

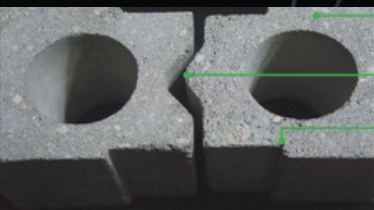
绿色混凝土革命的未来



The Art of Lightweight Technology



JOE Green 的墙板设计 凹槽



compact and not porous
interlocking joint
recess



Pull-off test (Per Point Load):

- Hollow 400 kg
- Solid 1.2 tones



多孔波浪形, 无凹槽设计

其他类型的墙板



容易开裂 (振动)



AAC Block



多孔, 内部腐蚀 BRC, 弯曲且无强度



声级不一致



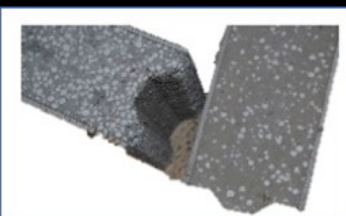
渗水



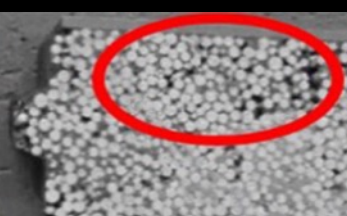
发霉的墙



外部开裂



Sandwich Panel/EPS Beads



质量不一致



低强度



接缝开裂和剥落



剥离



易燃和有毒烟雾



Gypsum Board



渗水



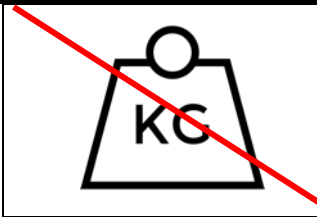
霉菌和真菌



低强度



低隔音



使用上述材料的墙板的风险:

1. 蜘蛛网状裂缝和关节裂缝
2. 吸水/渗水
3. 真菌和霉菌滋生
4. 易燃材料的高风险
5. 低隔热和隔音
6. 有毒烟雾
7. 腐蚀性材料
8. 脱粘
9. 偏转/不均匀表面
10. 空气传播疾病

有2个耐火要求:

1. 防火完整性
 - 完好无损
 - 未塌陷
 - 未烧毁
2. 防火绝缘
 - 热量穿透墙壁的时间





各类工业废料



回收利用

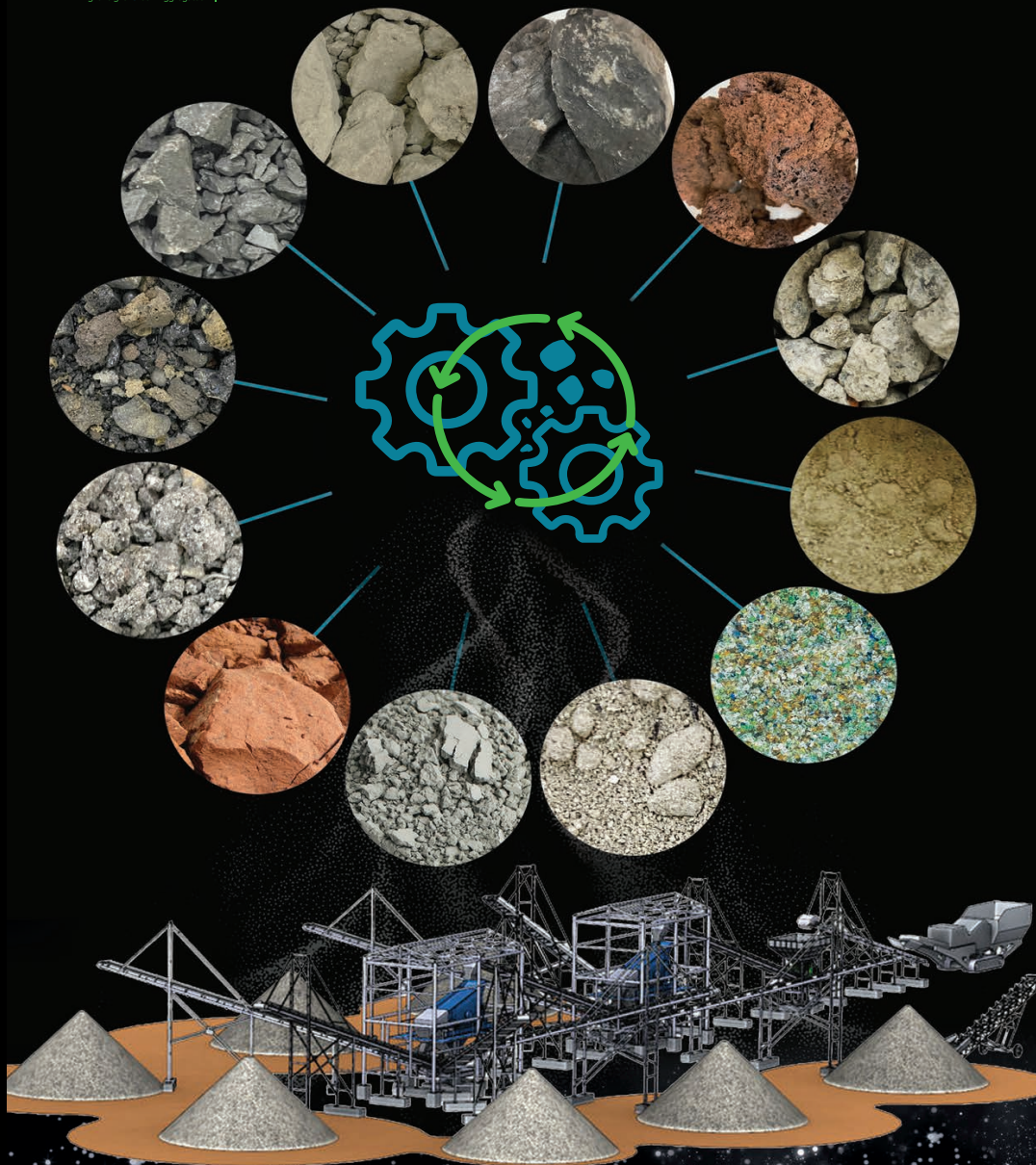
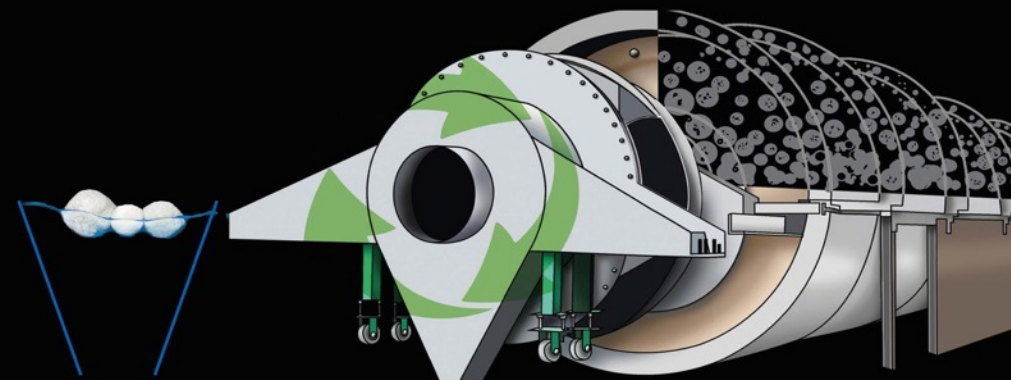
轻质绿色骨料工程



生产程序



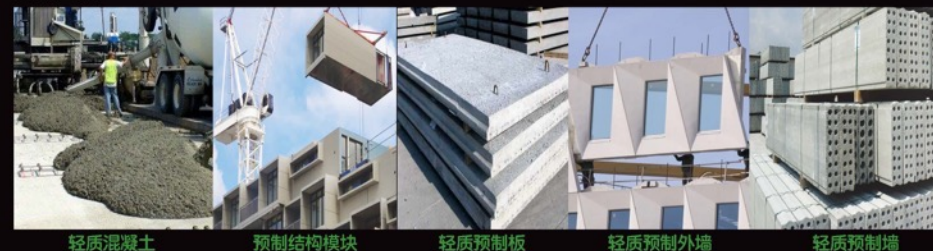
我们与顶尖的创新制造商展开合作，以便开发出了低碳排放的高科技以及节能设备。
我们使用最新的设备能将各废料转化为各类轻质骨料，有助于环保，且可用于各种行业。



LiGrA 的技术与一些知名大学、专业人士和工业参与者的高等教育研究所协力合作，为建筑行业提供先进的建筑材料。我们的新配方和定制产生了许多新产品，这些产品提供了具有成本效益的高质量解决方案，并与技术保持同步并开拓新领域。我们先进的研发实验室和敬业的专业科学家和工程师不断为未来开发新的可持续绿色产品。符合世界 GO GREEN PLAN 的基准。



混凝土用 LiGrA



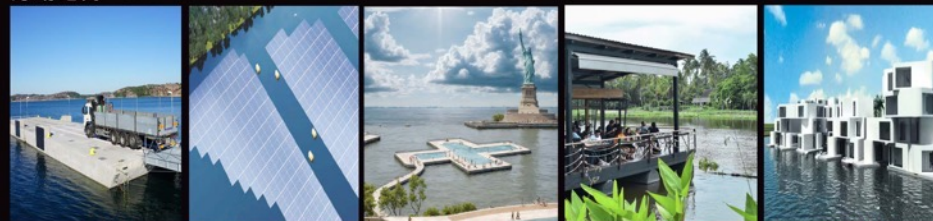
轻质混凝土 预制结构模块 轻质预制板 轻质预制外墙 轻质预制墙

岩土工程 LiGrA



稳定土壤 道路基层 挡土墙回填

浮动结构 LiGrA



浮动码头 浮动太阳能电池板 浮动游泳池 漂浮咖啡厅 漂浮公寓

绝缘材料 LiGrA



隔热 (屋顶、地板、防火门) 耐热抹灰及干砂浆 废水处理、水培种植介质



革命
专家和基准



Waste Materials



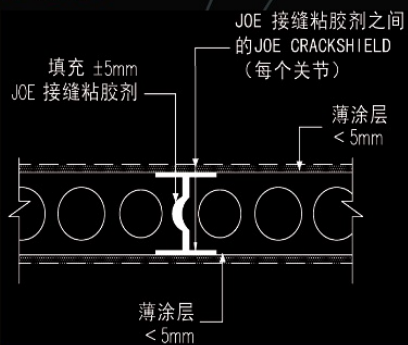
Minimum 30% RCAs



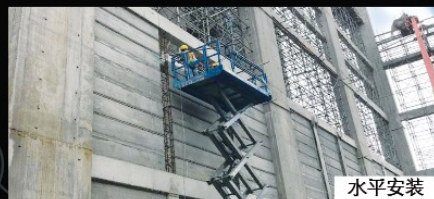
JOE Green Factory In Malaysia



JOE Green Factory In Indonesia



垂直安装



水平安装

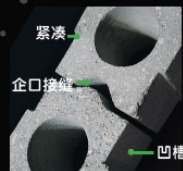


长板用高强度钢丝加固



钢筋和灌浆定制

JOE Green 的墙板设计凹槽



XS/X5

厚度 : 75 - 200mm
公称重量 : 128 - 281 kg/m³
防火等级 : 1 - 4 小时
隔音性能 : STC 47 - 58
公称密度 : 2,200 kg/m³
吸水率 : 6%
抗压强度 : >40 MPa



