



July 2016

K-FLEX



K-FLEX ST



K-FLEX ST is closed cell, flexible elastomeric foam use in thermal and acoustic applications. K-FLEX ST is a Factory Mutual Approved, Class "0" fire rating (based on BS476 Part 6 & 7), Anti-Microbial, Clean room approved insulation without CFCs, HCFCs, HCFCs, Formaldehyde, Green Guard Approved, Singapore Green Mark Approved (GBI) and Fiber free. K-FLEX ST insulation is also available with pressure sensitive adhesive and aluminium foil for faster installation process.)



EMSL ANALYTICAL, INC.



K-FLEX
www.kflex.com

K-FLEX ▶ ST

K-FLEX is an Italian manufacturing company specialised in the production of thermal and acoustic flexible elastomeric insulation materials.

K-FLEX is an example of a successful Italian company that has established itself worldwide. The company is present in 60 countries, with production facilities in all continents and more than 2,000 employees. In addition, the company has commercial distribution branches, located all over the world, for the efficient and effective global distribution process of its products.

The original manufacturing plant, located in Roncello (Italy), was founded in 1989 and today it is the largest in the world for the production of elastomeric insulation.

PLANT TIMELINE ▶



K-FLEX ▶ ST

K-FLEX ST is a multi purpose flexible elastomeric thermal insulation with a built-in vapour barrier and a closed cell structure, this make K-FLEX insulation a high resistance to water vapour transmission which in turn enable the material to maintain a high level of energy conservation efficiency.

K-FLEX ST is a dust and fibre free insulation that make it an ideal product for apartments, commercial buildings, industrial plants, oil & gas industry, marine and offshore applications.

K-FLEX ST is the ideal choice for:

- Refrigeration pipework
- Hot water piping system
- Ducting system
- Large pipe and tanks
- Chilled water piping system
- Drainage system

With 12 plants worldwide, K-FLEX can uniquely provide On-Time Delivery, Consistent Product Quality and a Highly Competitive Price.

K-FLEX ST ▶ ADVANTAGES



Low flame spread

When fire tested K-FLEX ST, it does not generate flaming droplets, and has a low fire propagation index. These combined meet the fire performance requirement of class "0" as defined in Building Regulations. Further guarantee is given by supervision contracts with independent European laboratories.



High water vapour diffusion resistance

K-FLEX ST closed cell elastomeric insulation has a high water vapour diffusion resistance factor μ , that minimizes water vapour penetration, giving excellent long term performance.



Very low thermal conductivity

K-FLEX ST thermal conductivity is $\lambda_{0^\circ\text{C}} = 0.032\text{W}/(\text{m}\cdot\text{K})$. The thermal conductivity coefficient is the most important factor in calculation focused on energy saving.

TECHNICAL DATA ▶ K-FLEX ST

Brief description	Flexible elastomeric foam, closed-cell insulation material
Material type	Nitrile Butadiene Rubber
Colour	Black
Assembly	Light weight and flexible. Closed cell structure means no additional vapour barrier is required.

