



الشركة الكويتية لصناعات البوليوريثين (ذ.م.م.)
Kuwait Polyurethane Industry Co. (W.L.L.)

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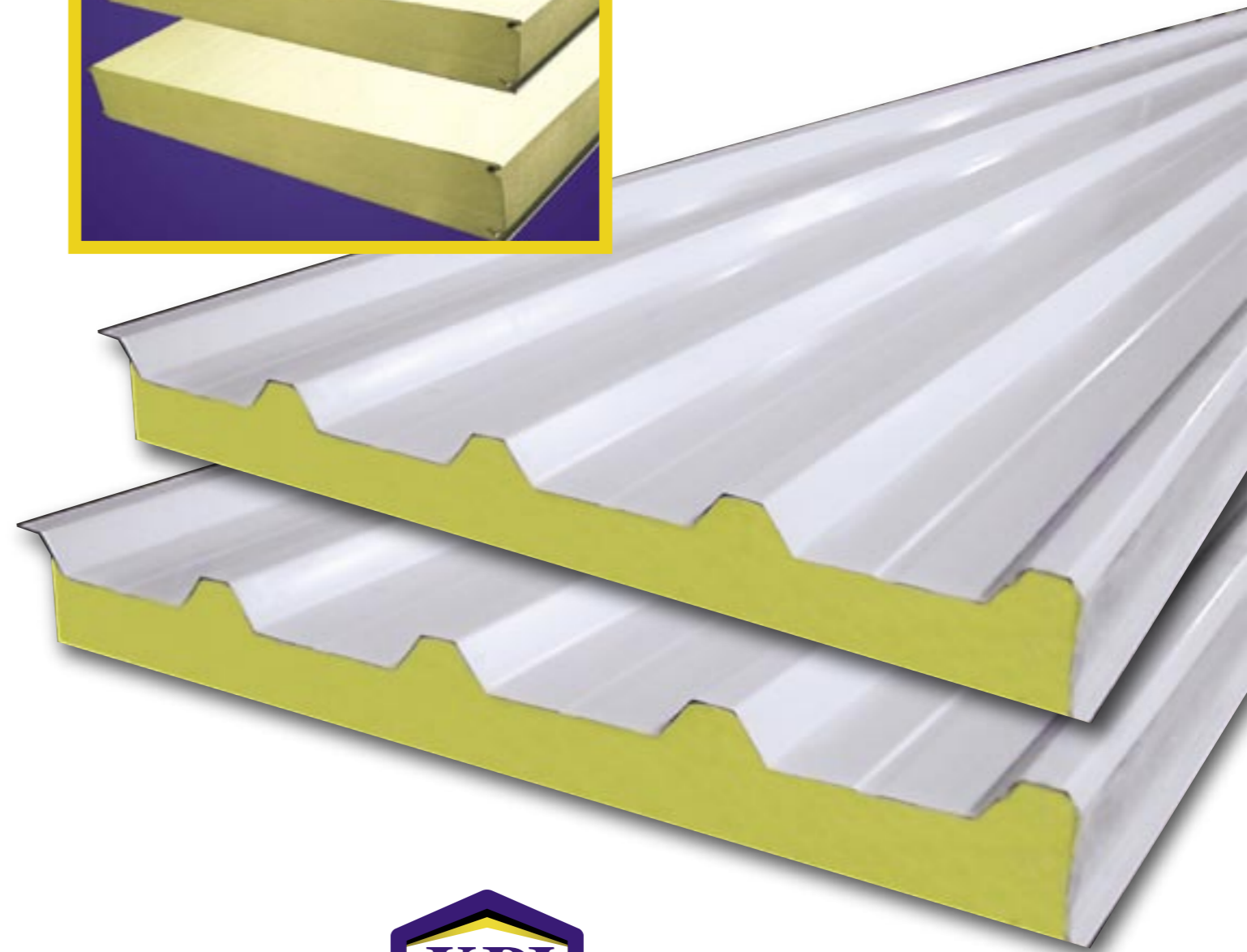
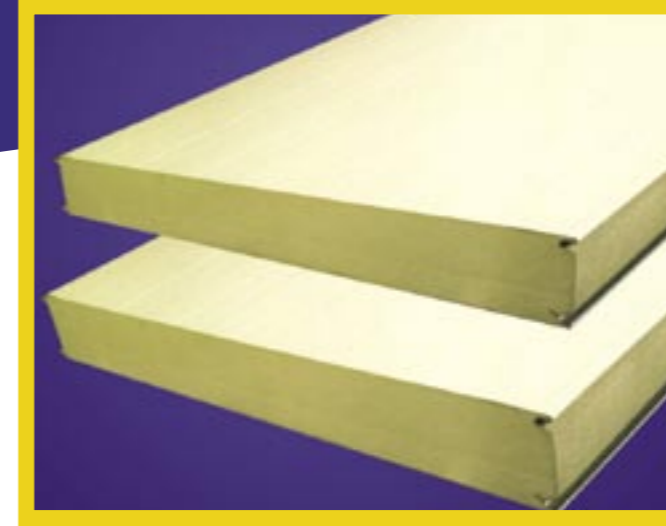
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KPI

