove with painted bevels for exposed end joint installation.

REGULAR TILE SYSTEM (square cut ends) — This system uses the bulb tee sub-purlin and INSULROCK regular tile. Sides are chamfered for grout application and ends are square cut to standard lengths.

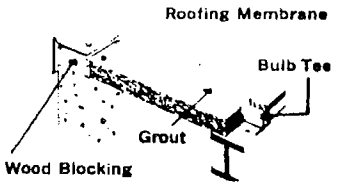
Design Data for INSULROCK Tile System

thickness inches	acoustical absorption	"U" value includes roofing	approximate design weight	minimum ultimate uniformly distributed load	design load safety factor(4)
1½"	.55—.65	0.25	4.8	164	41
2"	.60—.70	0.20	6.0	200	50
2½"	.70—.80	0.17	7.25	200	50
3"	.75—.85	0.15	8.0	200	50

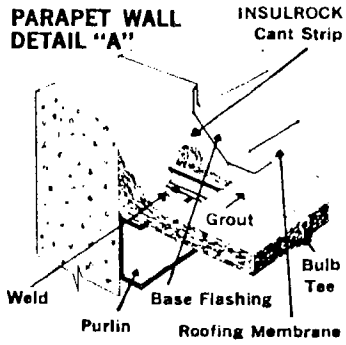
Regular Tile Sizes: width 32" — lengths 48", 60", 66", 72", 78", 80", 84", 90", 96", 102", 108", and 120".

Standard Tile Size: width 32" — length 48" (47½" surface measurement). 1½" INSULROCK not available as Standard Tile (square cut ends only).

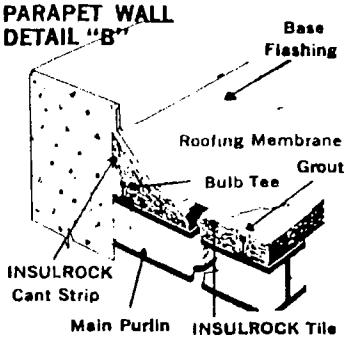
FLUSH EAVE DETAIL



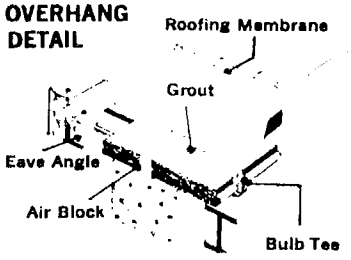
PARAPET WALL DETAIL "A"



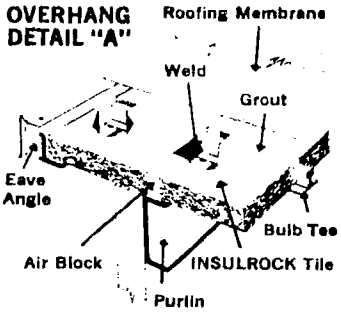
PARAPET WALL DETAIL "B"



OVERHANG DETAIL



OVERHANG DETAIL "A"



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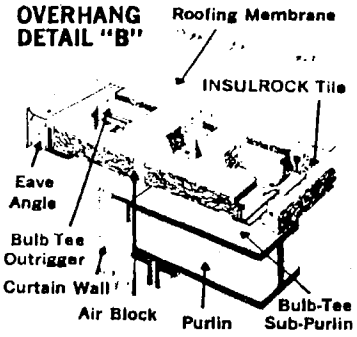
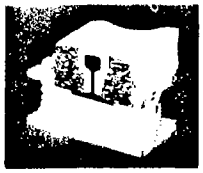




• bulb tee design data

Allowable support spacing for bulb tees continuous over three spans with uniform load as limited by deflection. Steel in sections smaller than V-200 or I-200 has 39,600 psi design stress. Sizes 200 and above have 33,000 psi design stress.

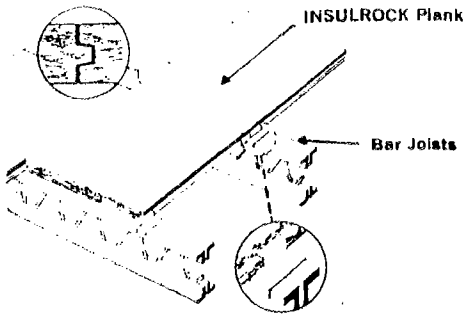
Combined Dead and Live Load in Pounds Per Square Foot
Span Limited by Deflection of 1/240 or 1/180

Bulb Tee Section	Weight lbs. per lin. ft.	Section Modulus (inches)³	Spacing inches	35		40		45		50		55		60	
				1/240	1/180	1/240	1/180	1/240	1/180	1/240	1/180	1/240	1/180	1/240	1/180
V-1120	1.24	0.109	32½	5'- 2"	5'- 8"	5'- 0"	5'- 6"	4'- 9"	5'- 3"	4'- 7"	5'- 1"	4'- 5"	4'-11"	4'- 3"	4'- 9"
I-112	1.40	0.126	32½	5'- 5"	6'- 0"	5'- 2"	5'- 9"	5'- 0"	5'- 6"	4'-10"	5'- 4"	4'- 8"	5'- 1"	4'- 6"	4'-11"
V-158	1.47	0.167	32⅛	6'- 0"	6'- 7"	5'- 9"	6'- 4"	5'- 7"	6'- 1"	5'- 4"	5'-10"	5'- 2"	5'- 8"	5'- 1"	5'- 7"
I-158	1.60	0.172	32⅛	6'- 0"	6'- 8"	5'- 9"	6'- 4"	5'- 7"	6'- 1"	5'- 5"	5'-11"	5'- 3"	5'- 9"	5'- 1"	5'- 7"
I-168 WF(1)	2.00	0.240	32⅛	6'-10"	7'- 7"	6'- 7"	7'- 3"	6'- 4"	7'- 0"	6'- 1"	6'- 9"	5'-11"	6'- 6"	5'- 9"	6'- 4"
V-168 (1)	1.65	0.242	32⅛	7'- 2"	7'-10"	6'-10"	7'- 6"	6'- 7"	7'- 3"	6'- 4"	7'- 0"	6'- 2"	6'- 9"	6'- 0"	6'- 7"
I-168 LW(1)	1.65	0.245	32⅛	7'- 2"	7'-11"	6'-10"	7'- 7"	6'- 7"	7'- 3"	6'- 5"	7'- 0"	6'- 2"	6'-10"	6'- 0"	6'- 7"
I-178 WF(1)	2.50	0.340	32⅛	7'-10"	8'- 8"	7'- 6"	8'- 3"	7'- 3"	7'-11"	7'- 0"	7'- 8"	6'- 9"	7'- 5"	6'- 6"	7'- 3"
V-178 (1)	1.95	0.343	32¾	7'- 8"	8'- 4"	7'- 4"	8'- 1"	7'- 1"	7'- 9"	6'- 9"	7'- 6"	6'- 7"	7'- 3"	6'- 5"	7'- 1"
I-178 LW(1)	1.95	0.318	32¾	7'- 9"	8'- 6"	7'- 5"	8'- 1"	7'- 1"	7'-10"	6'-10"	7'- 7"	6'- 8"	7'- 4"	6'- 5"	7'- 1"
V-200	2.90	0.473	32⅛	8'- 9"	9'- 6"	8'- 4"	9'- 2"	8'- 0"	8'-10"	7'- 9"	8'- 6"	7'- 6"	8'- 3"	7'- 3"	8'- 0"
I-200	3.00	0.460	32⅛	8'- 8"	9'- 7"	8'- 3"	9'- 2"	8'- 0"	8'-10"	7'- 9"	8'- 6"	7'- 6"	8'- 3"	7'- 3"	8'- 0"
V-218	3.00	0.523	33	9'- 3"	10'- 2"	8'-10"	9'- 9"	8'- 6"	9'- 4"	8'- 2"	9'- 0"	7'-11"	8'- 9"	7'- 9"	8'- 6"
I-218	3.00	0.520	33	9'- 3"	10'- 2"	8'-10"	9'- 9"	8'- 6"	9'- 4"	8'- 2"	9'- 0"	7'-11"	8'- 9"	7'- 8"	8'- 6"
V-228	3.65	0.737	33⅛	10'- 6"	11'- 6"	10'- 0"	11'- 0"	9'- 8"	10'- 7"	9'- 4"	10'- 3"	9'- 0"	9'-11"	8'- 9"	9'- 8"
I-228	3.65	0.736	33⅛	10'- 6"	11'- 6"	10'- 0"	11'- 0"	9'- 7"	10'- 7"	9'- 3"	10'- 2"	9'- 0"	9'-11"	8'- 9"	9'- 7"
V-258	4.67	1.056	33⅛	12'- 2"	13'- 4"	11'- 8"	12'- 9"	11'- 3"	12'- 4"	10'- 9"	11'-10"	10'- 6"	11'- 6"	10'- 3"	11'- 3"
I-258	4.67	1.057	33⅛	12'- 3"	13'- 6"	11'- 8"	12'-11"	11'- 3"	12'- 4"	10'-10"	12'- 0"	10'- 6"	11'- 7"	10'- 2"	11'- 3"

