

March, 2004

Technical Bulletin No. 1015-2

UL CLASSIFICATION LISTINGS

UL Classification Listings need not be hard to interpret. The Listings only cover what tests have been run on specific assemblies and do not cover many other possibilities. The chart on the back of this page divides listing into various categories for easier comparison than is possible in the *UL Roofing Material and Systems Directory*.

The chart does not contain all listing information due to space constraints, so it is important to always refer to the actual listing for the entire content of items like approved insulations, minimum or maximum thickness, all SBS or APP products approved and approved coatings. Also, the chart does not include Maintenance and repair listings because there are so many "gray areas". The latter we prefer to discuss on specific job to job basis.

Another point is that not all of the assemblies, as listed, are warrantable by BITEC. For example, going over an existing smooth membrane without a base sheet or over a gravel surfaced roof without removing the gravel and not using insulation as a divorcement layer. These are not warrantable systems with BITEC.

It is important to remember that modified bitumens differ considerably compared to similar BUR listings using cap sheet membranes, which use oxidized asphalt, and fiberglass reinforcement mats; i.e., G3 sheets. In general modified bitumens give greater fuel contribution in fire test than built up items, therefore usually requiring additional coatings to resist flame spread. Some membranes are formulated with fire retardant chemical and inert fillers that make the additional coatings unnecessary. These fire resistant membranes are usually referred to as "FR" membranes, but the "FR" name means nothing to UL. For instance, a manufacturer does not have to label a sheet "FR" just because it meets certain fire test requirements. The "FR" designation is nothing

more than a marketing term that should only, in our opinion, be used to designate a membrane that does not require additional coatings to meet UL Fire Resistance Classification "A".

For example, In one of BITEC's tests at UL, we received Class "A" approval for using APM-4T and APM-4.5T without the use of insulation or a coating, but without insulation, the listing is restricted to non-combustible decks such as structural concrete, lightweight insulating concrete or gypsum. Steel decks would require the use of insulation, but the insulation is limited to a maximum thickness of 3/4" perlite, fiberglass or wood fiber. If any other insulation were used, it would require a layer of minimum 1/4" Dens-Deck over the insulation to provide a non-combustible substrate for the installation of the membrane assembly. In this assembly the slope is limited to 1" per foot. The point is, in these systems, the result is a Class "A" assembly without the use of a "FR" membrane. Also, those same two membranes used over combustible decks without insulation has been approved as Class "B" without a coating, but the slope is limited to 1/4" per foot.

APM-4T and APM-4.5T provide situations where "non-FR" membranes will meet the requirements for UL Class "A" or "B" without the use of FR membrane or additional coatings.

Questions are often asked if a certain product is Class "A". That question cannot be answered without knowing how the product is used in assembly with other materials; what type deck is used, what insulation is used, if any, and what the maximum incline or slope is.

In addition to the preamble at the front of the *UL Roofing Materials and Systems Directory* and the preamble that precedes the BITEC Listings, it is important to remember the following information when selecting BITEC products for specific

assemblies.

1. The UL preamble information is copied in your Technical Binder.
2. EPS insulation, any thickness, can be used on non-combustible decks only, with minimum 1/2" wood fiber or 3/4" perlite barrier, but not for combustible decks.
3. For combustible decks, minimum 1/4" Dens-Deck can be used over EPS or polyISOcyanurate insulations and the assembly changes to a noncombustible substrate.
4. PS-2H is UL Classified and is an acceptable alternate for a G2 base sheet in non-combustible assemblies only, where perlite or wood fiber is used as a barrier or on lightweight and concrete type decks. (Not for combustible decks)
5. Where two plies of G2 base sheet are required, one ply of inverted G3 base sheet may be substituted.
6. BITEC FA-2T, FS-2H and FS-25 may be used wherever a G2 base sheet is specified.
7. Two plies of Type G1 fiberglass ply sheets may be used in lieu of a Type G2 fiberglass base sheet.

In addition to the above, there are several other provisions in the preamble that allow for BITEC products to be used, that are not specifically clear in the individual listings.