<i>Property</i>	<i>Value/Assessment</i>	<i>Special Remark</i>
Temperature Range	Max. service temperature: + 116 °C Min. service temperature: -200 °C	Tested acc.to EN 14706, EN 14707 and EN 14304
Thermal Conductivity	$\lambda \leq 0.034$ W/(m.K) at +20 °C $\lambda \leq 0.032$ W/(m.K) at 0 °C $\lambda \leq 0.028$ W/(m.K) at -50 °C	Tested according to DIN EN 12667, EN ISO 8497
Water vapour diffusion resistance	Water vapour diffusion resistance: $\mu \geq 10,000$ Water Absorption: 0.2% by volume	Tested acc. To EN 12086, EN 13469 Test acc to ASTM C 209
Fire performance	Surface Spread of Flames: Class 1 Fire Propagation: Total Index Performance (I) ≤ 12 Sub Index (I1) ≤ 6 Fire Performance: Class 0	Surface Spread of Flame: tested according to BS 476 Part 7:1997 Self-extinguishing, does not drip, does not spread flames Fire Propagation: tested according to BS 476 Part 6:1989
Other Fire Class	FM-approved V0, 5VA Flame spread index (FSI): 25 Smoke develop index (SDI): 30 Ignitability index: 0 Spread of flame index: 0 Heat evolved index: 0 Smoke develop index: 3	Tested acc.to Class No.4924 UL 94 Tested acc. To ASTM E84 Tested acc. To AS/NZS 1530.3 - 1999
Chemical behaviour	Excellent resistance to ozone, oil and chemicals (consult product test list).	
UV resistance	For UV protection K-FLEX finish paint required	
Acoustic Insertion Loss	35 dB	
Other certificates	Anti microbial Clean room - contamination class "A" Greenguard Singapore Green Building Products Low VOC	Tested acc. To ASTM G21 Tested acc. To ASTM F51-00 Tested acc. To ISO 17025 Approved Tested acc. To ISO 16000 part -3, -6, -9, -11

For temperatures below -50 °C please contact our Customer Service Center to request for the corresponding technical information.

The reaction to fire classification is valid on metal or solid, mineral surfaces.

Further documents such as test certificates, approvals and the like can be requested using the registration number given.

K-FLEX reserves the right to change data and technical requirements without notice.

K-FLEX ST

K-FLEX ST ▶ Pipe Insulation Thickness Recommendations

Conditions	Pipe Size			
	6mm – 28mm	28mm – 60mm	60mm – 114mm	114mm – 168mm
Ambient Temperature: 33°C Medium Temperature: 6°C Relative Humidity 60%				
70%	10 mm	13 mm	13 mm	13 mm
80%	19 mm	19 mm	19 mm	25 mm
	25 mm	32 mm	32 mm	32 mm
Ambient Temperature: 33°C Medium Temperature: 12°C Relative Humidity 60%				
70%	10 mm	10 mm	10 mm	13 mm
80%	13 mm	13 mm	19 mm	19 mm
	19 mm	25 mm	25 mm	25 mm
Ambient Temperature: 33°C Medium Temperature: -50°C Relative Humidity 60%				
70%	32 mm	40 mm	40 mm	50 mm
80%	50 mm	50 mm	60 mm	60 mm
	63 mm	75 mm	90 mm	100 mm

K-FLEX ST ▶ Sheet Insulation Thickness Recommendations

Conditions	Ducts – Tanks – Vessels – Equipment Metal
Ambient Temperature: 33°C Medium Temperature: 6°C Relative Humidity 60%	
70%	13 mm
80%	25 mm
	40 mm
Ambient Temperature: 33°C Medium Temperature: 12°C Relative Humidity 60%	
70%	13 mm
80%	19 mm
	32 mm
Ambient Temperature: 33°C Medium Temperature: -50°C Relative Humidity 60%	
70%	50 mm
80%	75 mm
	125 mm

K-FLEX ▶ ST



K-FLEX ST tube is available in 2 meters length. In sheet form, K-FLEX ST is available in roll or pre-cut sheet. All sheet material is available with or without self adhesive and/or self adhesive and aluminium foil.

RANGE ▶ K-FLEX ST TUBES (2 METRES)