X3

厚度 : 75 - 200mm
公称重量 : 93 - 204 kg/m³
防火等级 : 2 - 4 小时
隔音性能 : STC 45 - 54
公称密度 : 1,600 kg/m³
吸水率 : 11%
抗压强度 : >25 MPa



X2

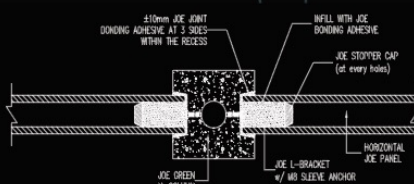
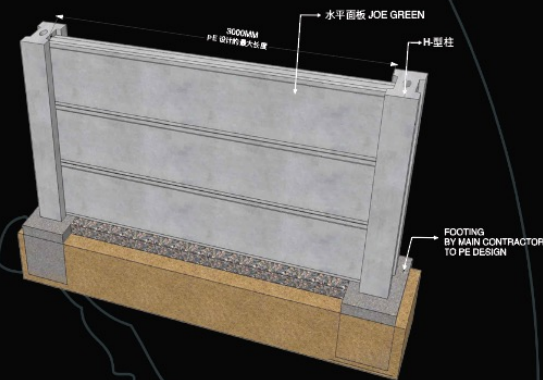
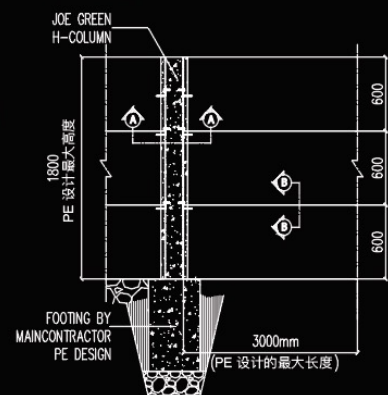
厚度 : 75 - 200mm
公称重量 : 84 - 166 kg/m³
防火等级 : 2 - 4 小时
隔音性能 : STC 41 - 50
公称密度 : 1,300 kg/m³
吸水率 : 14%
抗压强度 : >15 MPa



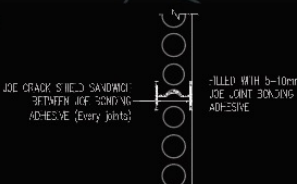
X1

厚度 : 75 - 200mm
公称重量 : 58 - 115 kg/m³
防火等级 : 2 - 4 小时
隔音性能 : STC 39 - 48
公称密度 : 900 kg/m³
吸水率 : 15%
抗压强度 : >5 MPa

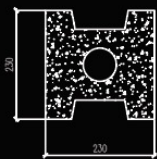
H-柱 边界墙用



SECTION A-A

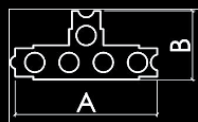


SECTION B-B



JOE GREEN H-COLUMN

T型接头

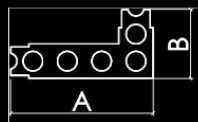


可选厚度

尺寸

75mm, Ø 40mm	: A=290mm : B= 143mm
100mm, Ø 64mm	: A=290mm : B= 195mm
150mm, Ø 40mm	: A=290mm : B= 270mm
200mm, Ø 64mm	: A=290mm : B= 350mm

L型接头



可选厚度

尺寸

75mm, Ø 40mm	: A=290mm : B= 143mm
100mm, Ø 64mm	: A=290mm : B= 195mm
150mm, Ø 40mm	: A=290mm : B= 270mm
200mm, Ø 64mm	: A=290mm : B= 350mm

可特殊定制其它尺寸

宽度: 100mm, 200mm. 和 300mm

抗拉钢丝数量 : 8 - 12 根

固体板

机电凹槽

槽线

隔音板

钢筋和灌浆抗爆设计

钢筋和灌浆加筋板

定制

宽度 : 600mm, 300mm,
200mm, 100mm

可选厚度 : 200mm, Ø 64mm
150mm, Ø 40mm
100mm, Ø 64mm
100mm, Ø 40mm
75mm, Ø 40mm

注: 可供实心面板
(75mm 厚除外)
可定制面板

标准 (X5/X5)

200mm 实心	: 最高 6.0m (带钢丝)
150mm 实心	: 最高 6.0m (带钢丝)
100mm 实心	: 最高 6.0m (带钢丝)
200mm, Ø 64mm	: 最高 6.0m (带钢丝)
150mm, Ø 40mm	: 最高 6.0m (带钢丝)
100mm, Ø 64mm	: 最高 5.2m (带钢丝)
100mm, Ø 40mm	: 最高 6.0m (带钢丝)
75mm, Ø 40mm	: 最高 3.3m

注: 高度 3.3m 以上的面板将
采用钢丝, 以确保安全性和抗
冲击强度

X1 & X2 & X3 : 最大板高

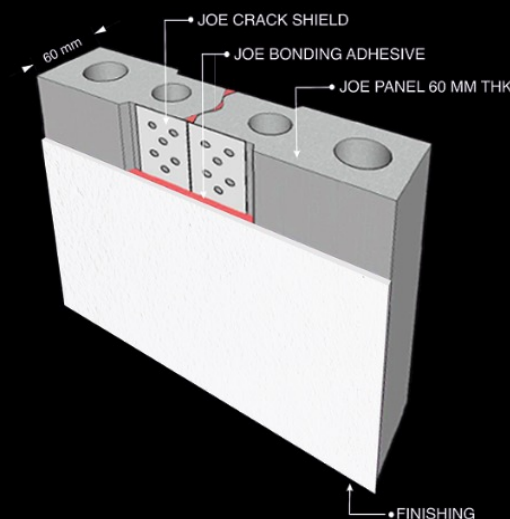
X1 100mm, Ø 64mm	: 最高 5.2m (带钢丝)
X1 100mm, Ø 40mm	: 最高 6.0m (带钢丝)
X2 100mm, Ø 64mm	: 最高 5.2m (带钢丝)
X2 100mm, Ø 40mm	: 最高 6.0m (带钢丝)
X3 100mm, Ø 64mm	: 最高 5.2m (带钢丝)
X3 100mm, Ø 40mm	: 最高 6.0m (带钢丝)

强化抗拉钢丝 : 抗拉强度最低 600 MPa
(Ø3, Ø4.5, Ø5)

凹槽设计 : 深度 6mm
宽度 40mm

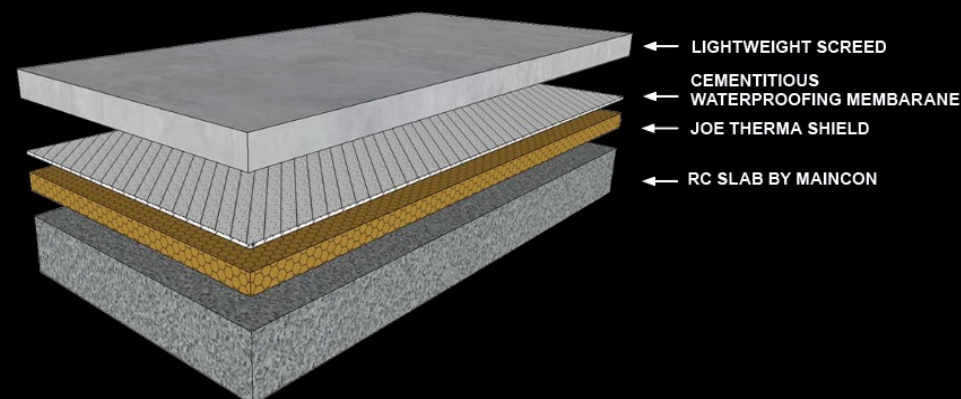
ULTRALIGHT SERIES PANEL

Made from recycled material, the ultra-lightweight (X-Light Series) panel weighs less than 40kg per m2 with a thickness of 60mm and modular width of 600mm. The height can be customised to the need.



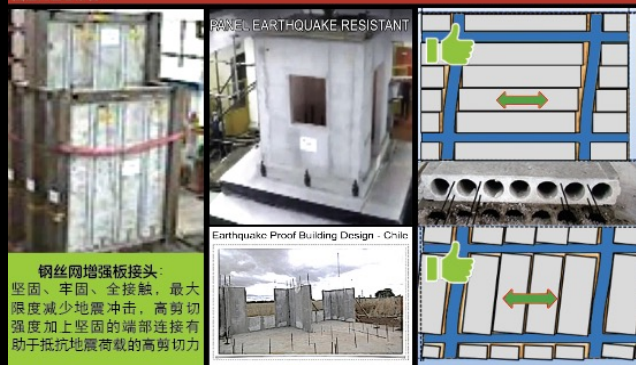
Ease of Installation	: Light and strong
Cost Effectiveness	: Faster installation, less labour and no wet works
Versatility	: Can be installed, removed and reinstalled
Soundproofing	: Able to absorb noise and reduce reverberation
Fire Resistance	: Very high fire rating even for thin sections
Thermal Insulation	: Reduce heat flow and condensation
Low Maintenance	: High durability
Energy Efficiency	: Create stable indoor environment
Eco-Friendly Option	: Use recycled materials

ROOF SLAB INSULATION

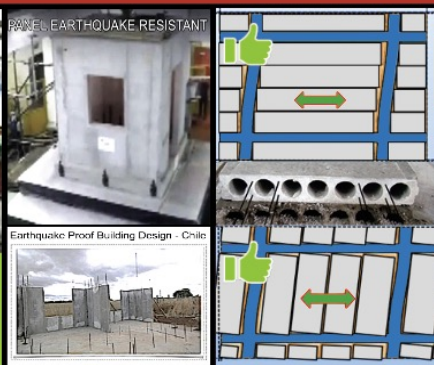




AAC 接缝处薄层砌块/砖
 砖墙中的许多水泥接缝都是横线，在地震冲击时容易塌陷。砖墙的顶部和底部如未采用固定方式连接至建筑结构上，其抗震能力会非常弱。在地震冲击时容易塌陷。砖墙的顶部和底部如未采用固定方式连接至建筑结构上，其抗震能力会非常弱。