Sandwich Panels



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PANEL SPECIFICATIONS

KPI Sandwich panels are manufactured on the Sophisticated Press CE marked to obtain highest degree of Quality. The Panels are produced with the help of high pressure foaming machine which ensures precision quality & ratio of PU mixture to be foamed.

Length of the Panels	Min 2 Mtr.- Max 12 Mtr..
Thickness of the Panels	50mm to200mm.
Density	40+/- 2 Kg/Cu.m.
Thermal Conductivity	19mW/mK
Compressive Strength	155 KPa.
Closed Cell	90 - 95%
Fire Resistance	Self-extinguishing as per DIN 4102 Class B2 , or PIR
Sheet Base Metal	Prepainted G.I. / Galvalume / Aluzainc / Plastisol PVC

SPECIFICATIONS OF THE CLADDING

Galvanized (G.I.) Polyester Coated		Galvanized PVC (PLASTISOL) Coated	
Based Metal	: Hot Dip Zinc Coated Coil : ASTM A 527 (L.F.Q.) : ASTM A 446	Based Metal	: Hot Dip Zinc Coated Coil Code : ASTM A 527 : ASTM A 446
Grade	: G.90 (275 GRM ZINC/M ²)	Grade	: G.90 (275 GRM ZINC/M ²)
Yield Strength	: MIN 33 (KSI)	Yield Strength	: MIN 33 (KSI)
Tensile Strength	: MIN 45 (KSI)	Tensile Strength	: MIN 45 (KSI)
Total Coat Thickness	: 25 Micron (Top Side)	Total Coat Thickness	: 200 Micron (Top Side)
Primer Thickness	: 5 Micron (Reverse Side)	Primer Thickness	: 5 Micron (Reverse Side)

TECHNICAL DATA

TEST	MEASURED VALUE			UNIT	STANDARD
Density (core)	42			kg/m ³	DIN EN ISO 845
Compressive Strength	0.21			N/mm ²	DIN 53 421
Compression	10			%	DIN 53 421
Flexural Strength	0.58			N/mm ²	DIN 53 423
Bending	13			mm	DIN 53 423
Water Absorption after 24 Hrs	1.9			Vol.%	DIN 53 428
Closed Cells	93			%	ISO 4590
Dimensional Stability	H	W	L	%	DIN 53 431
-30°C	-0.2	-0.2	+0.2		
+80°C	-0.6	-0.4	-0.3		
+100°C	-0.6	-0.8	+0.2		
Long-term temperature resistance range					-50°C to + 110°C
Thermal Conductivity (K Value)				0.013 Btu/hr.ft. ² °f 0.023 W/m.K	
Transmission Coefficient (U Value)				0.013/ft. Thickness = Btu/hr.ft. ² °f 0.023/meter Thickness = W/m ² K	

TECHNICAL DATA

Thickness of insulation to be determined by contractor using design U Value

A : Thermal Conductivity "K"	W/m. K	Kcal/hr.m.°C	Btu/hr.ft.°F
	1	0.860	0.578
	1.163	1	0.672
	1.730	1.488	1

