



 **CONCRETE CANVAS[®]**
Concrete on a Roll

**INSTALLATION GUIDE:
WEED SUPPRESSION**



RAIL



ROAD



MINING



PETROCHEM



AGRO



PUBLIC WORKS



UTILITIES



DEFENSE



DESIGN



SHELTER

1.0 Introduction

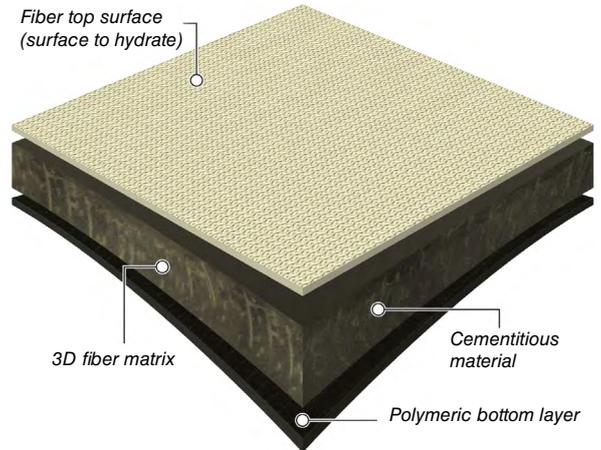
1.1 Background

Concrete Canvas® (CC) is the original Geosynthetic Cementitious Composite Mat (GCCM) and the first product to declare conformance to ASTM D8364 'Standard Specification for GCCMs'.

CC is a flexible, concrete filled geotextile that hardens on hydration to form a thin, durable and waterproof concrete layer. Essentially, it can be described as *Concrete on a Roll™* and is used for a wide variety of applications including the rapid lining of drainage channels, providing slope protection, weed suppression, culvert repair and general concrete remediation.

The information contained in the document is provided subject to the General Disclaimer on the last page of this document. A printable copy of the current version of our General Disclaimer is maintained at the following link [here](#). Subject to the above, this document provides general guidance procedures for the installation of CC for weed suppression, However:

- This installation guidance should be read in conjunction with the construction drawings taking account of the designer's project specifications. Consult the [CC Specification Guide: Weed Suppression](#) for standardized design and installation advice.
- The versatile nature of CC means that this document is not exhaustive and is intended for guidance purposes only. Exceptions to this guideline may be required to address site- specific conditions.
- The performance of the CC is wholly dependent on the quality of its design and installation. It is the installer's responsibility to adhere to these guidelines where applicable and to the project specification and construction drawings.



Typical CC cross section

2.0 Equipment Required

- Sufficient CC to complete the project including allowance for edge anchoring and overlaps
- Suitable lifting equipment to dispense CC Bulk or Wide Rolls
- Safety mask and gloves
- Cutting equipment, utility knife or disc cutter
- Metal or plastic fixing pins
- Lump hammer
- Screwdriver and stainless steel screws or alternative approved method to join the CC layers
- Water supply
- See the [CC Equipment List](#) for full details
- For ordering, offloading and storage information, see the [CC Logistics Guide](#) for full details
- Dust hazard. Wear appropriate PPE. Consult the [CC SDS](#) document



Equipment required

3.0 Substrate Preparation

Remove all vegetation and grade surface to a uniform profile to suit the design dimensions. If required, the surface can be smoothed with a sand layer.

Remove sharp or protruding rocks >1" and fill large voids >2".

Apply herbicidal treatment (if specified by the project engineer).

If the perimeter edge of the CC is terminating in a soil substrate (i.e. it is not going to be connected to existing infrastructure), excavate perimeter anchor trenches/benches to capture all CC edges.

Consult the construction drawings to verify if special substrate preparation measures such as minimum bearing capacity requirements, installation of a non-woven geotextile, or if substrate drainage details are needed. It may be necessary to form perimeter drainage channels or introduce a shallow fall to prevent pooling of water, consult the project engineer.



Prepare anchor trenches around perimeter edge for CC termination



Smoothing of substrate with sand layer

4.0 Deployment

CC must be placed to ensure direct contact with the surface to prevent void space. If the coverage area has a fall for drainage, begin at the lowest level and work up gradient.

Remove packaging (making sure to note the Roll ID) and unroll CC across the coverage area to suit the specified layup (longitudinal or transverse layup as specified on the design drawings), ensuring the fibrous top surface faces upwards, with the PVC membrane in contact with the ground. This is best achieved by dispensing the roll by naturally unrolling along the ground rather than pulling material from the top. Avoid snagging the CC on the substrate.