Copper Pipe		Iron Pipe		6 • 1/4"		9 • 3/8"		13 • 1/2"		19 • 3/4"		25 • 1"		32 • 1 • 1/4"		40 • 1 • 1/2"		50 • 2"	
OC Inches	ø OD mm	LPS Inches	ø OD mm	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box
1/4"	6					9x6	288	13x6	160	19x6	100								
3/8"	10	1/6"	10.2			9x10	240	13x10	152	19x10	80	25x10	60						
1/2"	12					9x13	180	13x13	128	19x13	72	25x13	50						
5/8"	15	1/4"	13.5	6x16	266	9x16	168	13x16	112	19x16	60	25x16	50						
3/4"	20			6x19	180	9x19	136	13x19	104	19x19	60	25x19	40	32x19	32				
7/8"	22	1/2"	21.3	6x22	180	9x22	128	13x22	98	19x22	60	25x22	38	32x22	24	40x22	18	50x22	12
1"	25			6x25	152	9x25	108	13x25	80	19x25	50	25x25	40	32x25	24	40x25	16	50x25	10
1.1/8"	28	3/4"	26.9	6x28	130	9x28	98	13x28	78	19x28	48	25x28	32	32x28	24	40x28	16	50x28	10
1.3/8"	35	1"	33.7	6x35	100	9x35	76	13x35	58	19x35	36	25x35	24	32x35	18	40x35	16	50x35	8
1.5/8"	42	1.1/4"	42.4	6x42	90	9x42	60	13x42	48	19x42	32	25x42	22	32x42	16	40x42	12	50x42	8
1.7/8"	48	1.1/2"	48.3			9x48	50	13x48	40	19x48	24	25x48	18	32x48	14	40x48	10	50x48	8
2.1/8"	54					9x54	46	13x54	34	19x54	24	25x54	18	32x54	14	40x54	10	50x54	8
2.3/8"	60	2"	60.3			9x60	46	13x60	32	19x60	22	25x60	18	32x60	10	40x60	8	50x60	8
3"	76	2.1/2"	76.1			9x76	40	13x76	26	19x76	18	25x76	10	32x76	8	40x76	8	50x76	6
3.1/2"	89	3"	88.9			9x89	36	13x89	24	19x89	14	25x89	8	32x89	8	40x89	8	50x89	6
4.1/2"	114	4"	114.3			9x114	22	13x114	18	19x114	12	25x114	6	32x114	6	40x114	6	50x114	6
		5"	139.8													40x140	4	50x140	4
		6"	165.2													40x168	4	50x168	4

RANGE ▶ K-FLEX ST SHEET IN ROLLS

Type	Thickness		Sheet 1.14 metre wide	
	mm	inches	format	m ² /box
PL/RO 06	6	1/4"	30 x 1.14	34.20
PL/RO 10	10	3/8"	20 x 1.14	22.80
PL/RO 13	13	1/2"	14 x 1.14	15.96
PL/RO 16*	16	5/8"	12 x 1.14	13.68
PL/RO 19	19	3/4"	10 x 1.14	11.40
PL/RO 25	25	1"	8 x 1.14	9.12
PL/RO 32	32	1.1/4"	6 x 1.14	6.84
PL/RO 40	40	1.1/2"	4 x 1.14	4.56
PL/RO 50	50	2"	4 x 1.14	4.56

*16mm only available upon received Purchase Order from customer.

PACKAGING ▶ K-FLEX ST TUBES AND SHEETS

K-FLEX ST Tubes



Measurements:
2.1m x 0.394m x 0.32m

K-FLEX ST Sheets

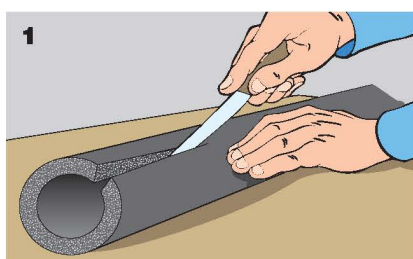
Polyethylene bags
The bags allows for outdoor storage during the sorting stage.

Measurements:
0.5m x 1.23m



Self adhesive sheets available in all sizes.

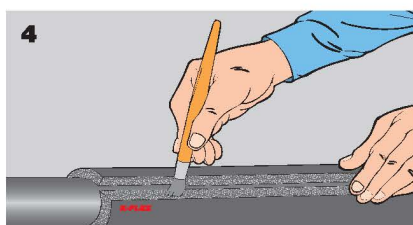
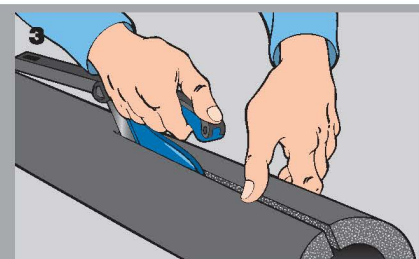
INSTALLATION ▶ FITTED PIPES