NOTES:

1. The I-168 WF (wide flange) is 1¼ in. high with a flange width of 1⅝ in. The V-168 and I-168LW (light weight) are 2 in. high with flange widths of 1½ in.
   The I-178 WF (wide flange) is 1⅛ in. high with a flange width of 1.9 in. The V-178 and I-178 LW (light weight) are 2 in. high with flange widths of 1⅝ in.
2. One and two span conditions reduce spacings to approximately 9/10 of the above.
3. Maximum eave overhang and deflection will vary with requirements of structural design. Generally, overhang should not exceed approximately 4/10 of adjacent span. Allowance should be made for weight of eave framing and facia assembly.
4. Consult individual manufacturers for more detailed information. I indicates INLAND STEEL CO. and V indicates CONNORS STEEL DIVISION, H. K. PORTER CO., INC.
5. For KEYDECK SUBPURLIN information consult KEYSTONE STEEL AND WIRE CO., Peoria, Illinois.

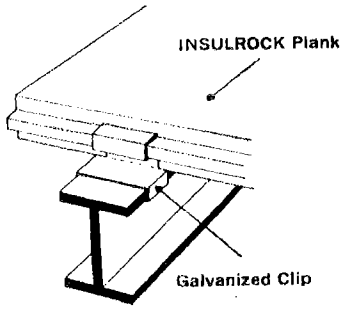
roof deck plank systems

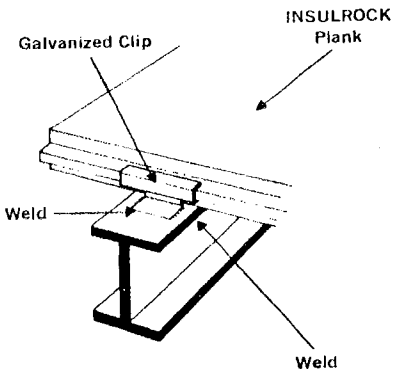


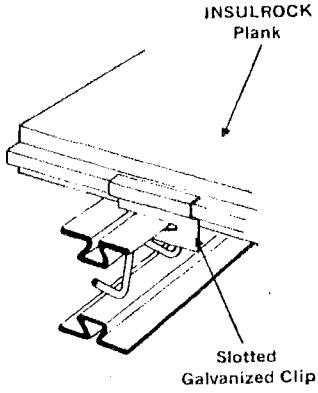
STANDARD PLANK SYSTEM

The INSULROCK Standard Plank System is easily fastened to steel, wood or concrete purlins or box sub-purlins. The longitudinal edges of the INSULROCK planks are tongue and grooved with painted bevels forming attractive V joints. Plank ends are square cut and must occur over purlins, or box sub-purlins.

INTERLOCKING CLIP DETAILS







Design Data for INSULROCK Standard Plank

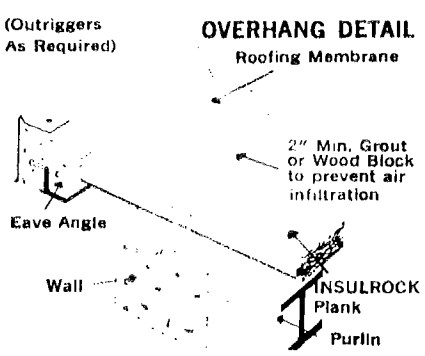
thickness inches	acoustical absorption	"U" value includes roofing	approximate design weight	max. span inches o. c.	minimum ultimate uniformly distributed load	design load safety factor(4)
2″	.60—.70	0.20	6.0	36″	200	50
2½″	.70—.80	0.17	7.25	42″*	200	50
3″	.75—.85	0.15	8.0	48″	200	50

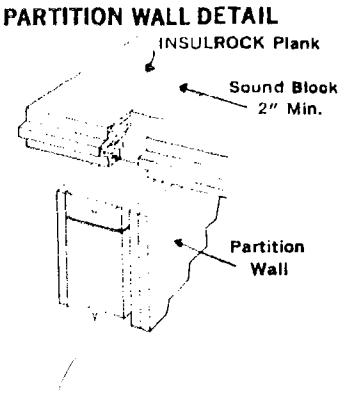
Standard Sizes: width 32″ — lengths 48″, 66″, 72″, 78″ 80″, 84″, 90″, 96″, 102″, 108″, and 120″.

* 2½″ INSULROCK Slabs **may be used on 48″ span where codes allow 20 psf live loads. Ultimate load 150 psf.**

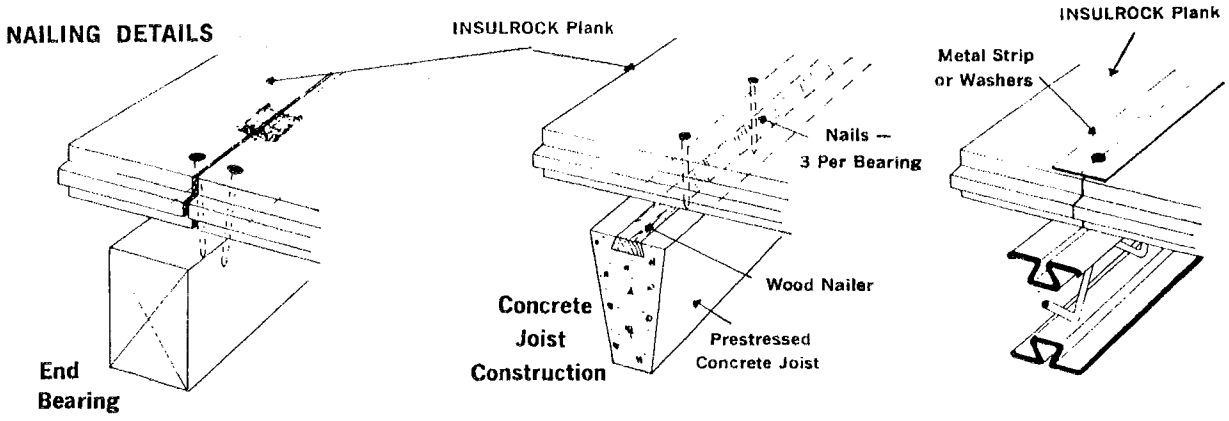
LONG SPAN PLANK SYSTEM

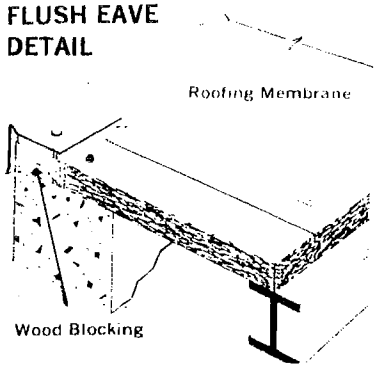
The INSULROCK Long Span Plank System is designed for direct application to steel, wood, or concrete purlins. The longitudinal edges of the INSULROCK planks are tongue and grooved with painted bevels. The ends are square cut and must occur over purlins. The system is clipped or nailed into place. The specially formulated INSULROCK planks provide for spans of up to 54 inches on center.





