CHEMPOSITE®

FIBERGLASS REINFORCED
PLASTIC FREE SPAN FLAT COVER

Free Span Flat Cover

Incorporating Chemposite's fiberglass contact molded panel and vacuum forming technique, our new Cup Core® structural sandwich panel is designed for safe flooring and cover systems. These excellent structural and chemical resistant characteristics of Chemposite's Cup Core® panel make our products the material of choice for industrial and municipal applications.

Cup Core® Panel systems are perfect for demanding environment in numerous industries:

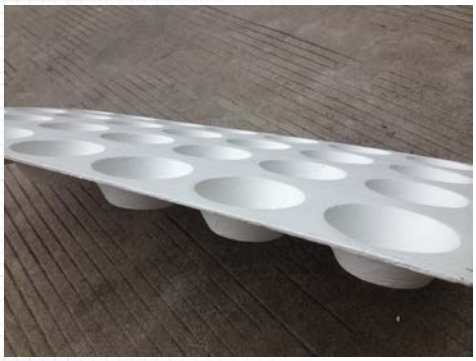
- Chemicals
- Pulp & Paper
- Mining & Metal Plating
- Electronic & Electrical
- Transportation & Marine
- Water & Wastewater Treatment
- Oil & Gas

APPLICATIONS

Chemposite's Cup Core® panels are the solution wherever systems are subject to corrosion, rapid deterioration, and constant maintenance problems. It is ideal for the installation area with a long span but cannot afford the placement of any support members such as posts and beams in between. Double Cup Core® panels can be bonded for added strength and stiffness. Please check with Chemposite's technical staffs for design details.

PRODUCTS

- Flooring & Walkway
- Equipment Covers
- Bridges & Platforms
- Tank & Trench Cover

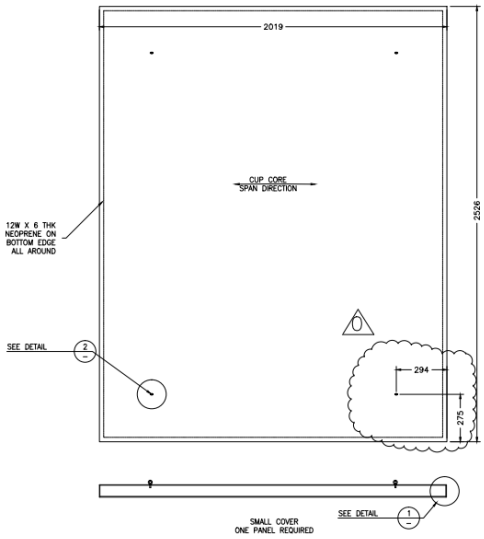


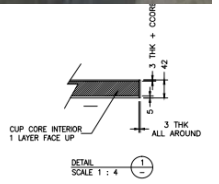
Chemposite Free Span Flat Cover is widely used in the Waste Water Treatment Plants for safety, environmental protection and to prevent algae growth. The common areas for the covers are:

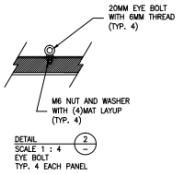
- Aeration Tank
- Sedimentation Tank
- Effluent Pond
- Scum Pit
- Channels
- Gnt Chamber
- Inlet Works

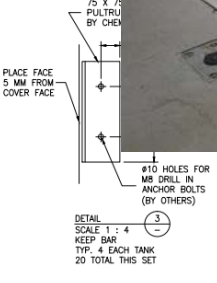
SPECIAL FEATURES

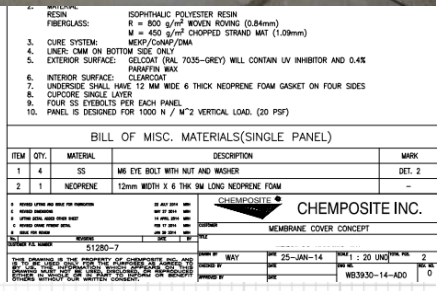
- Corrosion Resistant
- High Strength to Weight Ratio
- UV Protection
- Fire Retardant to Class I per ASTM E-84 (Option)
- Slip Resistant
- Maintenance Free
- Ease of Installation
- Non-Conductive











NEW CUP CORE® TECHNOLOGY TO PRODUCE THE STRONGEST SANDWICH PANEL IN THE INDUSTRY

Cup Core®, this new and novel engineered structural panels offer a high strength and stiffness in tension, flexural and sheer in all directions.