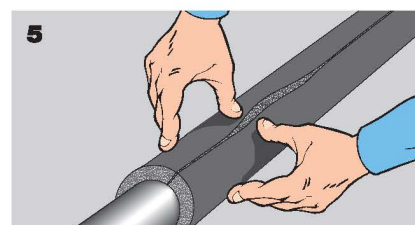
Use only the sharpest knife for cutting - this makes the subsequent glueing far easier.
We recommend using the K-FLEX cutter which is ideal for longitudinal cuts.



The use of the cutter is illustrated in these two diagrams. Let the blade run along the tube without the tool's surfaces touching it to get a neat, clean cut.

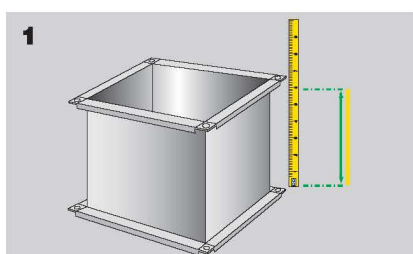


Position the tube so that the edges are separated, and apply an even layer of K-FLEX K-996 glue.



Once the glue has dried, reseal the tube, pressing the edges firmly together.

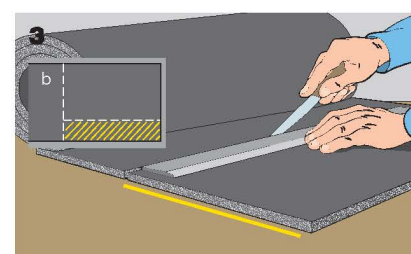
INSTALLATION ▶ INSULATION DUCTINGS



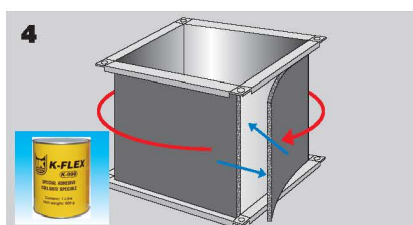
There are considerable advantages in using K-FLEX ST ROLL SHEET for ducting, which has the same height as the sheeting.
Take the measurements of the ducting section to be lagged.



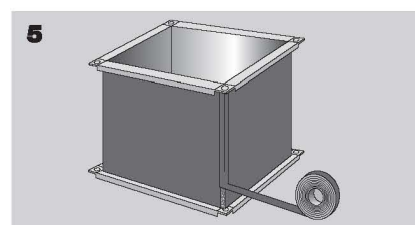
Use K-FLEX thinner to thoroughly clean the surface to be insulated. Insulation is not recommended where there is incrustation or other flaws which could prevent the sheeting from sticking perfectly.



Cut the corresponding portion out of the roll. There is an obvious saving in material by cutting the sheeting along its height (a) rather than along the length of the 1000 mm sheeting (b).



Glue the side of the sheeting to be stuck to the conduit and glue the conduit surface, then apply the sheeting, keeping it taut at the corners.



Cover the corner where the edges join with adhesive insulating tape. Compared to a similar operation carried out with 1000 mm sheeting, as well as the saving in material, there has only been one cut in the application.