LONG SPAN PLANK SYSTEM





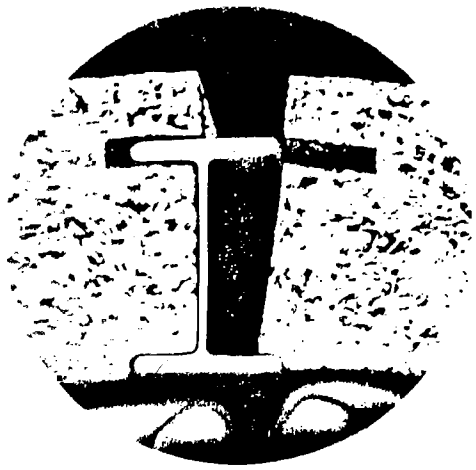
Design Data for the Long Span System

thickness inches	acoustical absorption	approx. design weight	max. span inches o. c.	minimum ultimate uniformly distributed load	design load safety factor (4)
2"	.60—.70	6.6	42"	200	50
2½"	.70—.80	7.6	48"	200	50
3"	.75—.85	9.6	54"	200	50

Standard Sizes: width 32". Lengths: 2" thick, 84" long • 2½" thick, 48" and 96" long • 3" thick, 54" long.

Design data for Long Span Plank is an ultimate uniformly distributed load of 200 lb./sq. ft., equalling a design load of 50 lbs./sq. ft. with a safety factor of 4.

roof deck
dual-tee systems



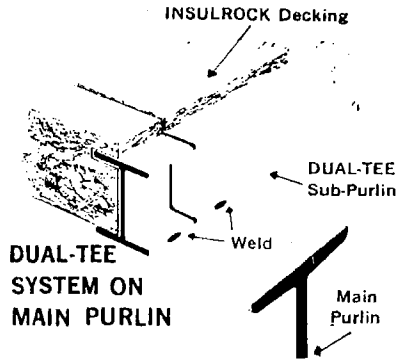
The DUAL™-TEE System* for INSULROCK roof decks incorporates an INSULROCK panel with a specially designed corrosion resistant sub-purlin of cold rolled 18 gauge steel which has a factory applied prime painted finish. The DUAL-TEE sub-purlin is inserted on the job into a pre-cut kerf in the INSULROCK panel.

The DUAL-TEE System lets you make better use of structural capabilities and, in many instances, achieves significant economies. This is a basically simple yet dramatically improved concept of roof deck construction on sub-purlins. By all measures, this represents the greatest advance in roof deck systems in more than a decade:

FIVE DISTINCT FEATURES with INSULROCK DUAL-TEE System

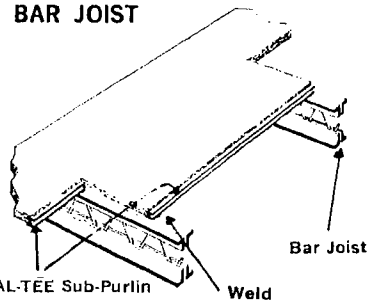
I Improved insulation at joints
II Eliminates need for grouting
III Provides a superior roofing surface
IV Speeds deck erection
V Decoratively painted, corrosion resistant sub-purlins

*Patent Applied For



DUAL-TEE SYSTEM ON MAIN PURLIN

DUAL-TEE SYSTEM ON BAR JOIST



Design Data for DUAL-TEE System for INSULROCK Roof Decks

thickness inches	acoustical absorption	"U" value includes roofing	approximate design wgt.	max. span inches. O. C.	minimum ultimate uniformly distributed load‡
2"	.60–.70	0.20	6.35#	72"	131 lb./sq. ft.

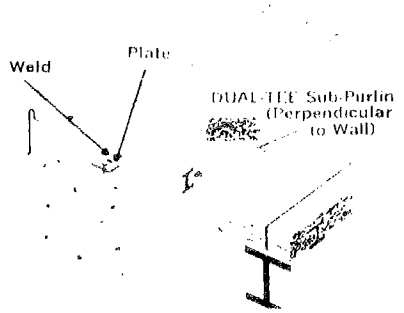
The DUAL-TEE Sub-Purlin designed for use with 2" INSULROCK Roof Deck panels may be used with 2½" and 3" thick INSULROCK Roof Deck panels when lower U. values and greater acoustical absorption are required.

Standard Sizes: INSULROCK Roof Deck Panels: Width 32" — Lengths 48", 60", 72", 78", 80", 84", 90", 96", 102" and 108".

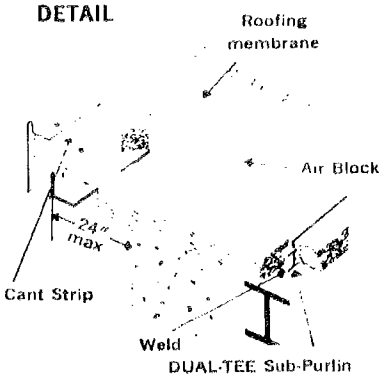
DUAL-TEE Sub-Purlins: Width 1", Height 1 6", Lengths as specified.

‡On DUAL-TEE System, not on INSULROCK alone.