B : Transmission Coefficient "U"	W/m ² K	Kcal/hr.m. ² °C	Btu/hr.ft. ² °F
	1	0.860	0.176
	1.163	1	0.205
	5.678	4.882	1

C : Heat Transfer "Q"	W	Kcal/hr	Btu/hr
	1	0.860	3.413
	1.163	1	3.969
	0.293	0.252	1

THERMAL TRANSMISSION

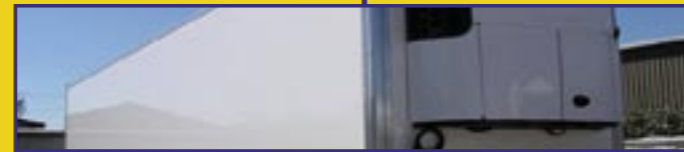
Thermal conductivity of polurethane k=0.023 W/m°C

Thickness in mm		50	100	150	200	
Useful U (W/m ² °C)		0.460	0.230	0.153	0.115	
Δt=Temperature Variation	Q=Thermal Transmission in W/m ²	10	4.60	2.30	1.53	1.15
		15	6.90	3.45	2.29	1.72
		20	9.20	4.60	3.06	2.30
		25	11.50	5.75	3.82	2.87
		30	13.80	6.90	4.59	3.45
		35	16.10	8.05	5.36	4.02
		40	18.40	9.20	6.12	4.60
		45	20.70	10.35	6.89	5.17
		50	23.00	11.50	7.65	5.75
		55	25.30	12.65	8.41	6.32
		60	27.60	13.80	9.18	6.90
		65	29.90	14.95	9.94	7.47
		70	32.20	16.10	10.71	8.05
		75	34.50	17.25	11.74	8.62
		80	36.80	18.40	12.24	9.20
85	39.10	19.55	13.00	9.77		
90	41.40	20.70	13.77	10.35		