K-FLEX ST



K-FLEX ▶ ST



PROJECT ▶ MALAYSIA

D&Y Textile(M), Johor
Kaifa Technology, Johor
First Solar
Robert Bosch
Scandisk
Infineon Kulim
Haemonetics
B.Braun
Finisar Corporation
Sunpower Alor Gajah
Biocon
Hersey Chocolate
Seagate JB
Platinum Face, Jln Sultan Ismail
The Leafz, Off Jln Sg. Besi
JAKIM A,B,C,D, Putrajaya
2C10 Putrajaya
4G5 Putrajaya
DBKL Tower, KL Eco City
Sky88
The Puteri Cove Residence, Puteri Harbour
Green Haven, JB
D' Summit, JB
Paradigm Johor
Four Season, KL
Uptown Residences, D'sara Uptown
Cherish Springs Condo & Hotel, Jaya 33
Damansara Foresta, Sri D'sara
Glomac Damansara
Le Nouvel, KLCC
Regina, USJ 1
The Centina, Jln Sg Besi
Beremi Hotel, Jln Bellamy, KL
Dijaya, Tropez Danga Bay, JB
UITM Puncak Alam
One Amerin, Balakong
Pangaea, Cyberjaya
Tabung Haji Sepang
One South, Serdang Perdana
Pusara, Putrajaya
M-City, Jln Ampang
Top Glove HQ @ Setia Alam
Country Garden, JB
Forest City, JB
Schlumberger, Labuan
Parcel F, Putrajaya
IIUM, Medical Campus, Kuantan
KL Metropolis, Matrade
Vogue Suites, KL Eco City
CPI Avantas, Old Klang Road
Sierramas Height Condo,
Three28 Residence, Jln Tun Razak
Public Mutual HQ
JKG Tower
D'Centrum, Uiten
MAHSA University, Putra Permai
VINA SOHO, Cheras
IKEA Cheras
Cristal Residence, Cyberjaya
Verde, Ara Damansara
Continental City, Glenmarie
First Lady Apparels
Lembaga Koko Malaysia
ACORIS, MK 20
Glomac Centro
Reflection Damansara
IPKB, Setia Alam
Teega Residence, Puteri Harbour
Vortex, Jln Sultan Ismail
The Park Residences, Bangsar South
3 Towers, Jln Ampang
Arcadia, Desa Parkcity
Bangi Hospital
Berjaya Central Park Tower 1 & 2
GM Klang
Vertical Tower, Bangsar South
Tropicana International School
The Robertson
Parliament House
Residence 22, Mon't Kiara



PROJECT ▶ THAILAND

MahaNakhon Tower
Marriott Surawong
Palladium Hotel
Maya Chiangmai
Central Embassy Chiangmai
Promenada Changmai
four Wing Grand Hotel
Dusit Hotel
Four Point Hotel
Best Western Hotel
Holiday Inn Hotel
Vana Belle Hotel
Paradise Park
The Nine Community Mall
The Walk
Fashion Island
Mega Play
Merry King Rungsit
Western Digital
Canon Korat
Toshiba Factory
Seagate Korat
Ichitan Factory
Doubla A Factory
Nikon Factory
Ajinomoto Factory
Nidec Copel
Asahi Factory
Ducati Factory
New Tobacco Factory
Sukhothai King Palace
Royal Gems
Thammasat University
IDEO Mobil
Mega Home
Noble Ploenjit
Noble Revolve Ratchada
Harbor Mall Laemcagabang
Index Living Mall
The Garden Night Latgrabang
Alucon Factory
Chapter One The Campus
Fabinet Factory
Egat krontoy
Choroom Dukt ramIntar
Royal Paragon Phuket
G-Land Tower
Bang - Bangkok CDC
Ares pattaya
Pockpertl Khaoyai
FYI HOTEL
FYI CENTER (OFFICE)
Park 24 Condominium
Rosewood Hotel @Kampuchea
Rattianathibet Park
Siamese@ Sukhumvit 31
Siamese Blossom@ Ramintra
Than Living Condo @Bangbuathong
Than Living Condo @Sathorn-charoenraj
Wish Signature Condo @Siam
Bluport
Celeste Condo (Khao Tao Bay View Resort)
Terminal 21 @ Korat
Pearl Bangkok 25 Fl (Pruksa Head Office)
Maya Theatre @Pattaya
Issara Collection @Sathorn
Arcadia Beach @Chonburi
Nitta project
Extension Factory @ Amata, Rayong
T Project
Hemaraj Industrial Estate @ Rayong
Mal Ton Residence 31 @Sukhumvit 63