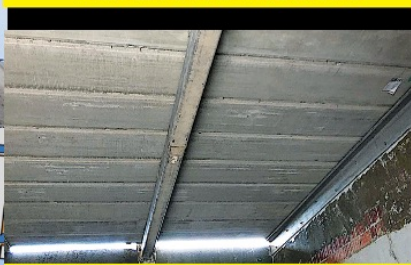
钢丝网增强板接头：
 坚固、牢固、全接触，最大限度减少地震冲击，高剪切强度加上坚固的端部连接有助于抵抗地震荷载的高剪切力



医院气密性测试 (NCID)

外墙水密性测试

重载安装能力
 普通锚套 M8 每点高达
 400公斤 (空心部分) 和 1.2 吨位 (实心部分)



JOE 墙板的其他功能应用用作两倍体积区域的防火强力天花板



气密性测试

水密性测试



产品：
 JOE Green 带加固安全钢线的墙板系统
 事件：
 被叉车撞到并损坏
 地点：
 Tampines 仓库 L3
 解决方案：
 容易通过修补和灌浆修复

高层建筑抗震

设计规范和规格

为满足每个项目的独特需求和不同规格要求，例如隔音墙需求和电影院的隔音、防火或防爆等级要求、以及相关形状/图案方面的要求，我们可以修改墙孔数量/墙洞数量、以及布钢线的数量（从8到12根线），且能够满足无孔洞的实心/固体板要求。我们还生产各种厚度的板件、L & T 接头和各种配件，以防止接缝破裂并便于安装。



Pattern Walls Design



具有成本效益的隔音墙



项目 MRT - T205 - Woodlands South Station

* 两边薄涂层

** 两边薄抹灰

*** 两边灰泥层

带机电

^无钢丝

^^带钢丝

{ } 声学评估

功能要求	JOE 标准环保混凝土面板					
	75mm (Ø40mm)	90mm (Ø58mm)	100mm (Ø40mm)	100mm (Ø64mm)	150mm (Ø40mm)	200mm (Ø64mm)
ASTM - E90						
隔音 (STC)	STC 47*	STC 48*	STC 52*	STC 49* {STC 50-51**}	{STC 55}	{STC 56-58}
ASTM C 518						
热导率 (W/m ⁰ K) K - 值	0.526	0.582	1.194	0.665	参考热阻值	
热阻 (m ² ⁰ K/W) R - 值	0.143	0.155	0.0832	0.1484		
BS 476: 第 22 部分 : 1987						
耐火性能 (4 小时, 单墙)						
完整性	132分钟*	68分钟*	120分钟#*	132分钟*	260分钟*	260分钟*
隔热性	125分钟*	68分钟*	120分钟#*	131分钟*	260分钟*	260分钟*
挠曲试验 (mm)	33mm	65mm	24mm	25mm	35mm	19mm
曲线下的面积与标准之差 (%)	0.1	0.1	0.0	0.2	-0.1	0.1
BS EN 772						
抗压强度 - 立方体	57.90 N/mm ²					
抗压强度 - 截面	42.8 N/mm ²	43.1 N/mm ²	48.2 N/mm ²	37.0 N/mm ²	50.8 N/mm ²	34.90 N/mm ²
SS 271: 1983						
吸水率 (24 小时浸泡) - Setsco 实验室 (不应超过 23.5%)	3.70 %	5.95 %	5.77 %	5.00 %	5.32 %	5.03 %
干燥收缩 - Setsco 实验室 (不应超过 0.09%)	0.06 %					
SS 492: 2001 / BS 5234 (冲击测试)						
隔断墙刚度的确定	标准偏差	标准偏差	考100 - 64 直径	标准偏差	考100 - 64 直径	考100 - 64 直径
小型硬体撞击造成的表面损坏	标准偏差	标准偏差		标准偏差		
小型硬体冲击造成的穿孔	标准偏差	标准偏差		标准偏差		
大型软体冲击造成的损坏	标准偏差	标准偏差		标准偏差		
大型软体冲击造成的结构损坏	标准偏差	标准偏差		标准偏差		
摔门测试	标准偏差	标准偏差		标准偏差		
轻型锚具拉拔试验	通过了	通过了		通过了		
轻型锚具下拉试验	通过了	通过了		通过了		
重型锚具洗涤盆 (N)	1500	1500		1500		
重型锚具壁厨 (N)	4000	4000		4000		
水平荷载/人群压力 (3.0 kN/m)	达 3.0 kN/m	达 3.0 kN/m		达 3.0 kN/m		
1. 挠度 (mm)	0.95	-0.06	-0.5			
2. 残余挠度 (mm)	0.03	0	-0.1			
抗弯强度 (N/mm ²)	10.80 N/mm ²					

tested by:



功能要求	JOE 标准环保混凝土面板		JOE 环保轻型板							
	100mm 实心	150mm 实心	100mm (Ø64mm) X1	100mm X1 实心	100mm (Ø64mm) X2	100mm X2 实心	100mm (Ø64mm) X3			
ASTM - E90										
隔音性能 (STC)	{STC 54-55}	{STC 57-58}	STC 38*	参考热阻值	STC 46*	参考热阻值	STC 47*			
ASTM C 518										
热导性 (W/m ⁰ K) K - 值	0.587	参考 热阻值	0.377	参考 热阻值	0.421	参考 热阻值	0.445			
热阻 (m ² ⁰ K/W) R - 值	0.17		0.263		0.237		0.225			
BS 476: 第 22 部分 : 1987										
耐火性 (4 小时, 单墙)										
完整性	260分钟*	260分钟*	196分钟*	240分钟*	132分钟*	240分钟*	120分钟*			
隔热性	260分钟*	260分钟*	169分钟*	240分钟*	120分钟*	240分钟*	120分钟*			
挠曲试验 (mm)	5mm	23mm	-3mm	8mm	12mm	32mm	25mm			
曲线下的面积与标准之差 (%)	0.0	0.0	0.0	0.0	0.1	0.0	0.0			
BS EN 772										
抗压强度 - 立方体	57.90 N/mm ²		-	-	-	-	-			
抗压强度 - 截面	40.9 Nmm ²	-	3.4 N/mm ²	7.1 N/mm ²	13.2 N/mm ²	17.5 N/mm ²	19.6 N/mm ²			
SS 271: 1983										
吸水性 (24 小时浸泡) - Setsco 实验室 (不得超过 23.5%)	5.57 %		18.00 %	18.12 %	11.05 %	13.36 %	12.26 %			
干燥收缩 - Setsco 实验室 (不得超过 0.09%)	0.07 %		0.09 %		0.08 %		0.07 %			
SS 492: 2001 / BS 5234 (冲击测试)										
隔断墙刚度的确定	考100 - 64 直径	考100 - 64 直径	标准偏差	参考X1 100 - 64 直径	标准偏差	参考X1 100 - 64 直径	标准偏差			
小型硬体撞击造成的表面损坏			标准偏差		标准偏差		标准偏差			
小型硬体冲击造成的穿孔			标准偏差		标准偏差		标准偏差			
大型软体冲击造成的损坏			标准偏差		标准偏差		标准偏差			
大型软体冲击造成的结构损坏			标准偏差		标准偏差		标准偏差			
摔门测试			标准偏差		标准偏差		标准偏差			
轻型锚具拉拔试验			通过了		通过了		通过了			
轻型锚具下拉试验			通过了		通过了		通过了			
重型锚具洗涤盆 (N)			1500		1500		1500			
重型锚具壁厨 (N)			4000		4000		4000			
水平荷载/人群压力 (3.0 kN/m)			达 3.0 kN/m		达 3.0 kN/m		达 3.0 kN/m			
1. 挠度 (mm)			2.3		2.74		0.90			
2. 残余挠度 (mm)			0.6		0.4		0.06			
抗弯强度 [N/mm ²]	10.80 N/mm ²		0.8 N/mm ²		3.5 N/mm ²		4.45 N/mm ²			