Allowable thermal transmission 10 to 12 W/m²

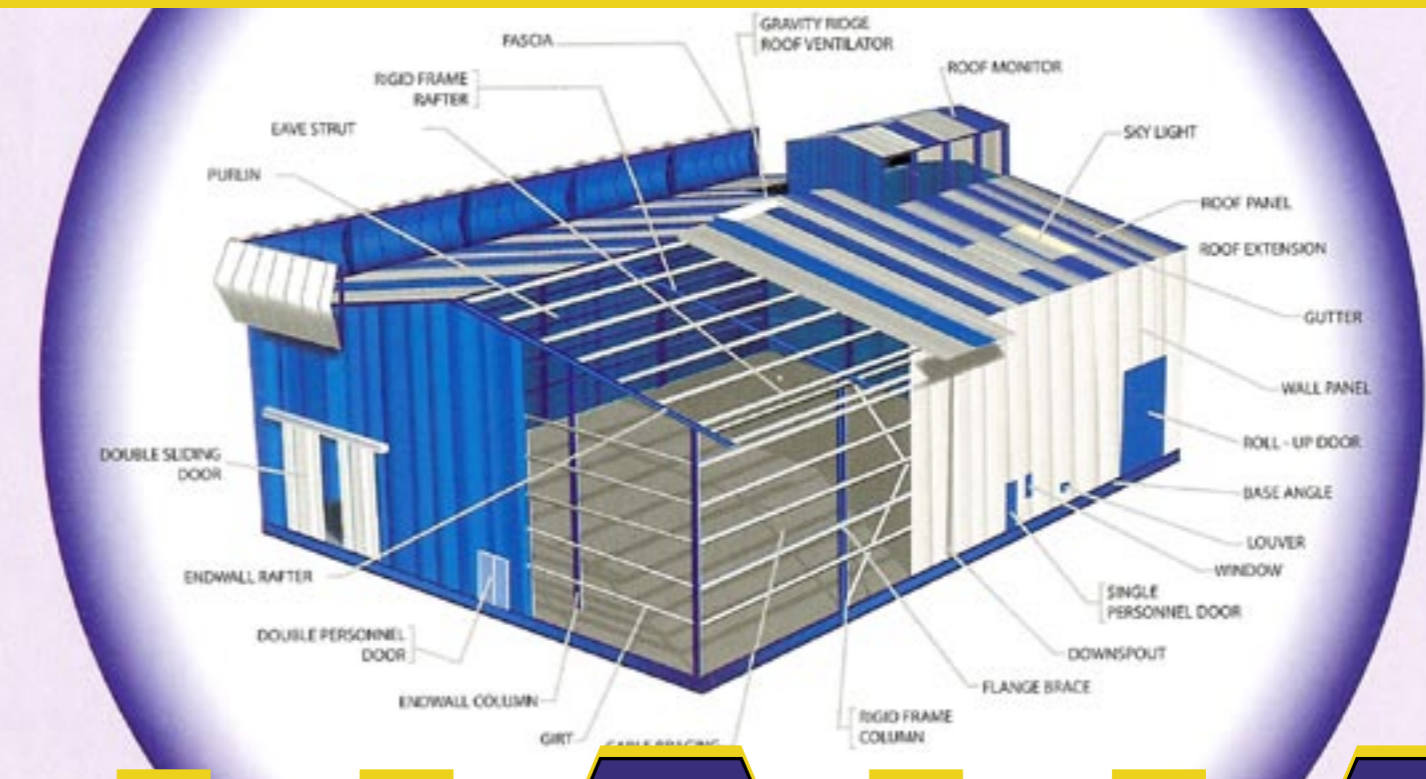
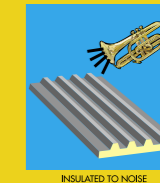
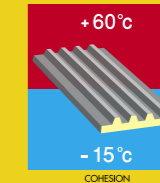
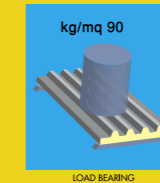
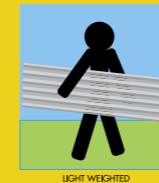
APPLICATIONS:

- Food storage's- Food, Meat, Sea Foods, Dairy Produces, Vegetables.
- Pharmaceuticals
- Clean Rooms
- Prefabricated Units
- Super Markets
- Telecommunication shelters
- Defense shelters
- Factory / Industrial buildings or Warehouse
- Poultry Farm or Animal Farm
- Environmental Temperature control room
- Education Institution
- Excellent replacement for Old Roofing



BENEFITS OF KPI SANDWICH PANELS

- Only KPI company to provide both Building & Insulation from one manufacturing unit.
- Single span of Panels up to 12meters, saving on joints & erection time.
- Wide range of thickness from 50mm to 200mm to match various applications & sizes.
- Low 'U' Value ,ensures low heat transmissions resulting in major Electricity savings.
- Variety of Profiles & skin claddings in various colors for better longevity & aesthetics.
- Modular advantage & can be easily installed & dismantled.
- Eco friendly process of press injection for manufacturing.
- Panels are CFC Free & absolutely Ozone friendly.
- Virtually maintenance free.