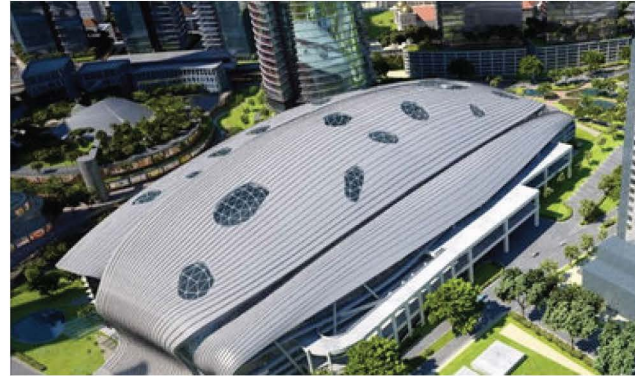


PROJECT ▶ INDONESIA

Akmani Hotel, Legian - Bali
All Season Hotel - Nusa Dua, Bali
Pullman Hotel, Central Park - Jakarta
Cavington Hotel - Jogja
Novotel Hotel - Tangerang
Sol Marina Hotel - Serpong
Mercure Hotel - Surabaya
Pakubuwono The View Apartement - Jakarta
Coca-Cola Factory - Surabaya
Australa Embassy Office - Jakarta
Istana Presiden Bogor
The East Office - Jakarta
Wisma Soho Office - Jakarta
The Peak Apartement - Jakarta
XXI Cinema All Outlet - Indonesia
Darya Varia Laboratories Factory - Cileungsi
Indo-Bharat Rayon Factory - Purwakarta
Indolaktto Factory - Sukabumi
Sanbe Farma Factory - Bandung
Uniplast Factory - Cikarang
Central Park Office Tower - Jakarta
Mall Paris Van Java - Bandung
Schering Pharmaceutical - Pandaan, Surabaya
Bank Indonesia (BI) - Lampung
Mall & Office Tower Kota Kasablanka - Jakarta
Plaza Indonesia Extention - Jakarta
Theme Park Trans Studio - Bandung
Konlmax Pharmaceutical - Solo
Kraft Foods Factory - Cikarang
Pt Krakatau Steel - Cilegon
Apartemen Kencana Pondok Indah - Jakarta
Alport Bajo - Nusa Tenggara Timur
Ferron Par Pharmaceutical Factory - Cikarang
Jotun Factory - Cibitung
Nutrifoed Factory - Cikarang
Reckitt Beckdnser (Detol) Factory - Bekasi
Unilever Factory - Cikarang
Rs Pertamina - Sentul
Data Center Cbn Cyber Office - Jakarta
Kantor Kementrian Pemberdayaan Perempuan & Anak - Jakarta
Schlumberger Workshop And Office - Bekasi
Apartement Ambasadior - St Moritz - Jakarta
Apartement Presidential Puri Kembangan - Jakarta
Capitol Apartement - Jakarta
Sumarecon Mall - Bekasi
Bayer Healthcare Indonesia Factory - Cibinong
B-Braun Medical Factory - Cikampek
Fahrenheit Factory - Tangerang
Frislan Flag Factory - Jakarta
Hankook Tire Factory - Cikarang
Fave Hotel - Papua Nuglni
Alfa Head Quarter Alam Sutra - Tangerang
Infomedia Office - Bandung
Maxx Box Mall - Tangerang
Glaxo Parmaceutical Factory - Pulo Gadung
Hotel Swiss - Bel Legian Bali
Menara Danamon Kuningan - Jakarta
Hotel Radison - Bali
Tempo Scan Pacific - Cikarang
Sinde Budi Sentosa Tambun Bekasi
Toyota Training Center
Lotte Factory - Cibitung
Nittsu Shoji - Kerawang
Sano Gratia Pharmaceutical - Cikarang
Mahakam Beta Farma (Mbf) Factory,
Pulogadung - Jakarta
Kawan Lama Sejahtera Office - Jakarta
Mid Town Signature - Summarecon Serpong
Tangerang
Tanto Line Office - TJ Perioek Jakarta