FLUSH EAVE DETAIL

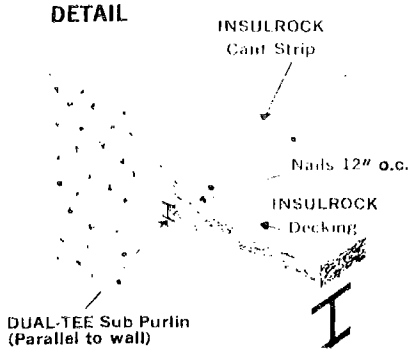


OVERHANG DETAIL

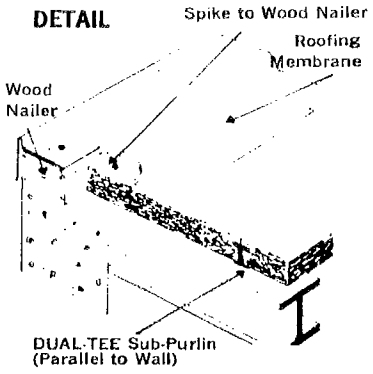


TODAY'S MOST ADVANCED IMPROVEMENT IN STRUCTURAL WOOD FIBER ROOF DECK DESIGN

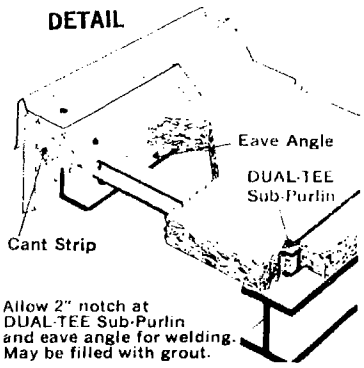
PARAPET WALL DETAIL

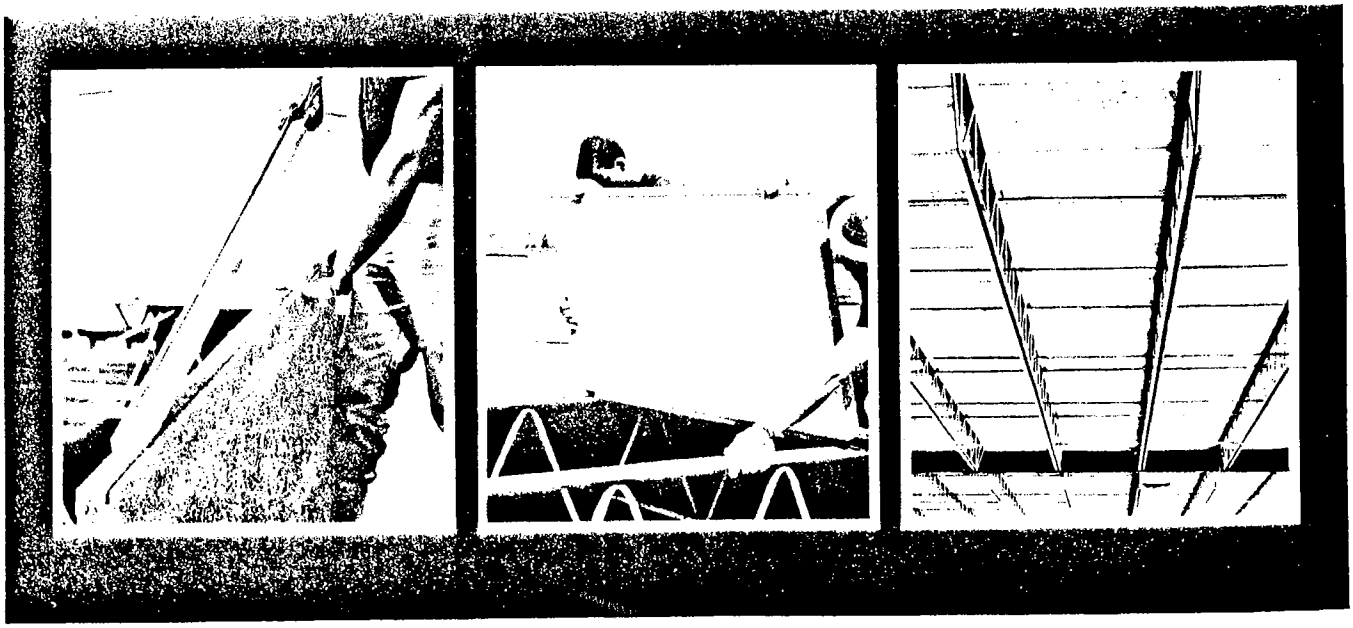


FLUSH EAVE DETAIL



EAVE ANGLE DETAIL





roof deck formboard systems

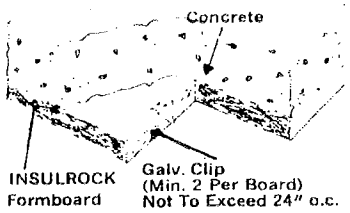
(STRUCTO-FORM & INSUL-FORM)

STRUCTO-FORM™ FORMBOARD

The STRUCTO-FORM Formboard System is designed for use as a permanent formboard in the application of structural concretes. The STRUCTO-FORM formboard is available in tile for bulb-tee sub-purlin application, in plank for use in spanning between purlins, or for use over temporary shores.

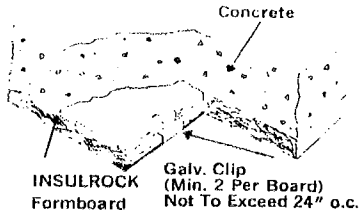
The STRUCTO-FORM Formboard System provides insulation, sound absorbing acoustical ceiling and eliminates the need for stripping, cleaning, grinding and finishing concrete. The top surface of random spaced fibers readily accepts the concrete which keys in to form an exceptionally strong bond.

1" & 1½" CLIP DETAIL

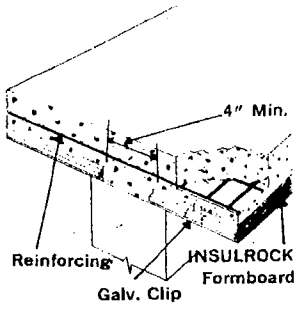


Available only in square cut longitudinal edges and ends.

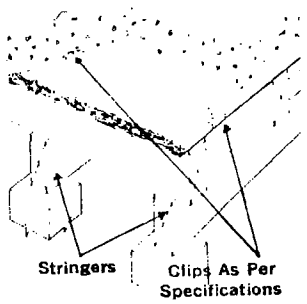
T & G CLIP DETAIL



LOAD BEARING WALL



TYPICAL SHORING DETAIL



SPECIFICATIONS — INSULROCK STRUCTO-FORM Formboard System

The STRUCTO-FORM Formboard shall act as a forming material during construction and be left in place to serve as the finished ceiling after the removal of shoring.

NOTE: Materials, refer to Plank & Tile System Materials Specifications as modified by the STRUCTO-FORM Formboard Design Data.

INSTALLATION:

To be in conformance with INSULROCK installation manual which accompanies each shipment of material.

1. The STRUCTO-FORM Formboard shall be installed on post and beam type shoring.

2. Shoring members in contact with the STRUCTO-FORM face shall have a minimum bearing of 4 inches. The maximum span for shoring STRUCTO-FORM Formboard shall be (See chart).

3. Polyethylene or similar protection shall be used to cover shoring members in contact with STRUCTO-FORM Formboard.

4. Edges of STRUCTO-FORM Formboard shall be wrapped with thin membrane material such as polyethylene at each beam form or opening through the STRUCTO-FORM Formboard and also when the edges are exposed at partitions or external walls. The protective covering shall be stapled to the top face of the formboard and lapped down around the edge. Material exposed to the finished area below may be removed by a neat knife cut.

5. STRUCTO-FORM Formboard joints shall be driven up tight with the use of a driving block to prevent concrete seepage at joints.

6. Anchorage clips for 2", 2½" and 3" STRUCTO-FORM Formboard shall be placed at all end joints and a minimum of 24" on center along edges.

7. Clip for 1" and 1½" STRUCTO-FORM Formboard shall be placed along the long side 6" from either joint with maximum spacing of 24" between clips. These clips shall be driven flush into the in-place pieces of STRUCTO-FORM Formboard. Impale succeeding pieces on the outstanding leg.

8. STRUCTO-FORM Formboard clips shall be as supplied by The Flintkote Company.

9. Care shall be exercised during concrete pouring to see that clips are raised sufficiently to bond in the concrete.

10. No special joint treatment shall be necessary when 2", 2½" and 3" STRUCTO-FORM Formboard is tongue and grooved all four sides. All joints should be tight.

11. Field painting over the exposed surface of the STRUCTO-FORM Formboard should be as specified under Painting section of the architect's specifications.

12. See Precautions & Limitations which follow, and form a part of this specification.

STRUCTO-FORM

Design Data

STRUCTO-FORM thickness	acoustical absorption n.r.c.	design weight approx. lbs. per sq. ft.	Sizes
1"	.50 to .60	3.0	32" wide x 48", 72", 78", 80", 84", 90", & 96"
1½"	.55 to .65	4.8	32" wide x 48", 60", 66", 72", 78", 80", 84", 90", 96", 102", 108", and 120".
2"	.60 to .70	6.0	
2½"	.70 to .80	7.25	
3"	.75 to .85	8.0	

Edge Treatments:

1" Thick: Square cut ends and sides with bevel on longitudinal sides.

1½", 2", 2½" and 3" Thick:

TILE: Chamfered longitudinal edges and square cut ends for use with bulb-tees.

PLANK: Interlocking beveled longitudinal edges with square cut ends. Not available in 1½".