PROPERTIES		COMPARISON FOR 100MM THICK WALL MATERIALS				COMPARISON FOR 100MM THICK WALL MATERIALS					
		JOE X5 (XS)	Other Panel	Red Brick	JOE X3	AAC Block Bata Ringan	ALC/GIP Panel Bata Ringan	SANDWICH PANEL (EPS)	JOE X2	Dry Wall / Gypsum Board	JOE X1
TEST REPORTS	Nominal Density (kg/m3)	2200	2200	1760	1600	550	800	720	1300	10	900
	Weight (kg/m2) - 100mm thickness	135	145	160	96	80	80	72	85	100	65
	Maximum Height without lintel (mm)	8000*	3300	3000	6000*	3000	6000	3000	6000*	2400	6000*
	Compressive Strength (MPa) Cube	49	25	2 - 4	-	4.5	4.5	-	-	NA	-
	Compressive Strength (MPa) Section	42-59	15	2.5	20	2.5 - 5	5 - 7	4	11 - 17	NA	3 - 7
	Water Absorption (Percentage)	6% (24-hr immersed)	5% (30-min immersed) ²	15 - 25%	11% (24-hr immersed)	35 - 60%	35 - 60%	20%	13% (24-hr immersed)	Not Usable (Dry Areas Only)	15% (24-hr immersed)
	Water Absorption (Capillary) g/m ² s ^{0.5}	24	NA	NA	NA	130	190	45	11 (WP-SPEC)	Not Usable (Dry Areas Only)	NA
	Air Tightness Certified	Yes	No	NA	No	No	No	No	No	No	No
	Thermal Conductivity (W/K.m) - 100mm (Lower is Better)	0.74	NA	1.15	0.44	0.15 - 0.25	0.15 - 0.25	0.26	0.54	0.17	0.23
	Fire Rating (Hours)	1 - 4	1 - 2 (needs infill)	1 - 2	2 - 4	3 - 4	2 - 4	1 - 4	2 - 4	1 - 2 (needs infill)	2 - 4
PERFORMANCE	Sound Transmission Class (STC)	49 - 58	37 - 41	37 - 42	45 - 54	35 - 40 (11dB Drop after 3-6 Mos) ¹	40 - 46 (11dB Drop after 3-6 Mos) ¹	41	41 - 50	35 - 52 (Rock Wool) (Requires Insulation)	39 - 48
	Buildability (Labour Saving Index)	0.85 ^a	0.85 ^a	Demerits	0.85 ^a	0.10	0.85 ^a	0.85 ^a	0.85 ^a	1.00	0.85 ^a
	Productivity (m ² /manday)	20	18	6	22	12	18	18	24	23	25
	Use of Green Recycled Material	Yes	No	No	Yes	No	No	No	Yes	No	Yes
	Use of Flammable Material	No	No	No	No	No	No	Yes	No	No	No
	Heavyweight Anchorage (4000N) Strength & Robustness	Severe Duty (Highest)	Severe Duty (Highest)	Pass (chemical & mechanical fixing)	Severe Duty (Highest)	Pass (chemical fixing)	Pass (chemical fixing)	Medium - Severe Duty	Severe Duty (Highest)	Pass (mechanical fixing-special bolt)	Severe Duty (Highest)
	Customised Height Available	Yes (6M)	No	No	Yes (6M)	No	Yes (3M or 6M only)	No	Yes (6M)	No	Yes (6M)
	Customised Thickness Available	75 - 200	75 - 200	100 - 230	75 - 200	100-200	75-200	100-200	75 - 200	75-150	75- 200
	Wire Reinforcement (safety & strength) (Earthquake, Vibration, Movement, Impact)	High tensile wire (600 Mpa) 3-5mm dia	No	No	High tensile wire (600 Mpa) 3-5mm dia	No	BRC Mesh	BRC Mesh	High tensile wire (600 Mpa) 3-5mm dia	Metal Stud	High tensile wire (600 Mpa) 3-5mm dia
	Crack Resistance Accessories	1. JOE UV Crackshield 2. JOE Bond Adhesive	Wire or Fiber Mesh	-	1. JOE Crackshield 2. JOE Bond Adhesive	Wire or Fiber Mesh	Wire or Fiber Mesh	Fiber Mesh	1. JOE Crackshield 2. JOE Bond Adhesive	-	1. JOE Crackshield 2. JOE Bond Adhesive
COST SAVING	Stopper Cap for Hollow Insert	Yes	No	No	Yes	No	No	No	Yes	No	Yes
	Joint Recess for Stronger Joints	Yes	No	No	Yes	No	No	No	Yes	No	Yes
	Product Structure	Strong & Compact	Low Strength, More Sand, Less Cement	Compact, Low Strength	Strong & Compact & Lightweight	Porous, Full of Capillary, Low Strength, Potential Fungus/Molding Growth	Porous, Full of Capillary, Low Strength, Potential Fungus/Molding Growth	Porous, Low Strength, Easy to Debond, Weak Glue Adhesive	Strong & Compact & Lightweight	Fragile, Easy to Break, Lowest Strength	Strong & Compact & Lightweight
	Production Process	Extrusion Flat Surface, Compact, Special Customised Machine	Extrusion on Conveyor, Potential Uneven Wavy Surface	Moulding, Potential Uneven Wavy Plate Surface	Extrusion Flat Surface, Compact, Special Customised Machine	Moulding, Potential Uneven Wavy Plate Surface	Moulding, Potential Uneven Wavy Plate Surface	Moulding, Potential Uneven Wavy Surface	Extrusion Flat Surface, Compact, Special Customised Machine	Extrusion on Metal Roller, Potential Uneven Surface, Thin & Brittle	Extrusion Flat Surface, Compact, Special Customised Machine
	Finishing Application (mm)	Thin Skimcoat	Plaster + Skimcoat	Plaster + Skimcoat	Thin Skimcoat	Plaster + Skimcoat	Plaster + Skimcoat	Plaster + Skimcoat	Thin Skimcoat	Putty	Thin Skimcoat
	Plaster Material & Labor Savings	-	15-25 mm (3 Layers)	15-25 mm (3 Layers)	-	15-25 mm (3 Layers)	-	15-25 mm (3 Layers)	-	-	-
	Skimcoat Material & Labor Savings (Due to Flatness & Waving)	1 - 5mm (1 Layer)	5 - 15mm (1 Layer)	5 - 20mm (1 - 2 Layer)	1 - 5mm (1 Layer)	5 - 10mm (1 - 2 Layer)	5 - 10mm (1 - 2 Layer)	10 mm (2 - 3 Layers)	1 - 5mm (1 Layer)	Rockwool & Putty	1 - 5mm (1 Layer)
	Total Weight (kg/m2) (After Finishing)	155	185	260	115	140	140	122	105	105	85
	Lintel Savings	Up to 8M	Every 3M	Every 3M	Up to 6M	Every 3M	Every 3M	Every 3M	Up to 6M	Every 3M	Up to 6M
	Stiffener Savings	Up to 8M	Every 3M	Every 3M	Up to 6M	Every 3M	Every 3M	Every 3M	Up to 6M	Every 3M	Up to 6M
SAVING	M&E Services Savings (MEP - Indonesia)	Services can be run through hollow core with minimum opening	Services can be run through hollow core with minimum opening	Require surface hacking & trimming for recess	Services can be run through hollow core with minimum opening	Require surface hacking & trimming for recess	Require surface Cutting and Trimming for recess (Max. 30mm) No cutting to BRC reinforcement	Require surface Cutting and Trimming for recess (Max. 30mm) No cutting to BRC reinforcement	Services can be run through hollow core with minimum opening	By fitting services before closing up	Services can be run through hollow core with minimum opening
	Wall Fixing	L-bracket + Sleeve Anchor / H10 Dowel Bar	Bracket / H10 Dowel Bar	Wall Tie	L-bracket + Sleeve Anchor / H10 Dowel Bar	Wall Tie	Wall Panel Bracket	Wall Panel Bracket	L-bracket + Sleeve Anchor / H10 Dowel Bar	Metal Stud & Drive Pins	L-bracket + Sleeve Anchor / H10 Dowel Bar
	Site Housekeeping & Wastage	Min. Wastage & Cutting due to Custom Length	More Wastage Higher Breakage	More Wet Works & High Wastage	Min. Wastage & Cutting due to Custom Length	More Wastage Higher Breakage	More patching material to M&E Works / More Debris to handle	More patching material to M&E Works / More Debris to handle	Min. Wastage & Cutting due to Custom Length	More Wastage (12 - 15%)	Min. Wastage & Cutting due to Custom Length
	External Waterproofing	Joints Only	Full Surface Waterproofing	Full Surface Waterproofing	Joints Only	Full Surface Waterproofing	Full Surface Waterproofing	Joints Only	Joints Only	Not Recommended (Indoor Only)	Joints Only
	Additional Scaffolding / Work Platform Savings Based on Single Tier @ 3.3M	-	-	Needs Scaffolding / Work Platform	-	Needs Scaffolding / Work Platform	Needs Scaffolding / Work Platform	-	-	Needs Scaffolding / Work Platform	-

保持强度测试

SS 492:2001/BS 5234



6 米高的 JOE 绿色轻质混凝土板，每个植物箱重约 200 公斤

5.4m JOE 绿色混凝土面板，带脱脂涂层，在单个重力锚固上加载 650 千克





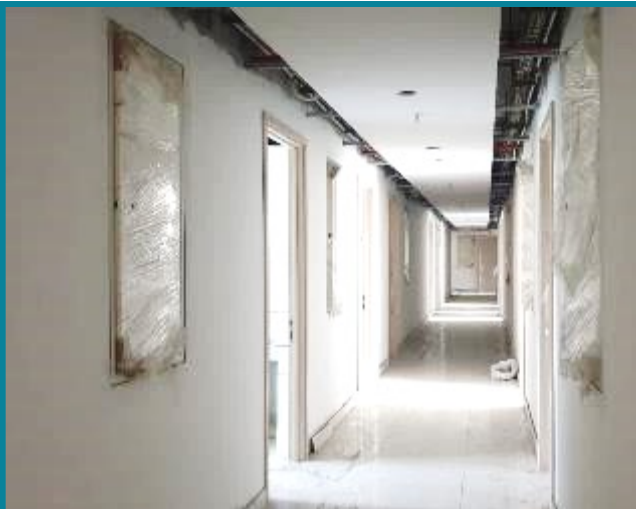
Singapore Green Mark				Higher Scoring			
		Requirements		X1	X2	X3	XS/X5
1	ENERGY EFFICIENCY	Reduced Heat Gain (ETTV)		✓	✓	✓	✓
2	HEALTH & WELLBEING	HW 1.2	HW 1.2 Material Emissions	✓	✓	✓	✓
		HW 2.3	Sound	✓	✓	✓	✓
3	RESILIENCE	RE 1.1 b	Resources	✓	✓	✓	✓
		RE 1.2b	Urban Heat Island Mitigation	✓	✓	✓	✓
4	WHOLE LIFE CARBON	CN 1.1	Whole Life Carbon Calculation	✓	✓	✓	✓
		CN 1.2	Embodied Carbon	✓	✓	✓	✓
		CN 1.3	2030 Transition Plan	✓	✓	✓	✓
		CN 2.1	Sustainable Construction	✓	✓	✓	✓
		CN 2.2	Sustainable Products & Finishes	✓	✓	✓	✓
		CN 3.2	Fit out Products	✓	✓	✓	✓
5	MAINTAINABILITY	General	BIM model	✓	✓	✓	✓
		1.5	Design Factor - Masonry & Lightweight Concrete Panel	✓	✓	✓	✓
		1.5.1	Reduce risk of Water ingress and Efflorescence formation	✓	✓	✓	✓
		1.5.2	Reduce risk of façade flaking/peeling/cracking /blistering	✓	✓	✓	✓
		2.5	Basement and Car Park	✓	✓	✓	✓

malaysia green building index				Higher Scoring			
		Applicable GBI Credits	Criteria	X1	X2	X3	XS/X5
1	Energy Efficiency	EE	Minimum Energy Efficiency Performance	✓	✓	✓	✓
2	Indoor Environmental Quality	EQ	Indoor Air Pollutants	✓	✓	✓	✓
			Mould Prevention	✓	✓	✓	✓
			Internal Noise Levels / Sound Insulation	✓	✓	✓	✓
			IQA Before & During Occupancy	✓	✓	✓	✓
3	Sustainable Planning & Management	SM	Sustainable Construction	✓	✓	✓	✓
			Classic - Quality Assessment System for Building	✓	✓	✓	✓
			IBS - Industrialised Building System	✓	✓	✓	✓
4	Materials & Resources	MR	Material Reuse & Selection	✓	✓	✓	✓
			Recycled Content Materials	✓	✓	✓	✓
			Regional Materials	✓	✓	✓	✓
			Material Manufacture & Ingredients	✓	✓	✓	✓
			Storage & Collection of Recyclables	✓	✓	✓	✓
			Construction Waste Management	✓	✓	✓	✓

