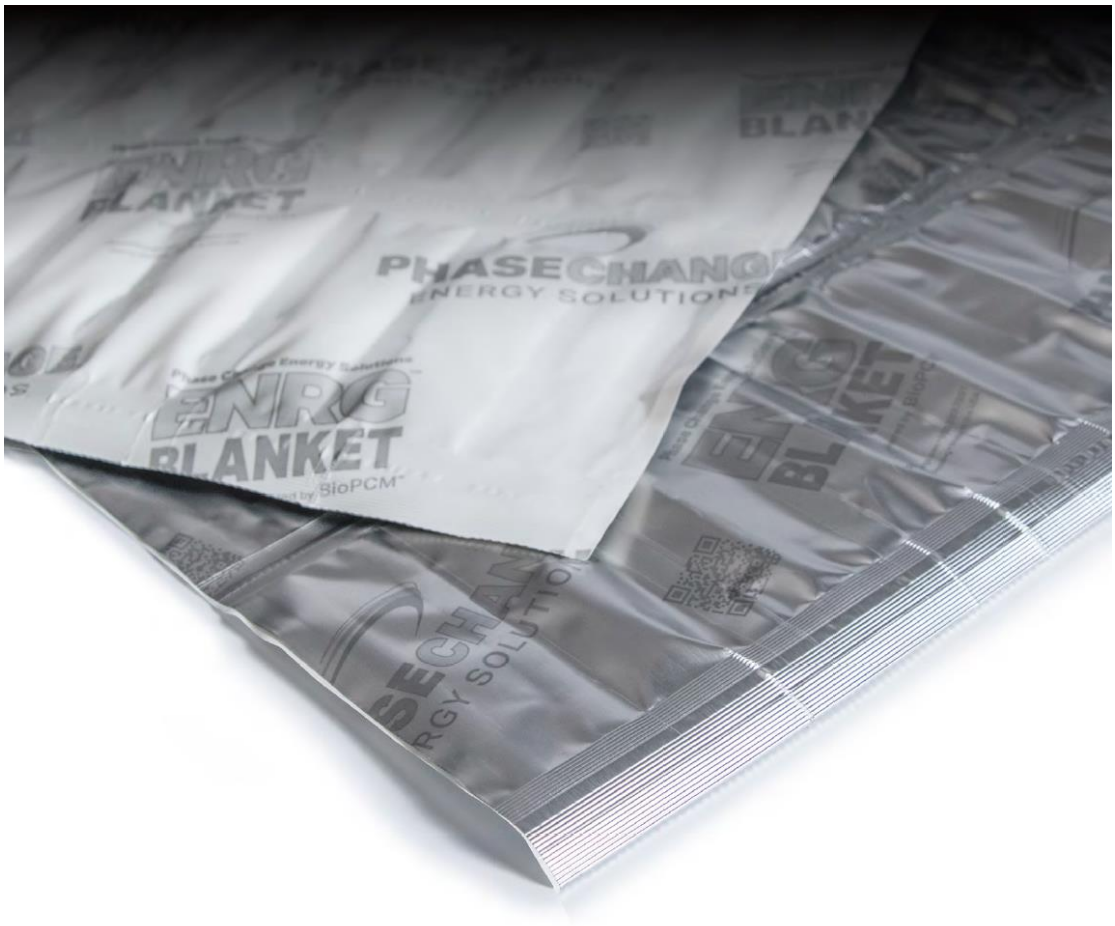
PCMin



PCM 相变蓄能毯

Install today, saving tomorrow

PCMin

全球领先的全植物固液转换相变材料

World leader in bio-based,solid-to-gel, phase change materials

Helps reduce your carbon footprint.

25-35% HVAC Savings.

Bio-based, biodegradable, renewable.



A cost-effective solution for energy savings and comfort.