PLANK OR TILE: Interlocking beveled ends (not available in 1½") with net laying length of ½" less than nominal lengths, for use where end joints must be exposed. (Consult the manufacturer for minimum quantities available.)

Consult The Flintkote Company for minimum quantities.

STRUCTO-FORM Shoring Spacing

concrete thickness	weight conc.	live load	total load	shoring spcg. center to center 1"	1½"	2"	2½"	3"
2"	25#	50#	75#	12"	25"	29"	34"	39"
4"	50#	50#	100#	11"	21"	26"	30"	34"
6"	75#	50#	125#	10"	19"	23"	27"	30"
8"	100#	50#	150#	9"	17"	21"	24"	28"
10"	125#	50#	175#	9"	16"	19"	22"	26"
12"	150#	50#	200#	8"	15"	18"	21"	24"

Shoring members in contact with STRUCTO-FORM formboard shall be nominal 4" width, clean and free from nails.

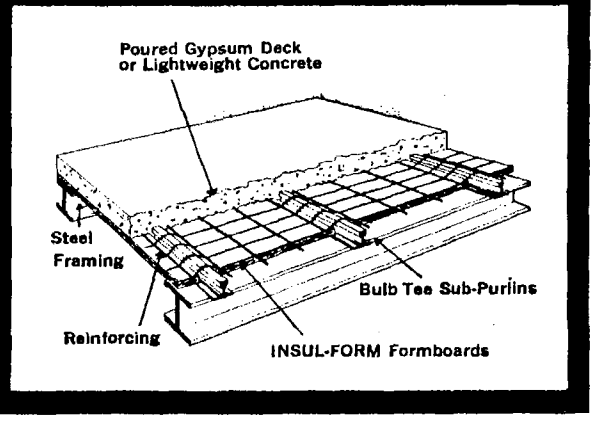
STRUCTO-FORM Thermal Values ("U" Factor, air to air includes built-up roof)

CONCRETE THICKNESS	WEIGHT P.S.F.	CONCRETE WITHOUT STRUCTO-FORM FORMBOARD	CONCRETE WITH STRUCTO-FORM FORMBOARD 1"	1½"	2"	2½"	3"
2"	25#	0.78	0.31	0.26	0.19	0.16	0.14
2½"	31#	0.76	0.30	0.26	0.19	0.16	0.14
3"	38#	0.74	0.30	0.26	0.19	0.16	0.14
4"	50#	0.70	0.29	0.25	0.19	0.16	0.14
6"	75#	0.62	0.28	0.24	0.18	0.15	0.13
8"	100#	0.56	0.27	0.24	0.18	0.15	0.13
10"	125#	0.51	0.26	0.23	0.17	0.15	0.13
12"	150#	0.47	0.25	0.23	0.17	0.14	0.12

Concrete=12.0 INSULROCK deck=0.51

INSUL-FORM™ FORMBOARD

The INSUL-FORM Formboard System is designed for use with poured gypsum or reinforced lightweight roof decks. Its porous texture is conducive to good deck drying characteristics: The INSUL-FORM Formboard is square cut on sides and ends.



SPECIFICATIONS — INSULROCK INSUL-FORM Formboard System

The INSUL-FORM Formboard shall act as a forming material during construction and be left in place to serve as the finished ceiling after the removal of shoring.
NOTE: Materials, refer to Plank & Tile System Materials Specification.

INSTALLATION:

To be in conformance with INSULROCK installation manual which accompanies each shipment of material.

1. Sub-purlins shall be spaced accurately within plus or minus $^{1}/_{16}$" in accordance with specifications or as shown on the drawings and securely positioned by means of templates during welding. Bulb tees shall be welded at every point of crossing over supporting members with ¾" long fillet weld on alternate sides of the flange except at ends where both sides shall be welded. All sub-purlins should, if possible, be furnished in lengths to cover three purlin spacings. Sub-purlins shall have a minimum of 1" end bearing. Sub-purlin ends shall have at least ⅛" clearance to allow for expansion.

2. The INSUL-FORM Formboard shall be placed on the flanges of the sub-purlins with all ends of the INSUL-FORM Formboard supported either on the main purlins, masonry ledges, cross tees or other structural supports.

3. Consult manufacturer of roof deck mix as to specifications, methods of applications, reinforcement, deck design and precautions.

4. Care should be taken in applying the fills to be certain that they are of a consistency that will not penetrate the INSUL-FORM Formboard.

5. **DO NOT WALK** on INSUL-FORM Formboard. INSUL-FORM Formboard is for use as a forming member for reinforced fills and must not be considered as a load carrying member of the finished structure.

6. Field painting of exposed surface of the INSUL-FORM Formboard should be as specified under Painting section of architect's specifications.

7. See Precautions & Limitations which follow, and form a part of this specification.

acoustical wall system

The INSULROCK Acoustical Wall System is composed of interior acoustical wall panels and DUAL-TEE structural members of hot dipped galvanized steel with a factory applied prime painted finish. DUAL-TEE members are fastened to walls with special galvanized steel clips.

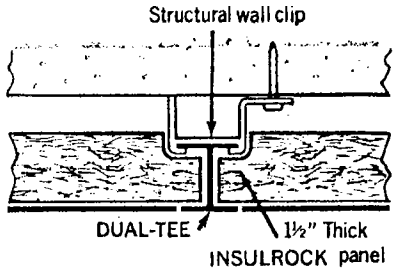
This system is intended primarily for application on interior side wall surfaces composed of steel, concrete, cinderblock, wood, aluminum or brick. Installations in structures where noise control is a vital factor such as office buildings, institutions, industrial and commercial buildings have proven to be highly effective.

Consider also the use of the system to isolate sound at its source. Complete or partial enclosure of particularly noisy machinery within the building interior can be accomplished by joining this wall system to our roof deck panels. Also, "isolation rooms" to house delicate equipment or protect technicians from high noise levels can be easily constructed with this enclosure method.

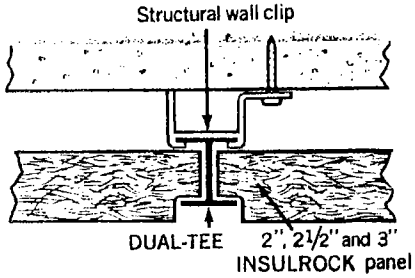
INSULROCK Acoustical Wall Panels insulate the building interior against unwanted outside temperatures, both heat and cold. Interior heating and/or air conditioning loads are substantially reduced, resulting in operational savings and comfortable environmental conditions. The textured surfaces and core of INSULROCK panels contain millions of porous voids which retard the flow of heat or cold.

The attractive textured interior surface of INSULROCK panels is factory primed white possessing a measured 60-70% light reflectance.