优越、坚固、扁平 and 线材定制

使用高张力钢线
600 Mpa

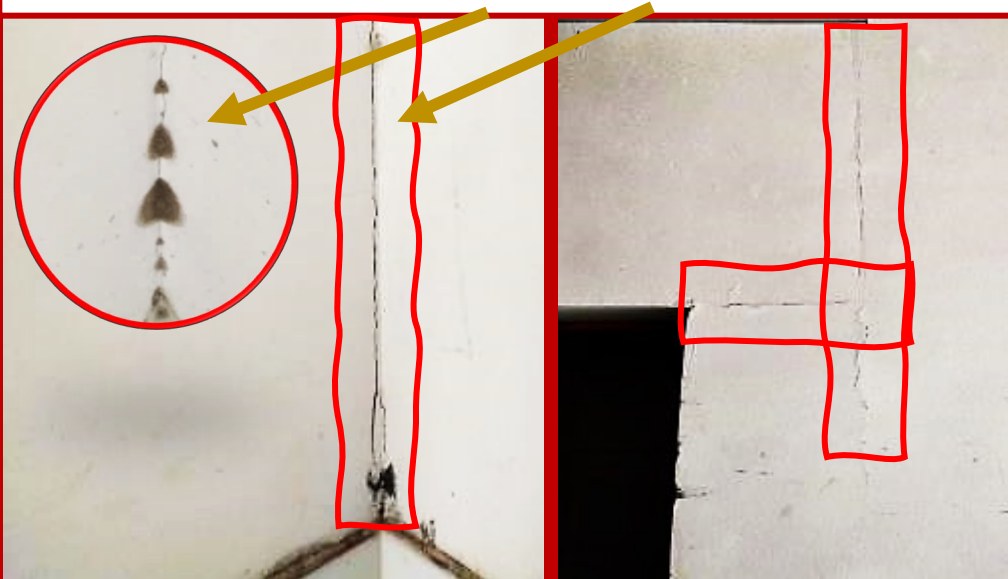
为了更好的弯曲强度和安全性



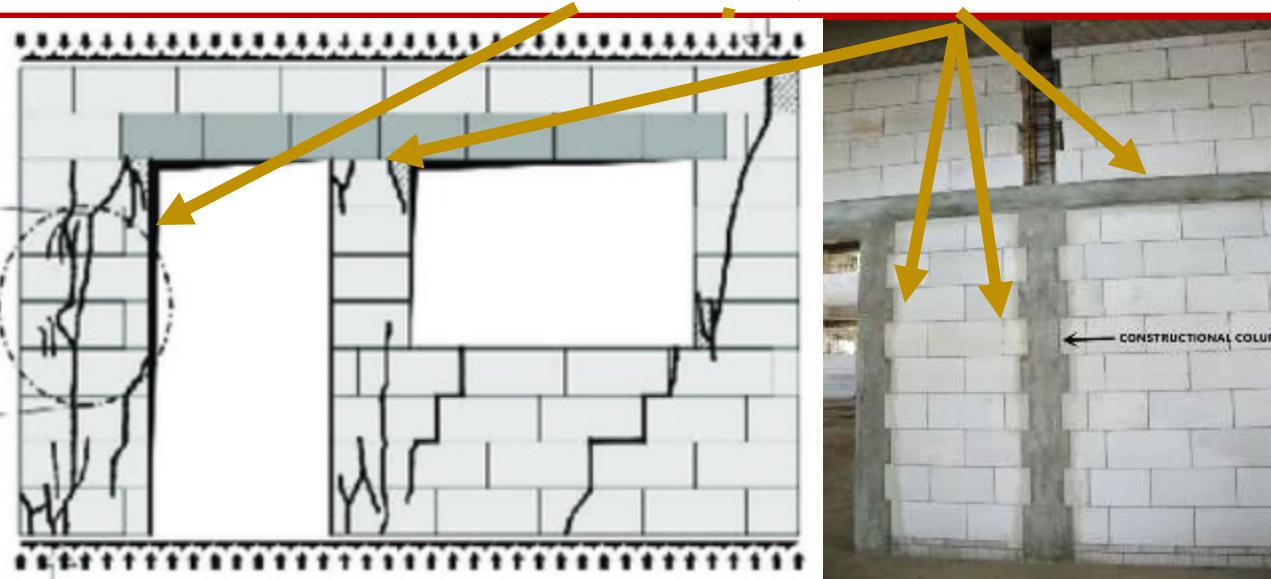
减少门楣/过梁、分力柱和柱子的使用



其他：霉菌真菌滋生和施工期间的开裂



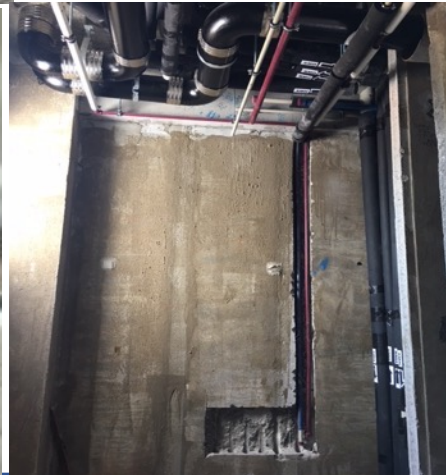
其他：强力关门而导致的裂缝，需要增加分力柱/过梁加固



机械和电气应用 (M&E)

