

Concrete Canvas® GCCM & CC Hydro™ GCCB Hydration Instructions

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Concrete Canvas® and CC Hydro™ are Geosynthetic Cementitious Composite Mats and Barriers (GCCMs & GCCBs), part of a revolutionary new class of construction materials. They are flexible, concrete filled geosynthetics that harden on hydration to form thin, durable and water proof concrete layers. Follow the instructions below to correctly hydrate Concrete Canvas® (CC)/CC Hydro™ (CCH) once laid.

Minimum volume of water required for each CC type:

	kg/m ² (lbs/ft ²)	L of water/m ² (US gal/ft ²)
CC5™/CCH5™	7 (1.43)	3.5 (0.92)
CC8™/CCH8™	12 (2.46)	6 (1.59)
CC13™	19 (3.89)	9.5 (2.51)



SPRAY THE FIBRE SURFACE WITH WATER UNTIL IT FEELS WET TO TOUCH FOR SEVERAL MINUTES AFTER SPRAYING

Re-spray the Concrete Canvas® / CC Hydro™ again after 1 hour if:

- Installing CC5™/CCH5™
- Installing CC/CCH on a steep or vertical surface



Notes:

- An excess of water is always recommended. CC/CCH will set underwater and in seawater.
- CC/CCH must be actively hydrated. For example do not rely on rainfall or snowmelt.
- Use a spray nozzle for the best results (see CC/CCH equipment list). Do not jet high pressure water directly onto the CC/CCH as this may wash a channel in the unset CC/CCH.
- CC/CCH has a working time of 1-2 hours after hydration. Do not move or traffic CC/CCH once it has begun to set.
- Working time will be reduced in hot climates and increased in very cold climates.
- CC/CCH will set hard in 24 hours but will continue to gain strength over time.
- If CC/CCH is not sufficiently wetted, or dries out in the first 5 hours, the set may be delayed and strength reduced. If the set is delayed avoid trafficking the material and re-wet with an excess of water.
- See [CC Equipment List](#) for full details. **Dust hazard. Wear appropriate PPE. Consult CC SDS document.**

Installation in Drying Conditions:

Drying conditions can affect CC/CCH in the first 5 hours after hydration resulting in excessive loss of water and preventing the specified strength gain.

Drying conditions occur when there is one or more of: high air temperature (>22°C/>71°F), wind (>12kmph/>7.45mph), strong direct sunlight or low humidity (<70%).

Hydrate at dusk where possible. Monitor for first 5 hours and respray as soon as the surface ceases to be wet to the touch, with at least one respray at 2-3 hours. Alternatively respray at hourly intervals for the first 5 hours. Other methods to reduce evaporation such as covering the material may also be used.

In drying conditions the CC/CCH should be inspected after 24 hours. If it is suspected that the material has over-dried: - Re-wet, in accordance with these instructions. This will normally enable the CC/CCH to gain the specified strength, provided the CC/CCH has not been heavily trafficked or mechanically damaged prior to full set.

Installation in Low Temperature Conditions:

1) If the ground surface temperature is between 0 & 5°C (32 & 41°F) and rising: CC/CCH should be covered with plastic sheeting immediately after hydration. CC/CCH may exhibit a delayed set at low temperatures.

2) If the surface temperature is expected to fall below 0°C (32°F) in the 8 hours following hydration: *use warm water (>15°C/>59°F) mixed with CC/CCH accelerant and cover with plastic sheeting. It is important to only use accelerant supplied by Concrete Canvas Ltd as some admixtures may delay set or impair performance. Please contact Concrete Canvas Ltd with your specific temperature profile for a recommendation on the dosage of accelerant required.*

- It is not recommended to install CC/CCH if the ground surface temperature is likely to fall below -4°C/24.8°F within 24 hours of initial hydration.
- It is not recommended to install CC/CCH on frozen ground as the ground may move significantly when it thaws, creating voids underneath the set CC/CCH.

Storage

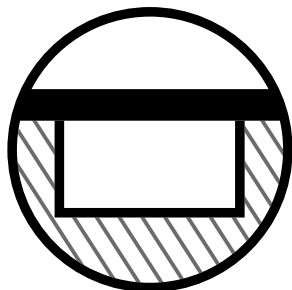
- CC/CCH should be stored under cover in dry conditions away from direct sunlight and in the manufacturer's sealed packaging.
- It is not recommended to store in shipping containers in direct sunlight where temperatures may exceed 40°C/104°F for prolonged periods.
- If stored correctly CC/CCH has a shelf life of 24 months. If stored for longer it may remain usable in many instances.

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Four Key Installation Principles of CC

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The unique material properties of Concrete Canvas® (CC) mean that it can be used for a variety of applications. Following the Four Installation Principles below will help ensure a successful installation.



Avoid Voids

1. Avoid Voids

Prepare the substrate so it is well compacted, geotechnically stable and has a smooth and uniform surface.

- For soil substrates, remove any vegetation, sharp or protruding rocks and fill any large void spaces. Ensure the CC makes direct contact with the substrate to minimise soil bridging or potential soil migration under the layer.
- For concrete substrates, remove any loose or friable material, cut away any protruding exposed re-bar and fill any large cracks or voids.

2. Secure Canvas

It is important to ensure that the CC is **Jointed** at every overlap between layers and that those layers are **Fixed** to the substrate.



Secure Canvas

- **Jointing:** Overlapped CC layers should be securely jointed together, typically this is achieved using stainless steel screws applied with an auto-fed screw gun at regular intervals. Correct screw placement will help ensure intimate contact between CC layers, prevent washout of the substrate, and limit potential weed growth. An adhesive sealant can be applied between the layers to improve the joint impermeability.

A non-penetrative method of jointing is to 'thermally bond' the CC layers together. This also improves joint impermeability. For more jointing options see the [CC User Guide: Jointing and Fixing](#).

- **Fixing:** When fixing to a soil substrate, ground pegs (eg J-pegs) are typically used. On rock or concrete substrates, CC layers can be jointed together and fixed to the substrate using masonry bolts, or concrete screw anchors. Stainless steel fixings with washers are recommended.

3. Prevent Ingress

It is important to prevent water or wind ingress between the CC and the substrate, both around the perimeter of the installation and along the joints.

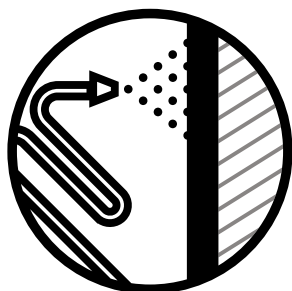


Prevent Ingress

- For soil substrates, this is typically achieved by capturing the entire perimeter edge of the CC within an anchor trench.
- On rocky or concrete substrates, the perimeter edge should be sealed with a concrete fillet or an adhesive sealant.
- All overlapped CC layers should be lapped in the direction of water flow.

4. Hydrate Fully

It is critical to properly hydrate CC, taking into account the quantity of material used and ambient temperature conditions.



Fully Hydrate

- Always ensure hydration through the fibrous top surface.
- Ensure to hydrate any overlapped areas and anchor trenched material prior to backfilling.
- Spray the fibre surface with water until it feels wet to touch for several minutes after hydration (the 'Thumb Test').
- Follow the detailed instructions overleaf.



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