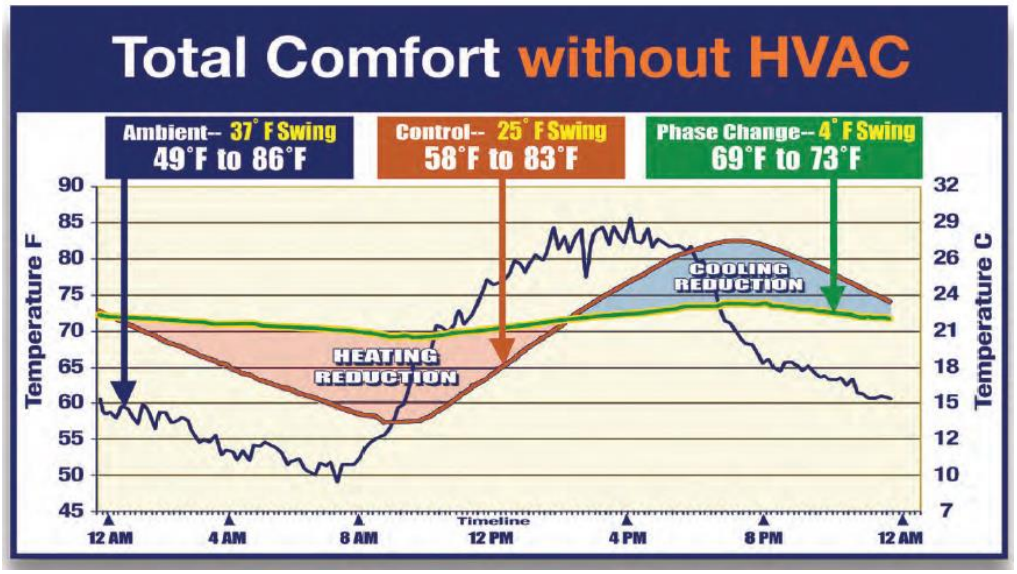
After years of testing and hundreds of installs around the world, we consistently experience energy reductions on HVAC expense in the 25-35% range. While we realize that every structure is unique, the simple payback (ROI) on most structures is 3 years or less. We have been able to replicate these results in old and new buildings alike and in various climate zones. The quick, easy installation process can be achieved using only four people with two step ladders at a rate of approx. 1000 sq ft per hour. Our installs cover a wide variety of applications from classrooms in one of America's largest school districts to single story retail and office space with one of the world's largest banks. We were also able to completely eliminate the need for air conditioning in the molecular engineering building of one of the country' s most innovative universities and they are in the process of building a sister structure to the previous one using the same phase change material application.

大量项目实例证明 PCM 的节能和舒适性

零售商店 银行 机场 工业建筑 学校 预制建筑 医院建筑 办公室 改建和新建

使用的舒适节能解决方案

经过多年全球几百个项目的测试，我们都可以得到项目中大约 25-35%的能耗节约。 我们认识到每个建筑都是独特的，每个投资回报都是不同的，但是我们可以将此类节约能耗的结果在全球不同的气候区域复制到新老建筑中去。 最快最迅速的方式是吊顶上方铺设蓄能毯，四个人一般可以铺设 100 平方米的面积。这些方式应用在各类学校，商业建筑，办公室和世界最大的几个连锁银行。 包括大幅减少各类预制建筑的空调需求，



上述检测通过不用空调的两个建筑，一个有保温，一个没有保温用 PCM 材料，24 小时的温度观察结果，有 PCM 材料的建筑其室内温度从 25 度上下波动降低到 4 度，而室外的全天温度波动是 37 度

The results above of two unconditioned structures using a side-byside comparison of identically built structures with the exception of the addition of ENRG Blanket™ in one vs. none in the other. Over a 24 hour period, on a September day in North Carolina, the ENRG Blanket™ reduced the temperature swing inside the structure from 25 degrees to only 4 degrees on a day with an outside ambient swing of 37 degrees.

商业/工业/住宅 Commercial/industrial/residential



大量案例在体育中心，学校，办公，改建，大学建筑，医院，训练中心，工业建筑，数据中心等

Class A
Q23- 23° C/ 73° F
Q25- 25° C/ 77° F
Both M27 and M51

Class A 25/50 (Plenum)
Q23- 23° C/ 73° F
Q25- 25° C/ 77° F
Both M27 and M51

多种防火等级

PCM 与众不同

多年的测试证明使用相变材料是建筑节能的有效手段。 然而大多石化的相变材料都有防火的隐患， PCM 是低成本植物基的材料，其不对环境产生负面影响， 此外 PCM 是 LEED 被动屋和 BEE（可持续性建筑）的最佳配套产品
我们的产品超过了行业最严格的检测标准， 我们产品设置是固体到胶体的状态，实验室寿命检测证明其寿命超过 85 年以上，是终身舒适节能产品

Years of study by independent laboratories has proven the energy savings effectiveness of utilizing phase change materials within buildings. However, most PCMs were petroleum-based which tended to create a fire risk. Our BioPCM? is a low-cost, bio-based material which

achieves similar energy saving performance without the negative environmental impacts of petroleum based PCMs. Additionally, BioPCM? is both a LEED and a BEES (Building for Environmental and Economic Sustainability) friendly product. Our ENRG Blanket™ is fire tested to ASTM E84 Standards. Testing to this strict industry accepted standard confirms that our product meets or exceeds the safety guidelines of the building products industry. Additionally, our product is sold in a melt-to-gel formulation so that even in its melted state the material does not turn into a low viscosity liquid. Laboratory life testing has shown that our material maintains its thermal performance through the equivalent of 85 years of life, ensuring a future of low-energy comfort!