快速, 高效的凿墙方法, 实现灵活的机电工艺

M&E 导管可以插入空芯, 无需修整凹槽以嵌入管道



简单快速的机电接线。
最佳在金属导管上节省时间和成本

嵌入式切割KO盒子。

空心设计, 便于机电

可直接切割更大的管道

JOE GREEN –新加坡建设局- PPVC 预制预成体积组件和 马来西亚建设局-IBS -工业建筑系统

1

50 次循环 – 热晒，雨水测试



2

水毛细管测试



3

防火等级和墙体完整性测试



PPVC预制体积组件、PBU预制卫生间、卧室、厕所和机电，排水管道应用



PPVC预制体积组件运输问题：

- ❌ 载重（30 吨以上）
- ❌ 雨水影响吸水率
- ❌ 需要使用轻质技术以减少 避免开裂/损坏

LiGrA 对 PPVC预制体积组件 和 IBS 预制卫生间的好处

- 👍 节省建筑基础成本
- 👍 减少和节省超级起重机型与起重
- 👍 更低的碳足迹和更少的材料使用
- 👍 节省成本和时间的的好处



使用销钉/钢筋（外墙）方法

使用手推车移动面板



对齐和调整

- 底部间隙 (+/-25mm)
- 顶部间隙 (+/-25 毫米)
- 使用木楔



在梁和板上插入 T10 销钉/钢筋

由 Makita 电动圆盘刀轻松切割，为 M&E 等做任何开口



应用JOE JOINT BONDING粘合剂



使用JOE L 型支架（内墙）方法

- 安装孔塞与顶缝全接触灌浆。
- 在施工过程中防止渗漏。



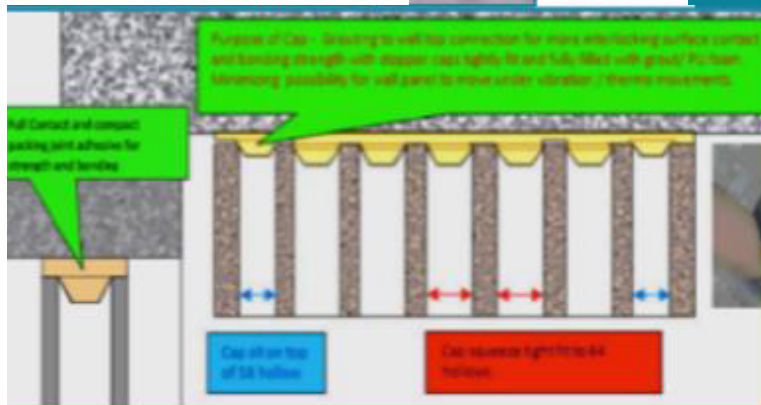
L 型支架（顶部）



L 型支架（底部）



每个面板 2 个支架
1 个顶部和 1 个底部
非常强，不须切割墙面。
减少垃圾，浪费和工时。
更便宜的建设成本。
灌浆/粘合剂成本节约。
安全、一致和高效





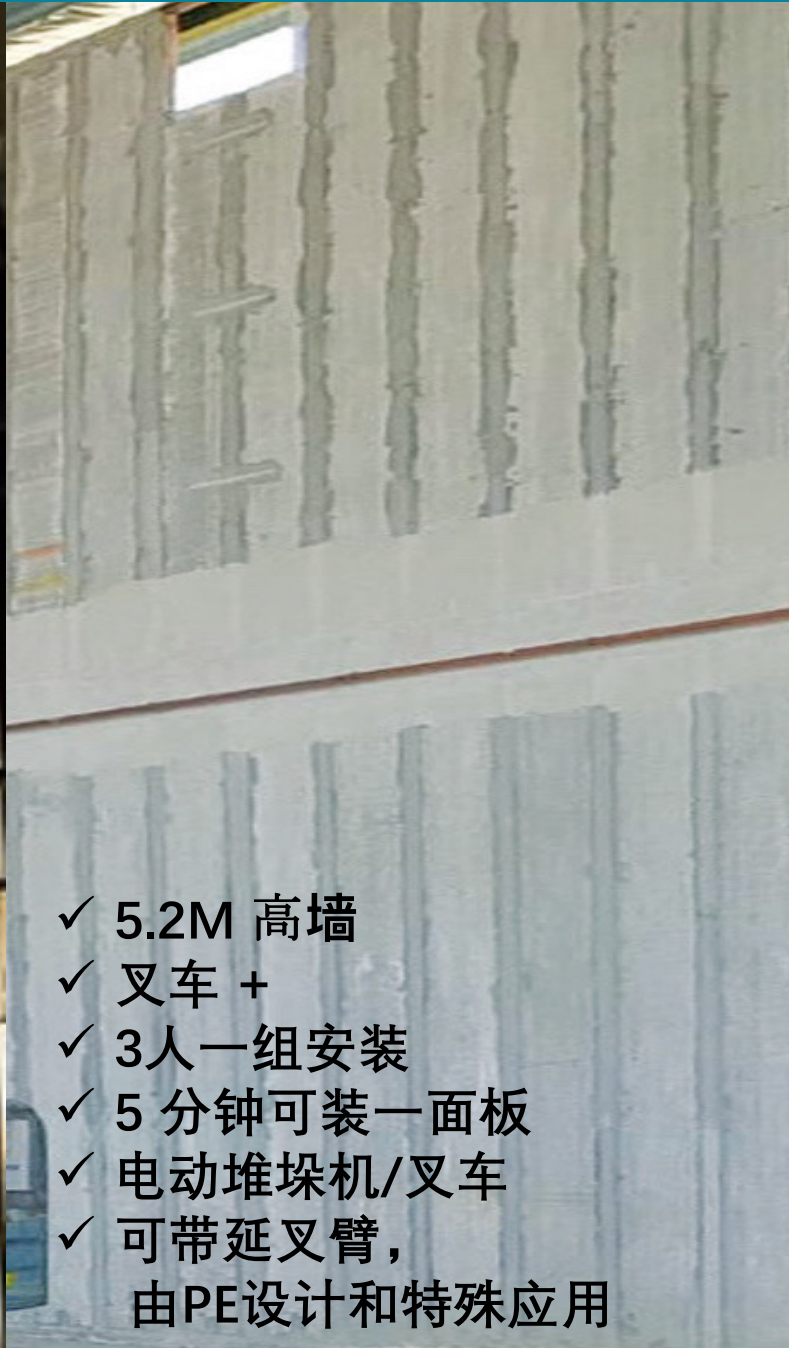
2.8M高墙

2-3人一组安装

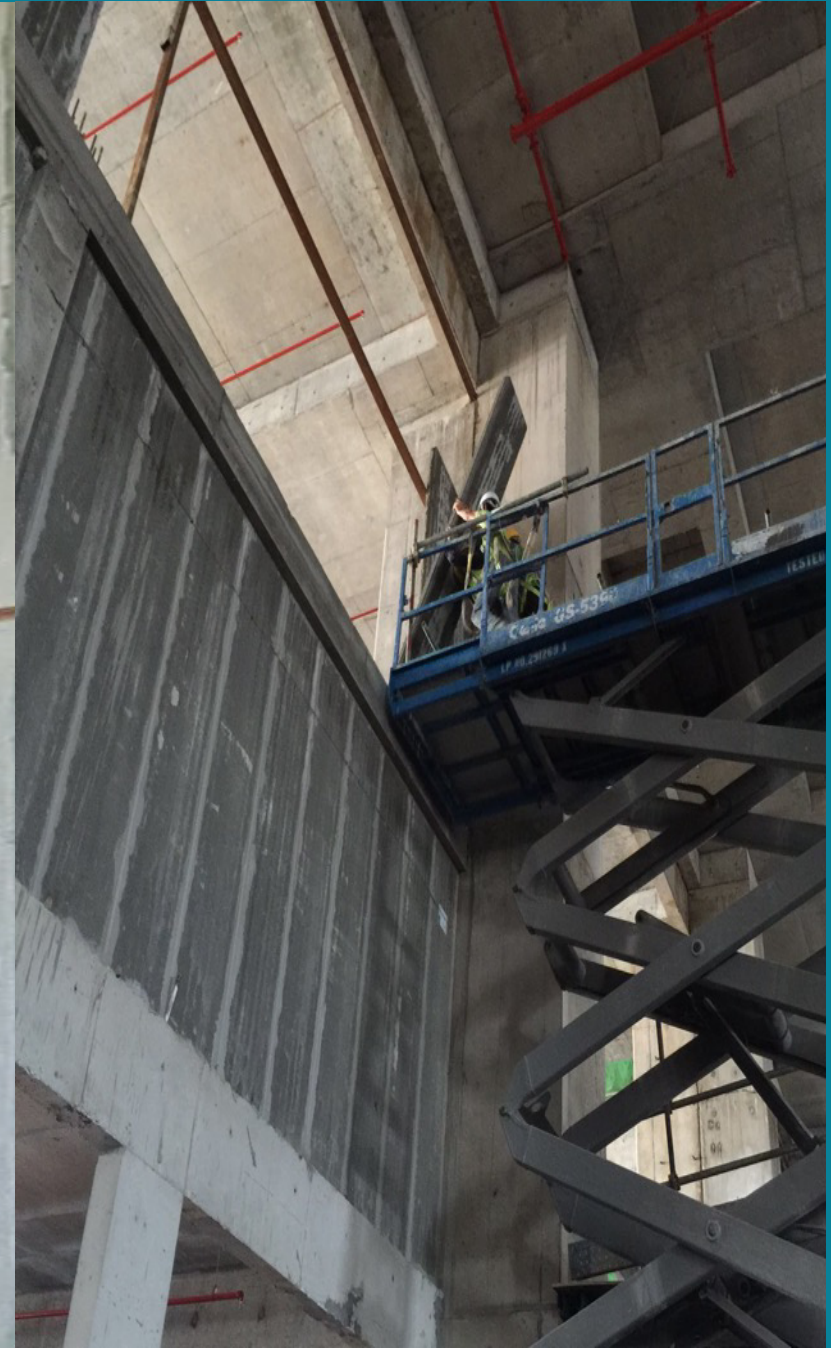
只须5 分钟可装一面板

使用手推车易于操作





- ✓ 5.2M 高墙
- ✓ 叉车 +
- ✓ 3人一组安装
- ✓ 5 分钟可装一面板
- ✓ 电动堆垛机/叉车
- ✓ 可带延叉臂，
由PE设计和特殊应用



JOE 配件 LiGra 接缝粘胶剂



JOE 接缝粘胶剂（水泥胶粘剂）

是一种即用型水泥聚合物，其含有经过验证的水泥胶粘剂混合物，主要用于各种板件和砖块。该产品能够最大限度地减少开裂和收缩，仅需要添加一定数量，并与水混合，即可使用。

技术资料（典型/特别）

重量：40 公斤/盒
密度：1.4 gm/cm³
混合后要在30分钟内使用

设定时间：首次 - 五个小时
消耗（预估）：1 盒 = 6 m² - 8 m²

使用指南：

- 1 涂有水泥的表面必须清洁、无灰尘、无油污和任何污垢。水泥施用之前，必须先喷水润湿表面。
- 2 混合 26% - 28% 10 - 11 升水量。
- 3 搅拌时将水泥倒入水中。
- 4 使用电动搅拌机搅拌5分钟，直至搅拌均匀。
- 5 混合物必须在搅拌后30分钟内使用。
- 6 对于大孔/缝隙，请采用手持泵，确保间隙完全闭合。

JOE 配件 LiGra CRACKSHIELD



用途

- 内外墙接缝
- 内外角
- 结构与墙壁之间的接缝

类型	宽度/厚度	长度	单元/纸箱
ROLL	50 mm/0.5 mm	40 M	10 Rolls

轻质混凝土墙板胶带



描述

JOE Crackshield 由 UPVC 材料制成，该接缝胶采用特殊配方，具有很强的抗拉强度，能够承受拉伸和变形。墙板胶带的中心是柔性的，可自由移动，能够与 JOE 接缝粘胶剂兼容，且可用于：

1. 内角和外角的强化接缝，以及立柱、横梁和天花板之间的结构接缝。
2. 防止因热力、拉伸和其他原因而引起的开裂变形。JOE Crackshield 比其他纤维和金属丝网具有更强的性能。
3. 在外墙和潮湿区域内使用板件时，能提高防水等级，并减少接缝之间的渗水。
4. 设计上的小孔，从而咬紧夹层之间的接缝。
5. 可灵活折叠和弯曲，且易于在边角、肘部和扁平接头上使用。



JOE 配件（孔塞） LiGra STOPPERCAP



描述和用法

- 根据40mm、58/64mm的孔径要求，从而封闭JOEGreen墙板件末端的孔洞。
- 与支撑棉杆、海绵或其他材料相比，该配件非常易于使用。
- 在作用于外墙时，可防止渗漏，能够提高胶粘面而咬紧与结构之间的墙关节。
- 防止JOE粘合剂掉入孔洞中，并确保水泥灌浆的密度。
- 强化墙板件顶部的接缝处，增加与表面的接触面积，从而降低移动风险。

类型	深度	直径	单位/箱	使用方法：
Capping (PP)	30mm	40mm	500 Pieces	当垂直安装墙板件时，每个孔洞须设置墙板件顶部；当横安装墙板件时，每个孔洞须设置墙板件两端。
	20mm	58/64mm	500 Pieces	



JOE BOND
JOINT BONDING ADHESIVE



JOE 配件
GAP PUMP



JOE 配件
CRACKSHIELD



JOE 配件（孔塞）
STOPPERCAP



JOE 安全设备
SAFETY SHOES



JOE 安全设备
SOCKS



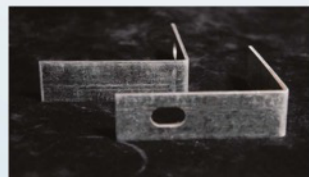
JOE 安全设备
TOOLS BAG



JOE 安全设备
MASKER



JOE 配件
GRAVITY ANCHOR



JOE 配件
L BRACKET



JOE 配件
SLEEVE ANCHOR

PUBLIC DEVELOPERS



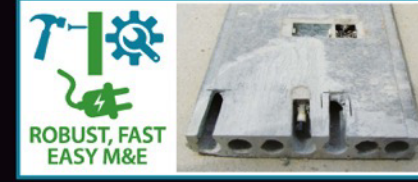
DEVELOPERS



ARCHITECTS



MAIN CONTRACTORS





STARS OF KOVAN



ROYAL SQUARE
AT NOVENA



Hillion

MARINA ONE
 Residences | Offices | Retail

Northpoint City **NORTH PARK**





THE WOODLEIGH
RESIDENCES

THE WOODLEIGH
MALL

SOUTH BEACH

EON
SHENTON

V
ON SHENTON

DUO
RESIDENCES OFFICES RETAIL HOTEL



Funan - CapitaLand



Paya Lebar Quarter



King Albert Park (KAP)



Le Quest @ Bukit Batok West Avenue 6



SENGKANG GRAND RESIDENCES



ONE Holland Village. An integrated mixed-used development located at 7 Holland Village Way