In conclusion, we reiterate that UL Listings need not be hard to understand, but be specific and **DO NOT MAKE ASSUMPTIONS**, especially in "gray areas". If you have any doubts or questions please contact BITEC's Technical Services Dept. at 800-535-8597.

See the UL Listings Chart on the back of this page.

UL LISTINGS & REQUIREMENTS

For more specific information, check latest specific UL Listings, 2004 RMSD

Revised MARCH 2004

For Warranty Information contact BITEC Technical Services Dept. @ 1-800-535-8597. Not all listings are warrantable .

UL Listing Number	Class	Deck	Slope	Insulation requirements	Base Ply Requirements	Interply	SBS	APP	Surfacing Requirements	
#1	Ballasted	A	NC	3"	Opt'l; Almost any; Any thickness.	1 or more G2; fasten or mop	Optional	YES	YES	Flood coat & Gravel; Loose gravel up to 2:12 max incline.
#2	Ballasted	A	COMB	1/2"	Opt'l; 1.5" min. See UL Listing.	Same	Optional	YES	YES	Flood coat & gravel or loose gravel.
#1	Fully Adhered	A	NC	1-1/2"	Almost any insulation; any thickness.	1 or more G2; Fasten or mop	Optional	NO	YES	APOC #212; HENRY 520; KARNAK #97; MONSEY PRO GRADE
#2	Fully Adhered	A	NC	3/4"	Almost any insul; 4.5" max. thickness	Same	Optional	YES	NO	KARNAK #97 or AF; Grundy al MB.
#3	Fully Adhered	A	NC	3/4"	Almost any insulation; any thickness.	Same	Optional	SPM-4.5Tonly	NO	SAME
#4	Fully Adhered	A	NC	1/2"	NONE	2 ply G2 or 1 ply G3	Optional	SPM-4.5Tonly	YES	APOC #212; HENRY 520; K#97or AF; MONSEY PG; MAC 200
#5	Fully Adhered	A	NC	1/2"	NONE	3 ply G2 or 1ply G3&1plyG2	Optional	YES	NO	KARNAK #97 or AF; Grundy al MB
#6	Fully Adhered	A	NC	1"	Almost any insulation; any thickness.	1or more G2; fasten or mop	Optional	NO	YES	APOC#212; HENRY 520; KARNAK #97 or AF; MONSEY PRO GRADE
#7	Fully Adhered	A	NC	3/4"	Almost any insulation; any thickness.	SAME	Optional	YES	NO	KARNAK #97 or AF; Grundy al MB
#8	Fully Adhered	A	COMB	1/2"	Optional; almost any insul; Any thickness	3 ply G2 or 1ply G3&1plyG2	Optional	SPM-4.5Tonly	YES	APOC #212; HENRY 520; K#97; MONSEY PG; Gravel or loose gr.
#9	Fully Adhered	A	COMB	1/4"	2 or more layers almost any; min. 3" thick.	1 or more G2; fasten or mop	Optional	YES	YES	APOC #212; HENRY 520; K#97; MONSEY PG; Grundy al MB
#10	Fully Adhered	A	NC	1"	Conc. Deck or insulating type deck fills;lt.wt.	SAME	Optional	NO	YES	APOC#212;Henry 520; K#97 or AF; Monsey PG; Grundy al MB; MAC 200
#11	Fully Adhered	A	NC	1"	Optional; almost any insul; Any thickness	1 or more G2; fasten or mop	Optional	YES	YES	Grundy al MB only; This is a Grundy test and listing!
#16	DELETED									
#17	Fully Adhered	A	NC	1/2"	Optional; * 4" maximum thickness	SAME	Optional	YES	NO	KARNAK #97 or AF; Gravel or loose gravel.
#18	DELETED									
#19	Fully Adhered	A	COMB	1"	Optional; any insul; any thk; req. barrier board.	1 Ply G2 fasten or mop	Optional	SPM-4.5Tonly	YES	KARNAK #97 or AF; See UL Listings for App Coatings.