大幅度减少建筑制冷和采暖的需求，同时减少室内的温度波动

overcome the large swings in people traffic as well as electronics that emit heat and allow thermal gain to affect

大量进出的商业场所的人带来很多热量，影响商业场所的空调负载，使用相变材料吸

收其产生的热量减少很多空调的冷热负荷

Throughout the day, the foot traffic in large retail stores can greatly effect the HVAC systems within the structure. Phase change materials absorb the sudden swings associated with huge influxes of people to reduce the load on the heating and cooling systems.

拥挤的商业场所是另外一个相变材料发挥长处的地方，人体的热量室内的电器热和不断开关的大门会一直影响到空调的效果，相变材料能够帮助建筑吸收和释放波动的能量达到室内人员更舒适的目的

Crowded commercial spaces are another area where phase change materials shine in their performance. Heat loads from human bodies, electronics and continuously opened doors can be challenging to HVAC contractors, but phase change materials allow the structure to absorb and release these fluxuations with lesser impact on the overall comfort levels of the occupants inside.

教室和剧院一般会很空也会很挤，一般这些地方都需要预留制冷和制热余量来应付波动，但是相变材料能够帮助维持恒定的舒适温度

Classrooms and theaters are classic examples of spaces that are completely empty at one moment

and completely full the next. Typically, these spaces require over-cooling or over-heating to deal with the drastic swings but phase change materials can be used to help maintain constant temperatures without huge deviations from the desired temperature.

机场是人体的热量负载起伏最大的地方，且使用大量玻璃采光。 这些问题要不就要空调解决，但是负载起伏大于空调负载时，只要简单的增加相变材料就可以轻松控制了

Airports see drastic swings in people loads and are commonly designed with walls of continuous glass. Either of these problems alone can be a daunting task for an HVAC system designer, but when combined, this duo can be nearly impossible to control. Simply adding a phase change component into the mix can make this task very managable.

BioPCM 相变材料参数

ENRG BLANKET™ **Available in 12"(~350 mm), 16"(~410 mm) and 24"(~610mm) widths**

Melting Point* [°C/°F]	21°C / 70° F				23°C / 73° F				25°C / 77° F				27°C / 80° F				29°C / 84° F			
Heat Storage** [J/g]	175-250				175-250				175-250				175-250				175-250			
M Value	27	51	75	91	27	51	75	91	27	51	75	91	27	51	75	91	27	51	75	91
Weight per Square Foot (lb)	0.51	0.71	0.86	1.27	0.51	0.71	0.86	1.27	0.51	0.71	0.86	1.27	0.51	0.71	0.86	1.27	0.51	0.71	0.86	1.27
Weight per Square Meter (Kg)	2.5	3.5	4.2	6.2	2.5	3.5	4.2	6.2	2.5	3.5	4.2	6.2	2.5	3.5	4.2	6.2	2.5	3.5	4.2	6.2
Total unit thickness (in)	.25	.5	.75	1	.25	.5	.75	1	.25	.5	.75	1	.25	.5	.75	1	.25	.5	.75	1
Total unit thickness (mm)	6.4	12.7	19.1	25.4	6.4	12.7	19.1	25.4	6.4	12.7	19.1	25.4	6.4	12.7	19.1	25.4	6.4	12.7	19.1	25.4

ENRG BLANKET™ is available with custom melt temperatures between (-50-150°C or -60-300°F) with M-Values ranging from 20-200

安装 Installation

顶面和墙面安装
False ceiling and wall install

特点

减少空调能耗
Reduce HVAC energy

PCM 相变储能毯降低了暖通空调的耗电量。高达 40%，运行时间减少最多 20%，循环频率高达 25%。额外的储蓄是在地区内实现的，这是用电高峰用电的收费。有吸引力的投资回收期
PCM blanket reduce HVAC energy up to 40%, reduce run time 20%, recycle frequent up to 25%, and shifting energy peak moment increase return.

在大多数地区，PCM 相变储能毯的节省将在短期内归还其全部安装成本。无操作成本，无维护，寿命长。
Among most of the region, PCM return in short term period. No additional operation cost And no maintain cost , long life time.

PCM 相变储能毯是被动的，不需要任何电源，也不需要维护来提供超过 100 年的用寿命。可以延长空调设备的寿命通过减少 HVAC 运行时和压缩机的循环，PCM 相变储能毯延长了暖通空调设备的寿命，减少了维修和维护费用。减少碳足迹
PCM is passive cooling so no energy is needed, and no maintain over 100 years, it increase HVAC lift time and reduce HVAC running time and compressor cycle, PCM increase HVAC life time and reduce maintain cost.

简单和快速安装, PCM 相变储能毯标准尺寸，易于操作和安装。

PCM blanket is standard size easy to install and operate.

PCM 相变储能毯是无毒和无腐蚀性的，是使用可持续发展的，可再生植物为基础的副产品生产的。美国制造

Made in USA, PCM blanket is non toxic, 100% recycle, plant based.