Point Load Test with sand bags over a 2M long span, simple support at both ends. The panel finally failed at 5 tons loading.

The current application relates to a panel shaped to provide a hollow section in the length and the width direction by extending an array of features in both directions between thin faces for permanent service performance. Several methods to achieve this are well known; for example, in aerospace, honeycomb shapes are bonded between thin structural sheets of metal or composite materials. Another method is to use structural foam, three dimensional fabric, or proprietary materials between fiberglass sheets as seen in the boating industry. All these solutions have drawbacks in that the core space is filled with material which limits its application. Additionally, the core space in the prior art, is vulnerable to water intrusion and delamination. Furthermore, the bonding between the structural layers and the core material may be limited and inconsistent which has caused most of the structural failure. Chemical liquids or gas pose a hazard to the laminate when the containment fails.

The new Cup Core® technology seeks to resolve the problems found in the prior art by providing an interconnected interstitial space between layers that may serve as a drainable space for leak detection, insulation and also provides maximized structural rigidity in the length and width direction. The interconnected interstitial has numerous possible uses in addition to the primary function of rigidity without the incorporation of reinforcing ribs. It may be used to detect leaks as noted, but also to provide circulation of cooling fluid or gas for temperature control or fire resistance between volumes.

This new product is designed to eliminate the older technique in utilizing any available foam or fabric material, and both of the internal and external reinforcing ribs. This product has increased the production efficiency of any double wall product since the material is supplied in a prefabricated sheet and not in raw material form as a fiberglass fabric. Its shape has more contact or bonding area than any other sandwich material such as honeycomb core that is commonly used in the structural application. Its solid panel with its engineered shape and size has enhanced the strongest structural form available according to the product requirement.

ADVANTAGES OF FREE SPAN FLAT COVER SYSTEM OVER CONVENTIONAL COVERS

1) Light Weight, High Strength and Easy to Handle

Each panel with a single layer of Cup Core® sandwich panel weights approximately 20-25kg per sq.m. and can easily be handled manually.

2) Self-Supporting

The ultrahigh strength for each layer of Cup Core® sandwich panel can span over 2500mm without any mid span support or reinforcing ribs with an overall panel thickness of 38mm and below while meeting the maximum allowable deflection of 1% subject to a 500kg distributed load on 1 sq.m. at the center. A double Cup Core of approximately 68mm thick can be spanned over 5000mm and still meeting the deflection limit in both longitudinal and transverse directions.

3) Safe, Easy to Clean and Maintain

With its smooth (no rib protrusion) on the inner and outer surface, it makes cleaning much easier and no tripping hazard for man traffic. A non-slip surface is an option. All panels are UV protected with a gelcoat finish for outdoor installation.

4) Air Tight Design with Double Containment Feature

All interfaces will have gasket fused in to prevent air leakage in meeting the required maximum allowance. The Cup Core® panel, with its 30mm deep interstice space between the inner and outer wall can act as a double containment space if either surface is damaged.

5) Fit for Any Types of Custom Fabrications

With the Cup Core® being produced from the same FRP material, it can bond to the FRP surface or lamination without any concern for delamination or seperation. The covers or products can be molded to any shapes or forms and openings for nozzles attachment is simple.

6) Non-Conductive

The non-conductive property of the Flat Cover System is ideal for work platforms, flooring and tank covers in electrically hazardous areas. Acting as an insulator, the panel greatly reduces the risk of electrical shock for workers.

7) Perfect Insulation without Extra Cost

The Cup Core® panel, with its 30mm deep interstice space between the inner and outer wall can provide a perfect insulation from the 30mm air space against direct sunlight or extreme cold weather. Furthermore, the inner surface can be painted with a dark color and the outer surface can be painted with a light reflective color.