SHAPES



EXPOSED TEE



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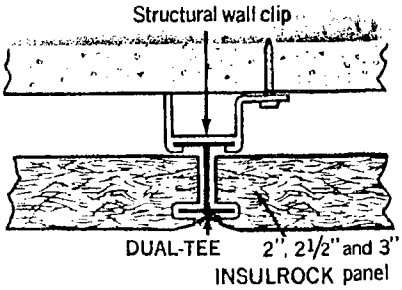

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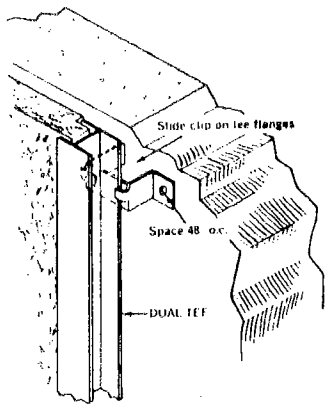
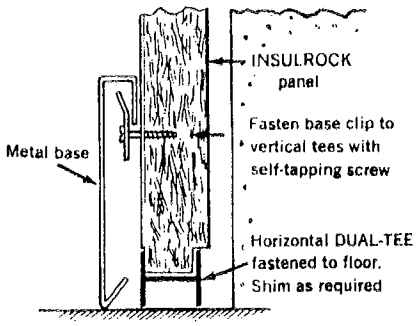
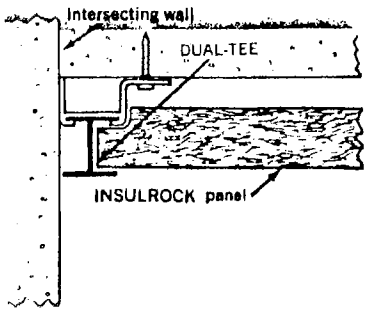


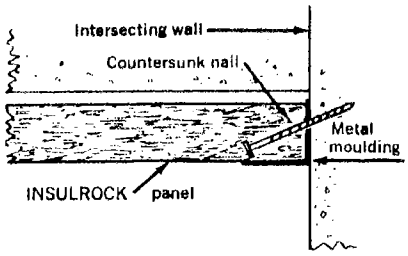
CLIP ASSEMBLY



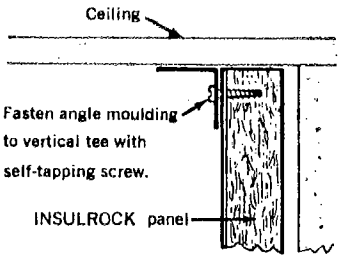
BASE



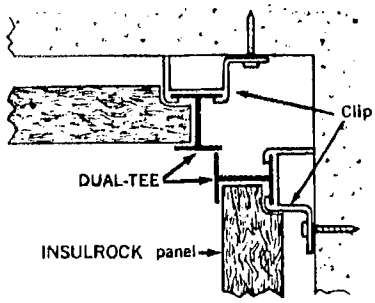
STARTER PANEL



FINISH PANEL



CEILING



CORNER

DESIGN DATA

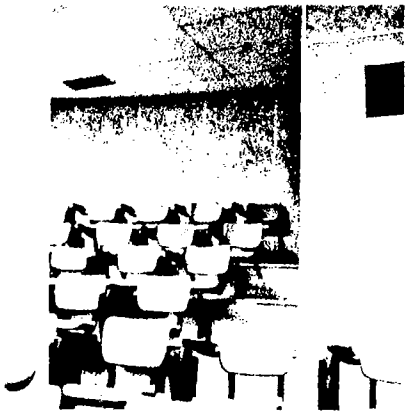
INSULROCK Thickness	"R" Value	Noise Reduction Coefficient	Approximate Design Weight per sq. ft.
1½"	2.95	.65	4.8
2"	3.92	.70	6.0
2½"	4.90	.75	7.25
3"	5.88	.80	8.0

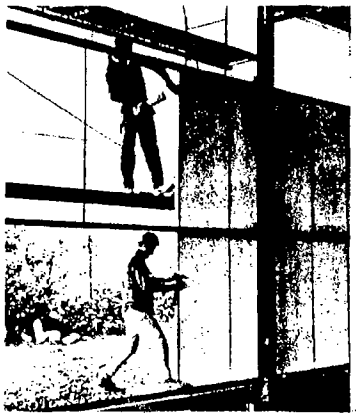
Note: The average compressive strength of an INSULROCK panel for a vertical load is 200 lbs. per sq. inch.

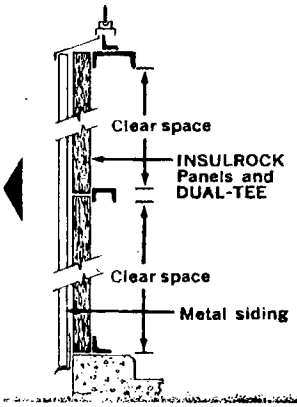
DUAL-TEE WALL SYSTEM SPAN TABLE based on allowable deflection of $\frac{L}{180}$

INSULROCK Thickness	Simple Span (Clear Span) Applied Load		
	20 lbs./sf.	30 lbs./sf.	40 lbs./sf.
1½"	70"	63"	50"
2"	94"	76"	66"
2½"	100"	88"	74"
3"	108"	94"	80"

Sizes: All panels are 32" wide. Panel lengths are any specified length from 4' to 10'.







Metal siding and INSULROCK Panels applied to exterior of building framing

(Refer to Span Table above)

specifications

ROOF DECK
PLANK SYSTEMS
Standard — Long Span

MATERIALS:

1. The INSULROCK Plank panels shall be composed of tough, long, chemically-treated wood fibers which are coated with fire and water-resisting Portland Cement and bonded under uniform pressure.

2. The INSULROCK Plank panels shall be capable of supporting a minimum uniformly distributed ultimate load of 200 lbs. per sq. ft. over allowable spans. (See Plank Systems design data.)

3. INSULROCK Plank panels shall meet the requirements of the National Board of Fire Underwriters for non-combustibility and be listed by Underwriters' Laboratories, Inc. under label Service No. 40 U8.20. INSULROCK Plank panels shall also be rated incombustible under Federal Specifications SS-A-118-b, Class "A".

4. The "U" value of the finished roof deck system (including built-up roofing) shall be B.T.U./sq. ft./deg. F./hr.

5. The INSULROCK Plank panels shall have an N.R.C. factor of ..... to .....

6. INSULROCK Plank panels shall weigh approximately ..... pounds/sq. ft.

7. INSULROCK Plank panels shall have a factory applied prime coat of paint on exposed underside.

8. INSULROCK Plank panels, for application directly to purlins, shall be 32" wide with tongue and groove and painted bevel on longitudinal edges. Ends shall be square cut.

9. INSULROCK Plank panels shall be anchored to purlins with proper galvanized clips as supplied by The Flintkote Company, or nailed to nailable members. Fastening system shall be capable of developing a minimum resistance to uplift of 30 lbs./sq. ft.

INSTALLATION:

To be in conformance with INSULROCK installation manual which accompanies each shipment of material.

1. INSULROCK Plank panels shall be cut to fit neatly at walls, parapets, curbs or other openings. All openings greater than 8" shall have additional structural framing.

2. INSULROCK Plank panels shall be placed directly on purlins with square cut ends butted tightly over center of purlins. Tongue and grooved edges shall be driven tight using a properly shaped driving block (to prevent edge damage) prior to clipping leading edge or nailing in place.

3. See Precautions & Limitations which follow, and form a part of this specification.

ROOF DECK
TILE SYSTEMS with bulb tees

MATERIALS:

1. The INSULROCK Tile panels shall be composed of tough, long, chemically-treated wood fibers which are coated with fire and water-resisting Portland Cement and bonded under uniform pressure.

2. The INSULROCK Tile panels shall be capable of supporting a minimum uniformly distributed ultimate load of 200 pounds per sq. ft. over allowable spans.

3. INSULROCK Tile panels shall meet the requirements of the National Board of Fire Underwriters for non-combustibility and be listed by Underwriters' Laboratories, Inc., under label Service No. 40 U8.20. INSULROCK Tile panels shall also be rated incombustible under Federal Specifications SS-A-118-b, Class "A".

4. The "U" value of the finished roof deck system (with built-up roofing) shall be B.T.U./sq. ft./deg. F./hr.

5. The INSULROCK Tile panels shall have an N.R.C. factor of ..... to .....

6. INSULROCK Tile panels shall weigh approximately ..... pounds/sq. ft.

7. The INSULROCK Tile panels shall have a factory applied prime coat of paint on exposed underside.

8. INSULROCK Regular Tile — (square cut ends) — for use with bulb tees, shall be 32" wide with chamfered longitudinal edges. Ends shall occur over supporting members or be concealed by decorative cross tees.