PROJECT ▶ SINGAPORE

Changi Water Reclamation Plant
 NUS Laboratory
 AMD Singapore
 Biopolis Centre
 Glaxo Wellcome Pharmaceutical (GSK)
 Novartis Plant @ Tuas
 Crystal Plant @ Jurong Island
 Singapore General Hospital
 P&G @ Biopolis
 Sony A&A
 Abbott Pharmaceuticals
 Wyeth Pharmaceuticals
 Schering Plough Corporation
 UMCi @ Pasir Ris
 3M @ Gambas Ave
 Philips SSMC Wafer Fab
 Seagate @ Woodlands
 Siemens Semiconductors Plant
 Hewlett Packard
 Changi Store Hub
 Bugis Junction
 Comcentre 3
 HDB Hub @Toa Payoh
 Marina Bay Sand
 New Cathay Building
 Nanyang Polytechnic
 Teck Ghee Community Club
 Global Switch @ Tai Seng
 IMM extension
 Kranji Turf Club
 DHL Head Office
 UE Square
 Singapore American School
 Bukit Timah Cold Storage
 City Sqaure Mall
 Hitachi Tower
 Ministry of Manpower
 Japanese School @ Changi Campus
 Junction Nine @ Yishun
 High Park Residence @ Seng Kang
 Cabana @ Yio Chu Kang
 Double Bay @ Simei
 Tampines Central 8 (DBSS)
 Twin Fountains @ Woodland
 Sentosa Cove Apartment
 Lincoln Suites Condo
 Cote D'Azur Condo
 Caspian Condo @lakeside
 Cusaden Condo
 Skyline @Telok Blangah
 High Oak Condo
 Latitude Condo @ Jalan Mutiara
 Rain Forest Condo
 Austville Condo @ Seng Kang
 Light Condo @ Cairhill


PROJECT ▶ PHILIPPINES

Texas Instrument
 Sunpower Fab 2 & Fab 4 Factory
 United Pulp and Paper Manufacturing Plant
 Marina Bay Resort
 BPO Araneta Call Center
 Cebu Airport Terminal
 Palawan Airport Terminal
 Metro North Call Center
 Conrad Hotel
 Festival Shopping Mall
 MBR Hotel & Casino
 National Museum of Natural History
 Cebu Hotel
 SMDC-New Port

PROJECT ▶ CAMBODIA

Cho Ray Phnom Penh Hospital
 Almond Hotel
 Olypia City
 Calmette Hospital
 City Tower
 The Bridge Showroom
 Toyoko Inn Hotel
 Thai Villiage Restaurant
 Cazameridian Twin Tower
 Era Phnom Penh Hotel
 Era Siem Reap Hotel
 Tela Gase Station Head Office
 Mazda Showroom
 Marriott Hotel
 The Parkland
 DFS
 CMED

PROJECT ▶ VIETNAM

Robert Borsch Factory
 Dona Food Wear Standard Vietnam Factory
 PNJ Factory
 Pepsi Cola Factory
 First Solar Factory
 LPG Thi Vai Factory
 TCIE Da Nang Factory
 DKSH Factory
 CiCt Cai Lan Port
 Lao Coffee Factory
 City Garden Apartment
 Hyatt Regency Apartment
 Crown Plaza Hotel
 Times Square
 Hue Hospital
 Russia Embassy
 Big C Supermarket
 ICON 4 Complex
 British Vietnam International School
 An Giang Television
 Minh Viet Building
 Cotec Office Building
 Sai Gon Pavillon
 Intercontinental Resort & Spa @ Da Nang
 Bitexco Financial Centre



K-FLEX ST



ACCESSORIES ► K-FLEX ST

SELF ADHESIVE FOAM TAPES



PIPE SUPPORT



K 996 GLUE



ALUMINIUM TAPE



SPT GREEN BUILDING COMPANY

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 Tel: (08) 6258 3778 - 6258 3779
 Email : sales@sptbuilding.com

Fax: (08) 6258 3789