#22	Fully Adhered	A	NC	1"	Optional; See listings for approved insulations	1 ply G2 fastened or mopped	Optional	NO	YES	APOC #212; HENRY 520; KARNAK #97; MONSEY PRO GRADE (PG)
#23	Fully Adhered	A	NC	1/4"	NONE; Conc type decks; Lt.Wt. & Gypsum	1 ply G2 fastened or mopped	Optional	NO	APM-4T&4.5T only	!!!NONE REQUIRED!!! Includes Tectum w/ Barrier Board
#24	Fully Adhered	A	NC	1"	Optional; Almost any insulation any thickness	1 or more G1 or G2	Optional	NO	YES	FIELDS F530 HEAT SHIELD OR F630
#25	Fully Adhered	A	NC	1"	Optional; Only perlite,WF or F'G; 3/4"max.thick.	1 or more G1 or G2	Optional	NO	APM-4T&4.5T only	!!! NO COATING REQUIRED !!!
#26	Fully Adhered	A	NC	1/2"	Optional; Only perlite,WF or F'G; 3/4"max.thick.	1 or more G1 or G2	Optional	**YES**	NO	!!! NO COATING REQUIRED !!!
#12	Fully Adhered FR	A	NC	3/4"	Almost any insulation, any thickness.	1 or more G2; fasten or mop	Optional	FR	NO	FR - NONE REQUIRED !!!!!
#12	Alt. Insulation FR	A	NC	3/4"	EPS w/1/2" WF or 3/4" Perlite insulation	SAME	Optional	FR	NO	SAME
#13	Fully Adhered FR	A	COMB	1/4"	Almost any; 1.5" Perlite or 3/4" wood fiber insul.	SAME	Optional	FR	NO	SAME
#14	Fully Adhered FR	A	NC	3/4"	Optional; Any insulation, any thickness	1 G1 or G2, fastened or mop	Optional	FR	NO	SAME
#15	Fully Adhered FR	A	COMB	3/4"	Almost any; 1.5" perlite or 3/4" WF; offset joints	1 ply G2, fasten or mop	Optional	FR	NO	SAME
#21	Fully Adhered FR	A	COMB	1" (03)	Opt'l; Any; Any thk; requires bar'r bd.w/offset jts.	SAME	Optional	SFM-3.5H-FR only	NO	SAME
#1	Fully Adhered	B	COMB	1/2"	Almost any; any thickness; 3" min. thickness	1 or more G2; fasten or mop	Optional	YES	YES	KARNAK #97 or AF; GRUNDY al MB; See listing for APP coatings
#2	Fully Adhered	B	COMB	1/2"	NONE ALLOWED; See actual listing !!!	2 ply G2 or 1 ply G3	Optional	YES	YES	KARNAK #97; APOC #212; HENRY 520; MONSEY PRO GRADE
#3	Fully Adhered	B	COMB	1/2"	NONE ALLOWED; See actual listing !!!	SAME	Optional	FR only	NO	FR - NONE REQUIRED
#4	Fully Adhered	B	COMB	1/2"	OPTIONAL; 1"min. most; 3/4"min.perlite; 1" WF	1 ply G2 fastened or mopped	Optional	NO	APM-4T&4.5Tonly	APOC #212; HENRY 520; KARNAK #97; MONSEY PRO GRADE
#5	Fully Adhered	B	COMB	1/4"	NONE	SAME	Optional	NO	SAME	!!! NONE REQUIRED !!!
#6	Fully Adhered	B	COMB	1/2"	NONE	1 or more G2; fasten or mop	Optional	FR only	NO	FR - NONE REQUIRED
#7	Fully Adhered	B	COMB	1/2"	OPTIONAL ; "Most insulation" any thickness	1 or more G2; fasten or mop	Optional	NO	YES	FIELDS 530 OR 630 only! FIELDS LISTING !
#1	Fully Adhered	C	COMB	1.5"	Optional; Any; Any thickness	1 or more G2; fasten or mop	Optional	NO	YES	NONE REQUIRED
#2&3	NOT USABLE									
#4	Fully Adhered	C	NC	1/2"	Almost any; Any thickness	1ply G2 fastened or mopped	Optional	YES	NO	NONE REQUIRED
#5	Fully Adhered	C	Comb	UNL	NONE	1 ply G2 Beta Base	Optional	MDS	MDA	NONE REQUIRED