9. INSULROCK Standard Tile — (tongue and groove ends) — for use with bulb tees, shall be 32" wide with chamfered longitudinal edges and tongue and groove ends. Ends shall have painted bevels for exposed end joint applications. Standard Tile to be laid in ashlar pattern. (Note: Surface measurement for 48" Standard Tile is 47½".)

10. Sub-purlins shall be of adequate size and properly spaced to support deck and design loads.

11. Grout for use with bulb tee sub-purlins shall be an approved type as recommended by the manufacturer. Finished grouting application shall provide roof deck with a minimum resistance to uplift of 30 lbs./sq. ft. Clips are not required with this type installation.

INSTALLATION:

To be in conformance with INSULROCK installation manual which accompanies each shipment of material.

1. The INSULROCK Tile panels shall be cut to fit neatly at walls, parapets, curbs or other openings. All openings greater than 8" shall have additional structural framing provided.

2. Tile panels shall be evenly spaced between bulb tees. Square cut ends shall occur over purlins unless decorative cross tees are used. Standard tile ends with tongue and groove and painted bevel may occur between purlins. All tile should be driven tightly together, using a driving block to prevent damaged end joints. Grout shall completely fill the space between the longitudinal edges of the tile panels and the bulb tees. After the grout has taken its initial set, excess material shall be scraped off, leaving a finished joint flush with the top surface of the roof deck.

3. Sub-purlins shall be spaced accurately within plus or minus $^1/_{16}$" in accordance with specifications or as shown on the drawings and securely positioned by means of templates during welding. Bulb tees shall be welded at every point of crossing over supporting members with a ¾" long fillet weld on alternate sides of the flange except at ends where both sides shall be welded. All sub-purlins should, if possible, be furnished in lengths to cover three purlin spacings. Sub-purlins shall have a minimum of 1" end bearing. Sub-purlin ends shall have at least ⅛" clearance to allow for expansion.

4. See Precautions & Limitations which follow, and form a part of this specification.

ROOF DECK
DUAL-TEE™ SYSTEM

MATERIALS:

1. The INSULROCK panel shall be composed of tough, long, chemically-treated wood fibers which are coated with fire and water-resisting Portland Cement and bonded under uniform pressure.
2. The DUAL-TEE sub-purlin shall be made from 18 gauge steel, with a prime paint finish and shall be as supplied by The Flintkote Company.
3. The DUAL-TEE System shall be capable of supporting a uniformly distributed load of lbs. per sq. ft. over allowable spans.
4. The INSULROCK roof deck panel shall meet the requirements of the National Board of Fire Underwriters for non-combustibility and be listed by Underwriters' Laboratories, Inc., under label Service No. 40 U8.20. INSULROCK roof deck panel shall also be rated incombustible under Federal Specifications SS-A-118-b, Class "A".
5. The finished DUAL-TEE System (with built-up roofing) shall have a "U" value of B.T.U./sq. ft./deg. F./hr.
6. The INSULROCK roof deck panels shall have an N.R.C. factor of to .
7. The DUAL-TEE System (including INSULROCK roof deck panel and DUAL-TEE sub-purlin) shall weigh approximately lbs./sq. ft.
8. The INSULROCK panels shall have a factory applied prime coat of paint on the exposed underside of the panels.
9. The INSULROCK panels shall be 32" wide with kerf in longitudinal sides to receive DUAL-TEE sub-purlins. Ends of panels shall be square cut.

INSTALLATION:

To be in conformance with INSULROCK installation manual which accompanies each shipment of material.

1. The DUAL-TEE System shall be placed directly on purlins and with the square cut ends of the INSULROCK panels must be butted tightly over the center line of the purlins. The DUAL-TEE System shall have a minimum of one inch bearing on each end.
2. The DUAL-TEE sub-purlin shall be welded at every point of crossing over supporting members with a ¾" long fillet weld after weld area is thoroughly cleaned. All of the DUAL-TEE sub-purlins shall have a minimum 1" end bearing and shall have at least ⅛" end clearance to allow for expansion, and shall be capable of developing a minimum resistance to uplift of 30 lbs./sq. ft. and a minimum lateral resistance of 250 pounds.
3. The DUAL-TEE sub-purlin shall be driven tightly into the kerf of the INSULROCK panels, using rubber mallets or a properly shaped driving block so as to prevent damage to the flanges of the DUAL-TEE sub-purlin.
4. The DUAL-TEE sub-purlin shall be inserted into the kerf of the INSULROCK roof deck panel prior to installing the system on supporting member.
5. The DUAL-TEE System shall be cut to fit neatly at walls, parapets, curbs or other openings. All openings greater than 8" shall have additional structural framing.
6. The edges and ends of the INSULROCK roof deck panels shall be supported by the DUAL-TEE sub-purlin, wall, angles or other supporting members.
7. The DUAL-TEE System shall not be cantilevered a distance greater than 24".
8. See Precautions & Limitations which follow, and form a part of this specification.

DUAL-TEE System for INSULROCK Roof Decks: (2", 2½" and 3" thicknesses). DO NOT walk or stand upon or store materials on the DUAL-TEE sub-purlin until it is fully engaged into the INSULROCK panel and welded into place.

ACOUSTICAL
WALL SYSTEM

MATERIALS:

1. The INSULROCK panel shall be composed of tough, long, chemically-treated wood fibers which are coated with fire and water-resisting Portland Cement and bonded under uniform pressure.
2. The structural members, DUAL-TEE, are hot dipped galvanized steel which is coated with 3 mil Organisol on exterior side and a pigmented vinyl wash coat on the other, prior to rolling.
3. All panels conform to Federal Specification SS-A-118-b, Class "A", meet the requirements of the National Board of Fire Underwriters for non-combustibility, and are listed by Underwriters' Laboratories under Guide No. 40 U8.20.
4. Three inch thick panels assembled into a partition have attained a 2-hour fire resistance rating when run in accordance with ASTM Method of Test E-119.
5. The average compressive strength of an INSULROCK panel for a vertical load is 200 lbs. per sq. in.
6. The finished DUAL-TEE Wall System shall have an "R" (Thermal Resistance) value of .
7. The INSULROCK panels shall have an N.R.C. of to .
8. The DUAL-TEE Wall System (including INSULROCK panel and DUAL-TEE sub-purlin) shall weigh approximately lbs./sq. ft.
9. The INSULROCK panels shall have a factory applied prime coat of paint on the interior side of the panels.
10. The INSULROCK panels shall be 32" wide with kerf in edges to receive DUAL-TEE sub-purlins.
11. Clips are galvanized steel and are supplied by Flintkote. Consult nail or explosive fastener manufacturers for minimum withdrawal resistance of 100 lbs. Angle moulding should be .025 inch minimum thickness, rolled from a corrosive resistant, metal, finished on exposed surfaces with a factory applied baked enamel, and furnished by others.

INSTALLATION:

To be in conformance with INSULROCK installation manual which accompanies each shipment of material.

1. Masonry work should be cured sufficiently to accept explosive type fasteners.
2. The panels should be adequately supported on the floor and must be securely shimmed to properly align their horizontal joints.
3. Vertical steel DUAL-TEE members are fastened directly to the structural wall, using special clips 48 inches o.c. Clips are slid on flanges of tee and attached to wall with explosive fasteners or by hardened steel nails. Clips may also be welded to structural frame. All steel members must be aligned to provide a true plumb surface.
4. DUAL-TEE members may be applied at horizontal edges to align panels and to serve as a cover strip to improve appearance. Tongue and groove beveled ends are also acceptable.
5. Install first vertical tee against intersecting wall. After first steel member is fastened, panels are installed up to ceiling line or to intermediate structural supporting member. Second steel tee is then driven tightly onto panel, using a rubber mallet, and fastened to structural wall, using specified clips. Succeeding courses of INSULROCK panels and steel tees are applied in a like manner.
6. Leave at least a 1 inch space at the opposite end of the wall to permit installation of last panel and tee. Paneling on intersecting wall will cover this space. If intersecting wall is not to be paneled or is already paneled, eliminate last tee and fit edge of panel against wall. Trim edge with angle molding.