Where access is restricted by obstructions such as pipelines, low profile deployment frames (see image opposite) can be winched under the infrastructure to reduce manual handling requirements.

It is important to relax the material to relieve any tension generated in deployment. This can be achieved by lifting the CC layer by hand and repositioning. The installer can adjust the material to remove any wrinkles and ensure the CC conforms to the subgrade when hand repositioning.



CC deployed using a low profile deployment frame



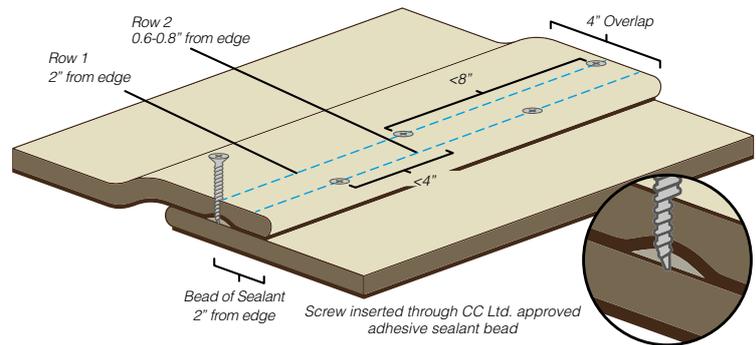
CC cut to required length

5.0 Jointing

Verify the specified joint method to be installed. For Screwed and Sealed joints:

Fold back top layer and hydrate the material under the overlapped sections of the CC. Once hydrated, the material remains workable for 1 to 2 hours. It is important to hydrate under the overlap prior to applying the adhesive sealant in order to remove excess dust, ensuring adhesive sealant contact with the fibrous top surface of the bottom CC layer and to provide moisture for curing. Surfaces should be damp during caulking but have no standing water.

- Apply a CC approved sealant as an 0.3" diameter continuous bead 2" from the edge of the underlapped layer. A 0.3" bead is equivalent to a coverage of 0.5oz/ft which is equivalent to 19' of joint for a 10oz cartridge or 39' of joint from a 20oz foil.
- Fold the top layer back into position and insert stainless screws in a 'zigzag' pattern. The first row of screws should be at 2" from the edge of the top CC layer (through the sealant bead) and the second row of should be 0.6-0.8" from the edge. The maximum screw spacing on each row should be 8", so that the maximum staggered screw spacing along the CC edge is 4". The screws should be applied immediately after hydration of under the overlap, but prior to setting so the concrete within CC will then set around the thread of the screws. For this reason, it is important that the screws have a fully threaded shank.
- Extra care should be taken to the location, frequency and spacings of the anchors to prevent rucking and to provide intimate contact between overlapped layers, ensuring accumulation of wind blown debris at joints is minimized.



Sealed and screwed zigzag joint



Subsequent lengths of CC overlapped by at least 4"



Adhesive sealant applied to under-lapped CC layer using caulking gun

Note: A 'zigzag' screwed and sealed joint creates a physical barrier to sunlight, water and horizontal weed growth as well as ensuring intimate contact between layers. A screwed only joint will mitigate weed growth, not eliminate it entirely.

For weed suppression of invasive species, please consult the designer or contact Concrete Canvas Ltd for specific jointing advice.

For Thermal Bond joints:

- Ensure CC remains dry and unhydrated before jointing
- Follow section 5.2.3 of the [CC Specification Guide: Weed Suppression](#)

Ensure there is no rucking at the joint and both layers are in contact with each other. Care shall be taken during installation to avoid damage occurring to the CC. Should the CC be damaged during installation and before hydration, the layer should be removed and replaced.

6.0 Perimeter Edge Anchoring

It is essential that all exposed (i.e. unjointed) edges of the CC are secured during the installation to prevent wind uplift and potential scour from water ingress.

When anchoring to Soil (i.e. using anchor trenches or benches):

- Position the CC into the excavated anchor trench/bench (as specified by the project engineer). Anchoring to the subgrade is typically achieved using appropriate pegs to suit the subgrade and any penetration depth limitations. In granular or compacted subgrades, 0.5-0.6" diameter galvanized steel ground pegs with a sharpened point are often specified. In clay/soil substrates, pegs or high load ground anchoring fixings (for example, Grippe TL-TA) may be suitable, check the designer requirements
- Fix the CC in the anchor trench/bench by inserting anchor pegs through each overlap or at a minimum of 6' intervals for longitudinal installations.
- The CC should be hydrated before backfilling with non-erodible fill. This may be soil or concrete depending on the design. Consult the construction drawings.