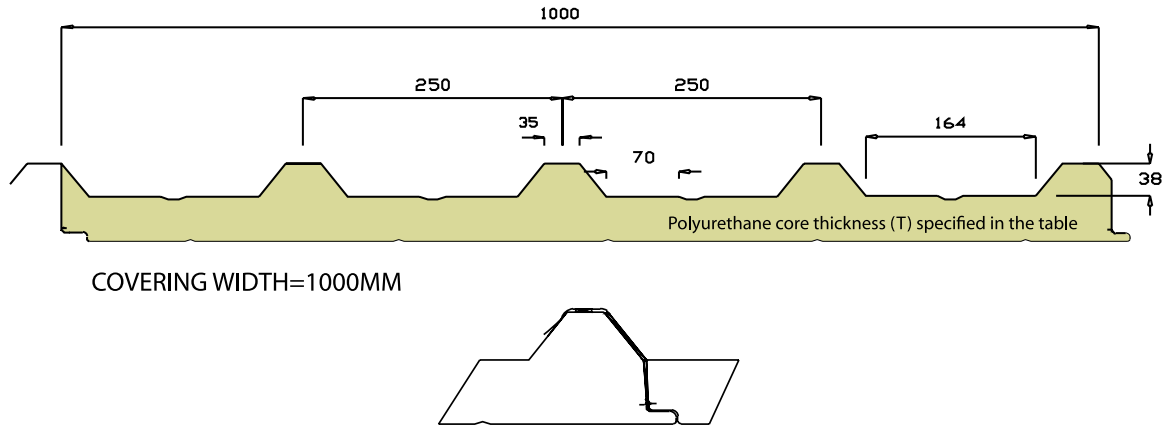


Insulated Panel (Roof)

KPI-003-250-T



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Panel Type:

Roof Insulated (Polyurethane) Panel

Panel Size:

2-12 Mtr Length And 1 Mtr Standard width, 50mm & 75mm Polyurethane Thickness (Excluding high ribs)

Polyurethane Specification:

- Density: 40Kg./M3 +/-2
- Compressive strength: 5Kg./M2
- Fire Resistance: Self-Extinguishing as per DIN 4102 Class B2
- The Insulation core can be provided in various thicknesses with thermal insulation values as below:

Polyurethane core = Thicknesses (mm)		T-50	T-75
Overall Heat Transfer coefficient	W/M ² °C	0.38	0.24
	KCAL/m ² h° C	0.34	0.22
	BTU/Ft ² h° F	0.069	0.046
Additional value of Insulation in corrugated area		20%	13%

KPI reserves the right to amend the above details at any time without notification.

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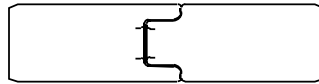
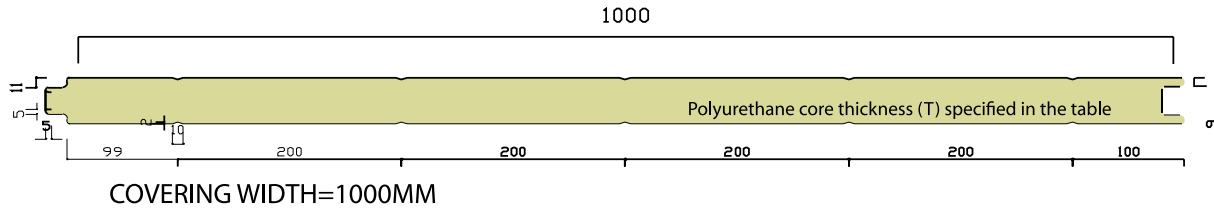
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Insulated Panel (Wall)

KPI-001-T



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Panel Type:

Wall Insulated (Polyurethane) Panel.

Panel Size:

2-12 Mtr Length And 1 Mtr Standard width, 50mm, 75mm & 100mm Polyurethane Thickness (Higher thicknesses are available upon request).

Polyurethane Specification:

- Density: 40Kg./M3 +/-2
- Compressive strength: 5Kg./M2
- Fire Resistance: Slef-Extinguishing as per DIN 4102 Class B2
- The Insulation core can be provided in various thicknesses with thermal insulation values as below:

Polyurethane core = Thicknesses (mm)		T-50	T-75	T-100
Overall Heat Transfer coefficient	W/M ² °C	0.38	0.24	0.19
	KCAL/m ² h°C	0.34	0.22	0.18
	BTU/Ft ² h°F	0.069	0.046	0.037

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PS 40 - Dis-Continuous Sandwich Panel



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Introduction:

PS 40- CFC free is a two component polyurethane system developed for the manufacture of rigid polyurethane foam. It has been especially designed for panel filling applications that serve as an excellent insulation material. It is a CFC free system and thus complies with the environment friendly regulations act having the same properties of that of CFC based foams.

Applications:

PS 40- CFC free is mainly used for the production of sandwich panels by the discontinuous method. It is also recommended for molding, cavity filing and pour in place. The grade is suitable to be processed with dispensing machines and as well as manual mixing.