PRECAUTIONS — LIMITATIONS

GENERAL:

The following information is provided for the guidance of architects and contractors and applies to all INSULROCK materials. However, these suggestions should not be construed as being all-inclusive nor should they be considered as a substitute for good application or design practices.

EXPANSION JOINTS:

1. On large buildings without interruptions in the roof deck, expansion joints through the roofing, roof deck and structural supports should be placed at intervals as specified by the architect or structural engineer.

2. Wherever expansion joints occur in the main structure or structural supports one should be provided through the roof deck and roofing.

3. At all junctions between roof deck and masonry walls and at exterior wood nailers the placement of an expansion joint in the deck is recommended. This can be accomplished by leaving a 1" gap which should be filled with a compressible strip.

4. Expansion joints should be provided in areas where structural framing changes direction, or where INSULROCK panels abut dissimilar roof decking.

SUPERIMPOSED LOADS:

All superimposed loads, such as cooling towers, flagpoles, signs, etc., should be supported directly by the primary framing. They should not be supported by the roof deck assembly. Superimposed loads, such as seating and exercising equipment, heavy fixtures, etc., must be fastened to the primary structural framing.

STEEP ROOFS:

When designing an INSULROCK roof deck, provisions should be made for prevention of deck slippage. Consult your INSULROCK representative or INSULROCK applicator for assistance.

VENTILATING RECOMMENDATIONS:

1. The ventilating recommendations of the current edition of the "Handbook of Fundamentals", published by The American Society of Heating, Refrigerating and Air-Conditioning Engineers, should be followed. In any application where abnormal humidity conditions are anticipated, consult your INSULROCK representative.

2. Ventilation is recommended for buildings under construction to avoid high humidity build up. When the temperature requires the use of heating salamanders or other heating equipment, ventilation must be provided to bring in outside air and to exhaust moist air.

WIND OR SOUND BARRIERS:

When the INSULROCK panels are extended over the top of exterior walls and are exposed as an overhang or at party walls where controlled sound transmission is desirable, a dam should be placed in the INSULROCK panel to stop the infiltration of air or sound. The INSULROCK panel should be cut over the top of the wall, the pieces separated a minimum of 2", and then the full thickness of the opening should be filled with a wood strip, poured grout, or any material that completely fills and stops the passage of air. DO NOT CUT subpurlins or other supporting members.

INSTALLATION:

This system should be installed by a qualified contractor under conditions specified in Uniform Standards and Specifications, published by The Structural Cement Fiber Products Association.

1. All INSULROCK material or DUAL-TEE sub-purlins to be stored at ground level and exposed to weather shall be at least 6 inches above the surface of the ground and protected from the weather with tarpaulins, polyethylene, or other adequate covering. The structural qualities of INSULROCK panels are not normally affected when subjected to rain and/or snow. The factory painted surface can be soiled and stained when abused by exposure or misuse. If stacked more than two days, it is advisable to completely enclose stacks to prevent ground moisture from entering from below. Coverings should always be applied in a manner which provides air ventilation to the material. If material arrives from the plant with space strips between the panels, the strips should be re-used when stacking or transporting the material. All INSULROCK material should be stacked on at least 4 or more supports in stacks not to exceed 5 feet in height and no more than two stacks high. Supports should be equally spaced under each stack, with ends at right angles to the long edges of the stack. Care should be taken to level stack supports. Stack first piece face up and continue stacking pieces face to face and back to back. Storage areas should be well drained to avoid water accumulation and permit proper working conditions for personnel who will be handling INSULROCK material.

2. Before pouring of fill or grout the INSULROCK panels shall be examined and any damaged or defective panels shall be replaced.

3. When heavy materials must be placed upon or transported over installed INSULROCK decking, planking shall be placed so it is adequately supported independent of the INSULROCK decking.

4. When installing a suspended ceiling beneath INSULROCK roof deck systems, the suspension system shall be hung from the primary framing. If the sub-purlins are designed to properly support the added weight of the ceiling without excess deflection, then the suspension system may be attached to the flange of the sub-purlins. In no case shall the suspension system be directly attached to the INSULROCK panels.

5. Field painting of exposed surface of INSULROCK panels should be considered when the finished appearance is critical.

6. If the factory primed surface is soiled or marred during erection, it may be touched up by paint which is available from The Flintkote Company or by a good grade of commercial latex or alkyd paint. The paint may be applied by brush or roller, but spraying will provide the most satisfactory results.

7. In Tile applications, if grouting is delayed and foot or equipment traffic is expected, shims should be placed near the four corners of each Tile. This is recommended to assure proper centered bearing of the Tile along the bulb tee flanges.

ROOFING:

1. Built-up roofing should be applied to INSULROCK roof deck systems promptly and in strict accordance with the recommendations of the manufacturer of the roofing materials, and according to accepted procedures and methods used in proper application of built-up roofing. Adhesive application is limited to steep asphalt only. Recommended fasteners are Capped ES/nails or Tube-Lok nails. 1" Tube-Lok nails should be used with 2" INSULROCK. 1¾" Tube-Lok nails may be used with 2½" or 3" INSULROCK.

2. When asbestos cement, slate or other rigid shingles are to be applied to INSULROCK Roof Decks, it is recommended that exterior grade ⅜" thick plywood be attached first to the INSULROCK using 1¼" Tube-Lok nails and then applying shingles to the plywood using regular shingle nails. The purpose of this recommendation is to prevent damage to the rigid shingles when driving Tube-Lok nails through the roofing material for direct attachment to the INSULROCK. Consult the shingle manufacturer and/or the INSULROCK Sales Office for information on the direct nailing of rigid shingles to INSULROCK.

3. Asphalt shingles shall be applied to INSULROCK deck in accordance with the shingle manufacturer's specifications. Shingles must be of the variety where the tabs are sealed to the lower surface. Pitch of roof shall be 4" in 12" or greater. Use 1¾" Tube-Lok nails at the rate of 4 nails per 36" strip of asphalt shingle. Contact your Flintkote representative or INSULROCK applicator for details regarding application of shingles with power driven staples.

NOTICE: Consult The Flintkote Company when building usage requires any special environmental controls, or for uses other than described herein. Consult the INSULROCK Roof Deck Systems Installation Manual for handling procedures and methods to be used on the job site.

FLINTKOTE® INSULROCK Products, 480 Central Avenue, E. Rutherford, N. J. 07073

WARRANTY

The following warranty extends only to products of The Flintkote Company, and Flintkote makes no representation regarding the specifications appearing herein or their suitability for particular installations.

Flintkote as manufacturer warrants that the products described herein are of merchantable quality and conform to Flintkote specifications BUT DOES NOT WARRANT THEIR FITNESS FOR ANY PARTICULAR USE OR MAKE ANY OTHER WARRANTY, EXPRESS OR IMPLIED. This warranty may not be enlarged or extended by our sales representatives, written sales information or drawings.

Liability of Flintkote under this warranty is limited to replacement of its products found to be defective or, at its option, a refund of the purchase price.

All advice given and structural specifications supplied by Flintkote representatives shall be used at the sole risk of those receiving the same, and Flintkote assumes no responsibility for the design or construction of any structure in which its products are used. Any review or inspection of plans, buildings or product applications by Flintkote representatives is not to be construed as approval thereof by Flintkote.

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