COMMONWEALTH
TOWERS



QUEENS PEAK



Centennia
suites



M MARGARET
VILLE



GEM
RESIDENCES



EDEN



THE ALPS Residences





Coco Palms Condominium



Seven Palms Sentosa Cove



Ripple Bay Condominium at 2 Pasir Ris Link



The Greenwich Residential



Forest Woods Residences



The Amore EC at Edgedale Plains



THE TOPIARY Executive Condominium



THE LAKEFRONT RESIDENCES Condominium



Ecopolitan EC at Punggol Walk



The Tapestry Condominium



Sky Park Residences Executive Condominium



Thomson Impressions Condominium



Bartley Ridge Condominium



Sea Esta Condominium



KOVAN REGENCY Condominium



THE INFLORE Condominium



euHabitat Condominium



SKY GREEN Condominium



WILSHIRE RESIDENCES



SIGNATURE AT YISHUN Executive Condominium



PARC Life Condominium



Waterfront Gold Condo at Bedok Reservoir Rd



ROYALGREEN Condominium @ Bukit Timah



15 Holland Hill



Grandeur Park Residences Condominium



Victoria Park Villas, Coronation Rd







**SkyResidence
@ Dawson**

"TENGAH The Next New HDB Town Project"



**GARDEN
TERRACE
@TENGHAH**

**GARDEN
VALE
@TENGHAH**

PLANTATION GRANGE

**GARDEN
COURT
@TENGHAH**

700ha
 About the size of Bishan

42,000 new homes

30,000 public housing | **12,000** private housing





Integrated Care Hub (ICH)

CENTRE FOR HEALTHCARE INNOVATION

NIH National Centre for Infectious Diseases



RafflesHospital

Sengkang General Hospital SingHealth

NUH National University Hospital

MINISTRY OF HEALTH SINGAPORE



HOMETEAMS Khatib



NTUC Health Nursing Home (Chai Chee)



NTUC Health Nursing Home (Chai Chee)



NTUC Health Nursing Home (Chai Chee)



NTUC Health Nursing Home (Chai Chee)



NTUC Health Nursing Home (Chai Chee)



National Cancer Centre Singapore



NATIONAL SKIN CENTRE (NSC) Singapore



YaleNUS College

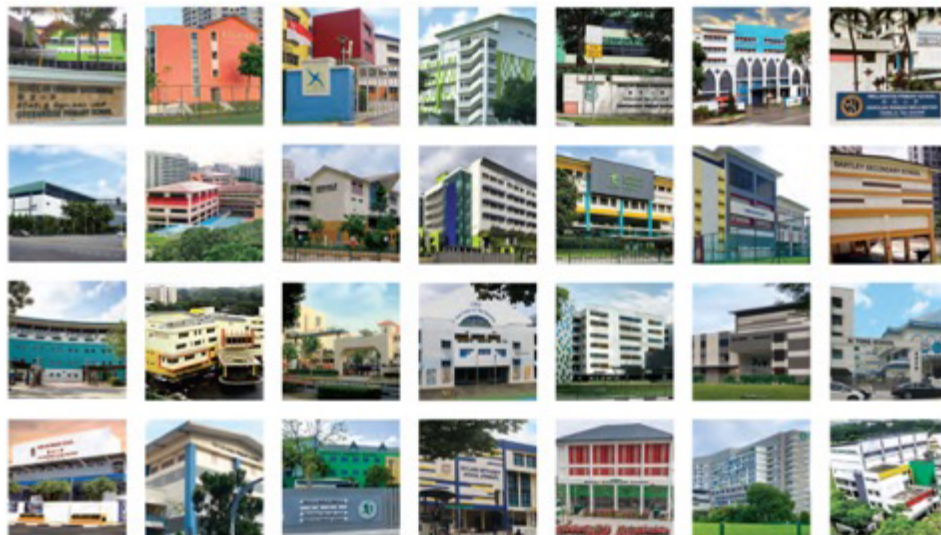


NANYANG TECHNOLOGICAL UNIVERSITY
SINGAPORE

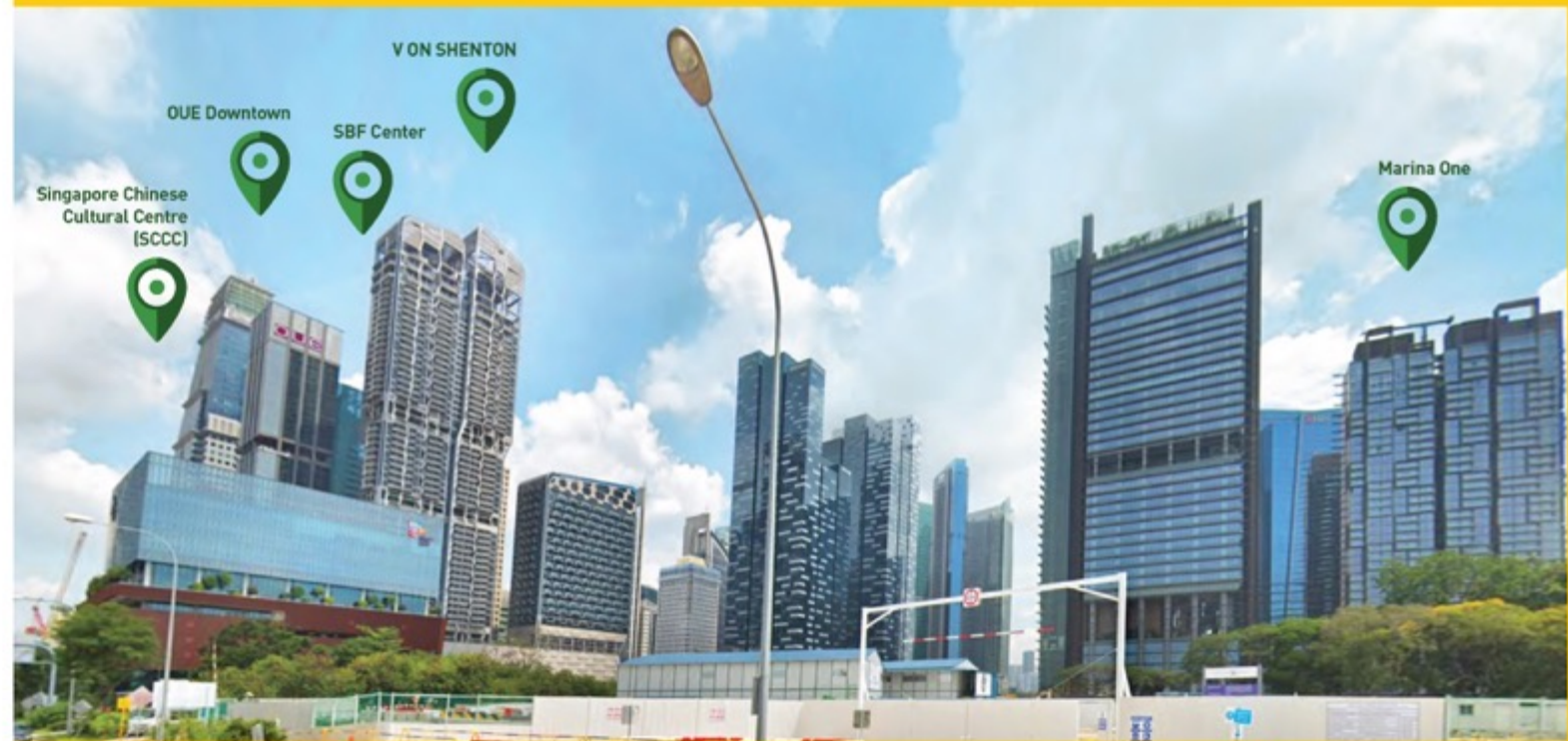




More Than Hundred Schools Projects in Singapore



Professional Choice



Singapore Chinese Cultural Centre (SCCC)



OUE Downtown



SBF Center

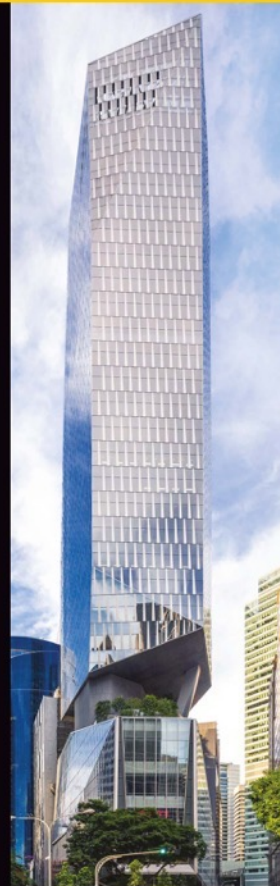




Hotel Boss



AXA Tower at 8 Shenton Way



Robinson Tower Redevelopment



Guoco Tower at Tanjong Pagar Centre



CapitaSpring at 88 Market St



New PSA Corporate HQ



InterContinental Singapore Robertson Quay



Orchard Hotel Singapore



High-Tech Industrial Buildings



Industrial Development at Ang Mo Kio Street 65 for ST Electronics



JTC Furniture Hub @ Sungei Kadut



JTC MedTech Hub @ MedTech Park



Mandai Foodlink at 5 Mandai Link



THE WESTCOM at 1 Tuas South Avenue 6



Micron 300mm NAND Facility at 1 North Coast Drive



NORDCOM I

NORDCOM II

T-SPACE



JTC Business Aviation Complex at Seletar



Tagore 8 at 421 Tagore Industrial Avenue



JTC Chemicals Hub @ Tuas South



The InDex @ Tuas South Ave 3



Industrial Building With Ancillary Office at Tuas South Link



Mandai Link Logistics' Warehouses-Cold Storage at Mandai Link



Data Center at Loyang Drive



STTelemedia Global Data Centres at S1 Defu Lane 10



6 Storey Warehouse at 47 Jin Buroh



COSL (Singapore) at 3 Benoi Rd



Jurong Shipyard Office at Tuas South Boulevard / Tuas View Extension



Using panel 5.2m height for external wall and window opening



EATON RESIDENCES at Kuala Lumpur, Malaysia



FOREST CITY Projects (Plot 4 - Phase 1, Plot 26 - Phase 2, Plot 26 - Phase 4), Johor Bahru, Malaysia



MERIDIN EAST



THE AMERALD Resort Hotel at Pengerang, Johor, Malaysia



Sky Habitat @ Meldrum Hills, Johor Bahru, Malaysia



Taman Pelangi Indah Sales Gallery by SP Setia



Aliff Heights, Johor Bahru



Sierra Perdana - Johor Bahru

SKS GROUP
 MALAYSIA | AUSTRALIA



Kompleks Penyayang Kempas - Johor Bahru

Camire
CONCRETE ARMED REINFORCEMENT



Tiger Balm Factory

KAJIMA

Larkin - Johor Bahru

PIJ HOLDINGS



SOKA International School - Negeri Sembilan

SISM



Marlborough College Malaysia, Johor



Ecoworld Business Park - Johor Bahru

ECOWORLD
CREATING TOMORROW & BEYOND



Holiday Inn Johor Bahru City Centre



Permas Jaya - Johor Bahru



Kulai Green - Data Center, Johor



Sheraton Hotel, Johor Bahru



Intel Exyte, Penang



Shell at Rimbayu



Langkah Satria, Semenyih



Nilai District Police Headquarters, Malaysia



CIDB Complex at Jalan Tampoi, Johor Bahru



ISKANDAR Residences Medini @ Nusajaya, Johor Bahru



PS Jalan Reko Kajang for Petronas



GRANDVIEW 360° Condominium, Johor Bahru, Malaysia



Warehouse, Chemical and Paint Store for Malaysia Marine and Heavy Engineering Sdn Bhd, Johor, Malaysia



Perimeter Fence

Walkway Slab at Podium





Hotel Santika, Batam, Indonesia



Gereja Reformed Injil Indonesia (GRII) Batam, Indonesia



Toby's RIVERSIDE
APARTMENT at PIK 2
AGUNG SEDAYU GROUP



TOTAL
BANGUN PERSADA



POIN - Pusat Otomotif Indonesia, PIK 2, Jakarta, Indonesia





Hotel Moxy, Indonesia



Museum Tiong Hoa, Bandung, Indonesia



Gramercy Cluster Fencing, Alam Sutera



Mockup Citra Maja, Banten, Indonesia



CINIITY (Cikarang International City), Indonesia



Griya Sajira Indah Residence, Banten, Indonesia



Cluster Elston-Millennium City, Parung Panjang, Indonesia



Desa Gunung Geulis, kec. Sukaraja, kab. Bogor, Indonesia

JOE Green Wall Panel System for Affordable housing / Worker Dormitory / Etc.