LOAD & DEFLECTION DESIGN

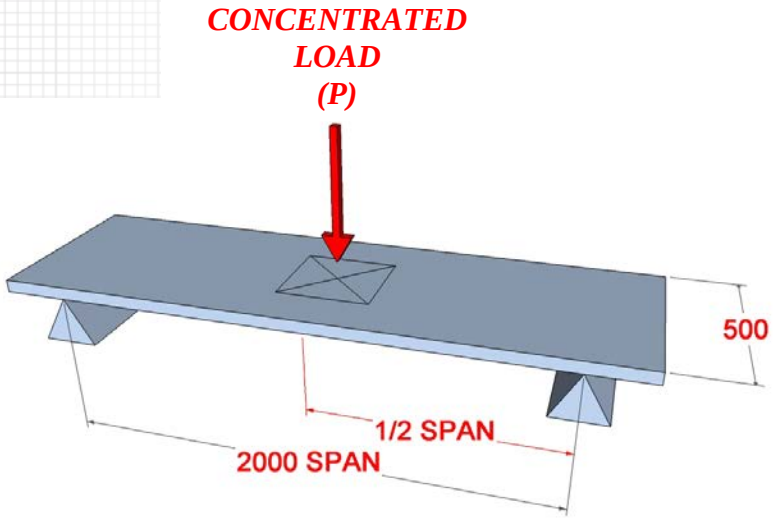
Chemposite has used two different test methods to determine the deflection and strength of our Cup Core® flat panels.

Concentrated Load

A 500mm wide strip of flat Cup Core® Sandwich panel is simple supported at both ends and spanned at 2000mm. The load is applied on a 300mm x 300mm pedestal at the center of the span. The deflection of the panel is measured for loads from 50kg to 500kg or until the panel reached the maximum allowable defection of 1% over the span.

The test specimens are based on the contact molded panels with a total plate thickness of 43mm. The Cup Core depth is 34mm with 4.5mm (M/R/M/R/M)* of fiberglass plate on both sides. The nominal weight of the panel is 24kg/sq.m. (5Lb/sq.ft.).

The test results are a guideline to assist you to determine the acceptable support spacing required for your product.



LOAD (P) KG.	*DEFLECTION(mm)*
50	*2*
100	*4*
150	*6*
200	*8*
250	*10*
300	*12*
350	*14*
400	*16*
450	*18*
500	*20*

* Note:

M = 450g/m^2 chopped strand mat

R = 800g/m^2 woven roving

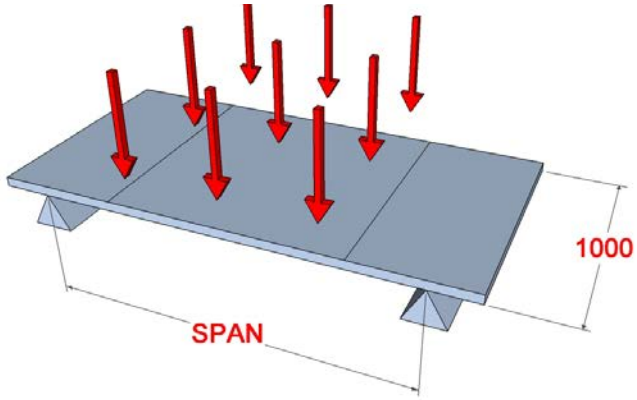
Uniformed Load

A 1000mm wide strip of flat Cup Core Sandwich panel is simple supported at both ends and spanned at various distances from 1500mm to 2500mm. The load is applied uniformly over 1 sq.m. at the center of the panel. The deflection of the panel is measured for loads from 50kg to 600kg or until the panel reached the maximum allowable deflection of 1% over the span.

The test specimens are based on the contact molded panels with a total plate thickness of 43mm. The Cup Core depth is 34mm with 4.5mm (M/R/M/R/M) of fiberglass plate on both sides. The nominal weight of the panel is 24kg/sq.m. (5Lb/sq.ft.).

The test results are a guideline to assist you to determine the acceptable support spacing required for your product.

LOAD AREA 1000 x 1000
UNIFORM LOAD
(U)



LOAD (U)KG.	*SPAN*			
	1500	*2000*	*2500*	*3000*
50	-	*2*	*3*	*4*
100	*2*	*4*	*6*	*9*
150	*3*	*6*	*8*	*13*
200	*4*	*8*	*12*	*17*
250	*5*	*10*	*15*	*21*
300	*6*	*12*	*17*	*26*
350	*6*	*13*	*19*	*30*
400	*7*	*15*	*21*	-
450	*7*	*16*	*23*	-
500	*8*	*17*	*25*	-
550	*8*	*18*	-	-
600	*9*	*19*	-	-

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