Component A – is a polymeric Diphenyl Methane Diisocyanate and has following properties:

Appearance	: Clear dark brown liquid
Viscosity @25°C	: 220 ± 20cps
Specific Gravity @25°C	: 1.25 ± 0.001
Free Isocyanate Content,%	: 31 ± 0.5

Component B – is a blend of different polyols, additives and blowing agents. The blowing agent used is *HCFC 141B* that leads to the formation of polyurethane foam. The typical properties of Component B are:

Appearance	: Clear Pale Yellow liquid
Viscosity @25°C	: 400 ± 20cps
Specific Gravity @25°C	: 1.20 ± 0.001

The reaction profile of PS 40 CFC free is typically as follows:

For a Laboratory cup test, when both components maintained at 20°C,

And Mix Ratio Being

Component A : 115 pbw

Component B : 100 pbw

Then Reactivity is as follows:

Cream Time : 22 - 24 seconds

Gel Time : 130 - 150 seconds

Tack Free Time : 200 - 220 seconds

Free rise density : 24 - 27 kg/m³

Typical foam properties for panels manufactured by horizontal injection from PS 40 (CFC Free)

Molded density	Kg /m ³	38 – 42
Closed cell content	%	> 96
Initial Thermal Conductivity	W / m ² K	0.020
Dimensional stability (Linear Change) 72 hrs at - 20°C	%	Maximum 1
72 hrs at - 70°C	%	Maximum 1
Compressive Strength (perpendicular to the main panel)	Kpa	160

•Test methods are available on request

Packing:

Component A : 250 kg net

Component B : 220 Kg net

Storage Information:

We recommend the component containers to be kept in a dry and cool area at 20°C maximum. All the containers are to be kept well closed to avoid contamination with moisture or any other foreign matter that would result in a negative performance of the product.

The information given herein are true to the best of our knowledge and general industrial experience. However, the properties are subjected to change depending on the handling and processing conditions at the customer's end, which is not under our control.

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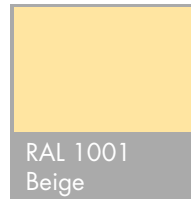
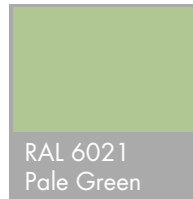
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Colors & Meterials

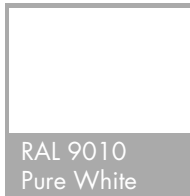


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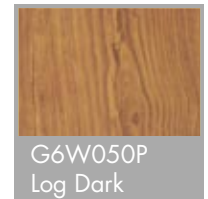
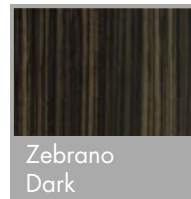
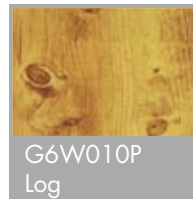
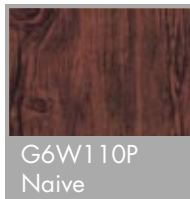
STANDARD COLORS:



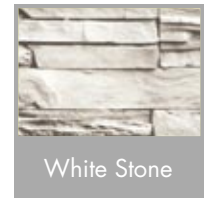
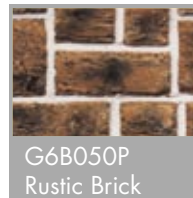
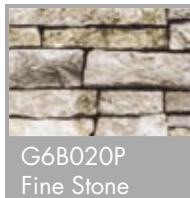
NON - STANDARD COLORS:



WOOD:



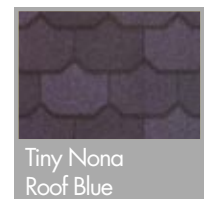
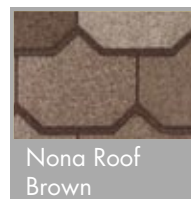
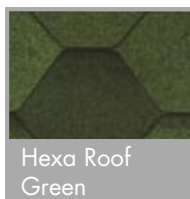
STONE:



PATTERN:



ROOF:



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