Reinforcement bar

Rebar for stiffeners

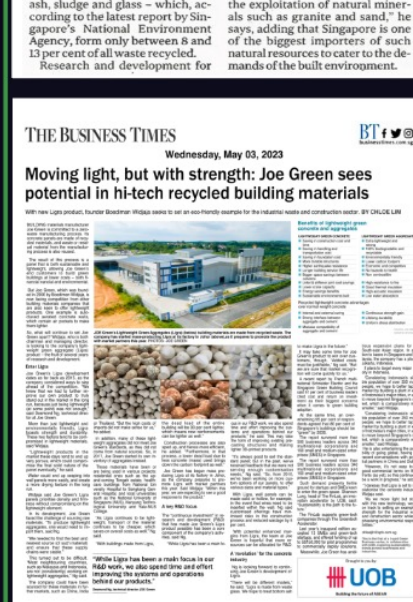
C-Channel or Capping Beam



JOE Green was awarded in the Responsible Consumption & Production Category for ESG Positive Impact Awards 2024 organised by The Star Media Group-Malaysia.



Excellent rating certification mark from SGBC and TÜV SÜD PSB at SGBC-BCA Sustainable Leadership Awards.





Woh Hup Construction Pte Ltd visit JOE Green factory in Senai, Johor, Malaysia



Mr. Tubagus Nouvak Haedar, Director Daiwa House Indonesia and Mr. Agus Supriadi - CEO Cinity



Ismet Natakarmana-Synergy @ JOE Green Factory Cikande, Serang, Indonesia



Mr. John, Elizabeth and Jason visit Gramata Factory in Seelong, Johor Bahru, Malaysia



Petronas and Dua Medan Construction Sdn Bhd Team



China Communications Construction



Construction Industry Development Board Malaysia (CIDB) with 40 PKMM (Persatuan Kontraktor Melayu Malaysia)



Sunway Construction Sdn Bhd visited Tiong Woon Corporation's Warehouse project site



BCA's Super Low Energy Buildings Department



SKS Group and Atria Architects visit JOE Green's project site Holiday Inn JBCC



An honour to have the Ambassador of the Republic of Indonesia H.E. Suryo Pratomo visit JOE Green HQ and Lab at Amazana Building Singapore



An honour to have the Ambassador of the Republic of Indonesia H.E. I Gede Ngurah Swajaya visit JOE Green HQ at Amazana Building Singapore



Mr. Faried Amir, Mdm. Antarina S.F Amir-HighScope Indonesia
Mr. Agus Supriadi, Sun Ming Liang-Cinity



CEO of Housing and Development Board (HDB), Dr Cheong Koon Hean, visit HDB project site at Sengkang East Road



Ir. Denny Gondojatmiko, Architect - PT Studio Air Putih



JOE Green's prestigious project Pollux Habibie Meisterstadt Batam residential towers topping-out ceremony on April 2019



Mr. Okie Imanto-CEO Greenwoods
Mr. Ismet Natarmana-Synergy



Mr. Jason Tan
Pacific Millennium Land



ECOWORLD Development Group



Penang Master Builder president visit JOE Green Booth Expo in Penang Buildex



TJS Development visit JOE Green Factory in Cikande, Indonesia



Mr. Joseph S. Tjong-Alam Sutera & Mr. Agus Supriadi
Cinity (Cikarang Intrl. City)



Mr. Kho Ing Tjiok - PoJ City & Mr. David Hidayat-Tentrem



PT PP Tbk visit JOE Green HQ in Singapore for their Indonesia construction projects



Mr. Eddy Sindoro, CEO - Sentul City



Ciputra Group Visited JOE Green Factory in Cikande



Museum Tiong Hoa, Bandung, Indonesia



Ir. Darius Riyadi, MM-Dir. Tatamulia Nusantara Indah
Mr. Sun Ming Liang-CEO Cinity



Mr. Hendro Setyadji-Graha Padma Developer, Semarang, Indonesia



Mr. Doly - Tunas Group - Batam & Mr. Joseph H Harsono, BPS Capital - Singapore



Teambuild Singapore



Straits Construction Pte Ltd



Daewoo Engineering & Construction Co. Ltd.



Obayashi Corporation visited Ripple Bay Condominium



MCL Land Ltd, Lum Chang Building Contractors Pte Ltd, P&T Architects & Engineers Ltd



Lum Chang Building Contractors Pte Ltd



Woh Hup, construction and civil engineering specialist



Mr. Gregg Jaclin & Mr. Peter Goldstein-Exchange Listing, USA



Toda Corporation visit JOE Green HQ in Singapore



Shimizu Corporation and ExxonMobil Asia Pacific Pte Ltd

Singapore



Malaysia

Malaysia



Indonesia

India



China

Hong Kong

Hong Kong



Australia

New Zealand

USA

Cambodia

European Union



USA

Professional Verdicts : “The Right Wall Panel for Every Construction”



Cinity – Cikarang International City is a 500Ha mixed development with development plans encompassing institutional, commercial, and residential sectors.

Our project demands stringent timelines and specifications, particularly for high-performance wall panels and acoustic solutions. The installation speed far exceeds that of traditional methods while offering superior acoustic performance, minimal water absorption, and exceptional concrete strength. JOE Green matches our needs and specifications with their green products.

Moreover, JOE Green products offer a cost-saving advantage.

Agus Supriadi
CEO
CINITY - Cikarang International City



“Our project hotel Santika Batam had completed in December 2019. We would like to thank JOE Green Team for the full support. We have been satisfied using your products, in terms of cost savings, time and quality of products. We have other projects that may need your support again. We will contact you soon. Thank you very much.”

Frans Bambang
Manager

CV. MEGA CONTRACTOR INDONESIA

“Compare to other precast wall panels, we definitely can see the quality and precision of JOE Green panel far more better for INOAC Project.”

Tiopluk Jati
Director



PT. AGNI SATYA PERSADA INDONESIA

“JOE Green products e.g. panels, brackets and accessories are found to be in high quality standard. JOE Green wall panel system is easy to install & hence can improve productivity. JOE Green’s technical support i.e. submission of shopdrawings & details is also excellent. The technical personnel is found to be knowledgeable, responsive. JOE Green panel can be further improved if the panel use in the residential dwelling unit can be lighter in weight, currently need 3 - 4 workers to erect 1 panel”

Lim Jit Heng
Project Manager



“Good material. It would be important to brief customers every construction details shown in the catalogue, especially to the worker of the erector on the dos and don’ts”

Mdm Eng Y H
Project Manager



“We have been with JOE Green for many years. Their product quality is good & have a broad product range.”

Ivy Toh
Contract Manager



“We are the 1st time work with JOE Green and very satisfy with JOE Green product quality.”

Tan Teck Chong
Senior Project Manager



“The product is good. However the product delivery process need to be improved. Moving forward the contractor’s installer need to familiarize with JOE product and take advantage of the speed and quality of JOE product offering for elevating construction industry standard.”

Ar. Selamat
Director, JYP Architects Sdn Bhd
Principal, Arkitek Selamat Sdn Bhd



For the Pegaunihan Batam Project 4 storeys Office cum Factory and Warehouse, using JOE Green wall panel was the right choice. JOE Green is a concrete precast wall and the installation is fast and clean. There is no wet works like plastering.

Besides that, the installation requires no columns/stiffener or beams/lintel. The bottom line is Joe Green panel is strong, more durable, easy to install and saves cost, hence profitable - “no regret”.

Yohandoko
Project Manager



“Overall service is excellent”

Marvin Laxamana
Quantity Surveyer



“JOE Green’s service is good”

Jackson Tiong
Contract Manager



“Dear JOE Green, we are very impressed with the strong technical knowledge and fast support of the team. Overall we are very satisfied with your commitment and service”

Soh Lip Hong
Project Manager



“Quality products, prompt delivery and great support !”

Johnny Xu
Director



“Service and product quality from JOE Green is good”

May Beh
Purchaser



“JOE Green offers wide range of solid and reliable products that not only improve work productivity. It also stands out in term of value proposition that we can offer to our clients”

Wayne Fu Cheng
Director



I would like to create a school that has a strong environmental perspective, contributes to sustainable development.

We finally found and installed the JOE Green Concrete Panel, a product that is reliable, with HIGH sound insulation, cost saving, and uses recycled waste and raw materials. The product matches with our needs and vision.

I am proud that I made a good choice, as I want HighScope Indonesia to be the best Eco-Socio-Tech Learning Center in Indonesia.

Antarina S.F. Amir
Founder & CEO of HighScope Indonesia





Worldwide, Buildings Account for 40% of Global Energy Consumption and 33% of Greenhouse Gas Emission



JOE Green has a Plan to Decarbonise the Industry, With a focus of Sustainability



Lightweight Green Aggregate (LiGrA) is Made from Recycled Waste, Help to reduce CO2 Emissions, Resource use and Construction costs.



JOE Green is Continuously Developing other products, with the aim of Reducing Emissions, Manpower, Resource use and Energy Inefficiency.



The Art of Lightweight Technology

Contact Us :

E-Catalogue :



Thank You

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