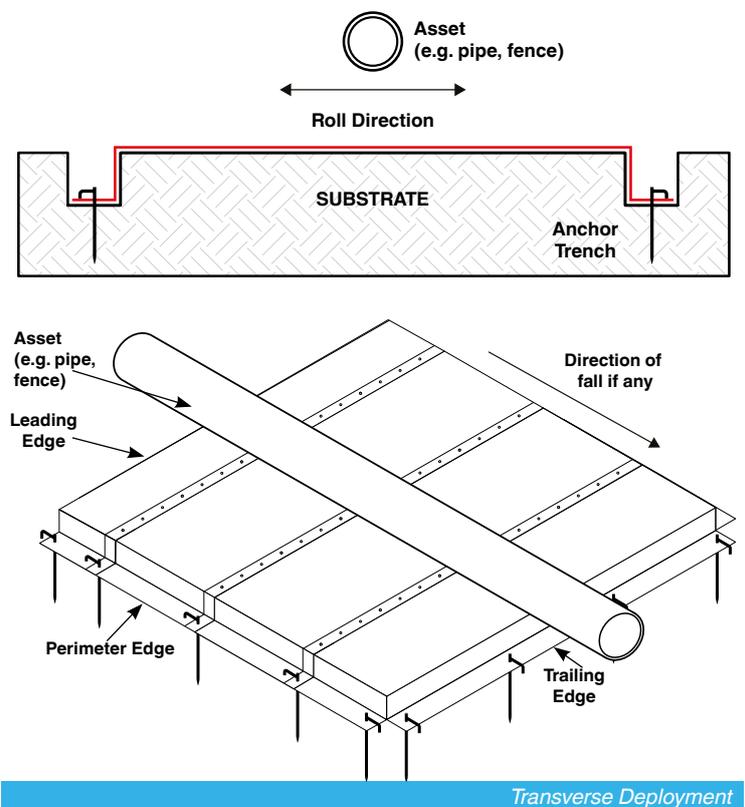
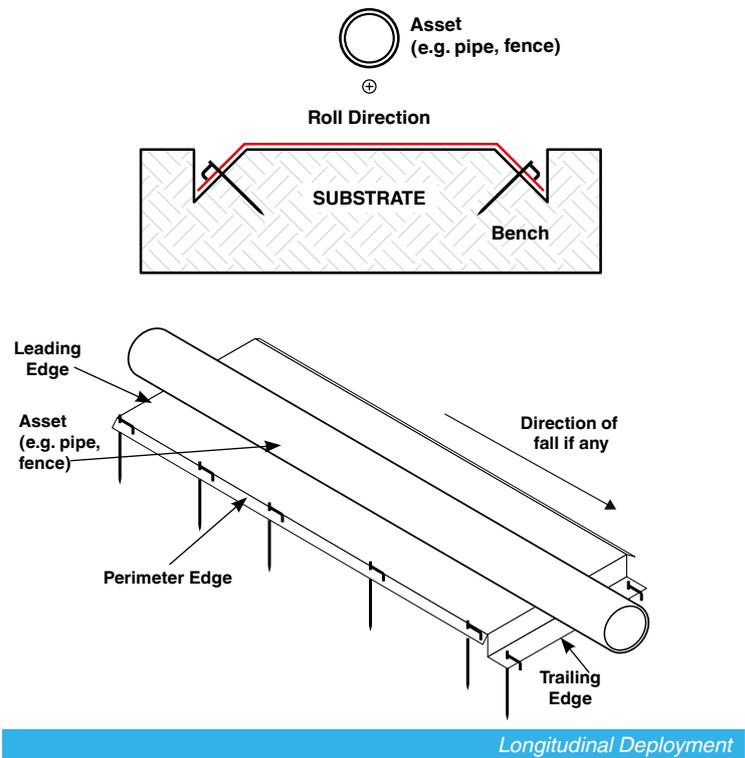
When anchoring to Concrete/Masonry/Rock:

- Consult the construction drawings for the mechanical anchor specifications and spacings.
- Position the CC against the structure and drill a pilot hole through the CC and the structure before inserting the mechanical anchor.
- Use appropriate sealant/gasket and washers/clamping bar as specified by the designer to ensure a suitable seal.
- Ensure the edges of all CC layers is either suitably terminated into existing infrastructure or tucked into an anchor trench/bench prior to hydration.

7.0 Intermediate Anchors

Additional intermediate anchors may be necessary to profile CC on uneven subgrades to ensure it conforms to the underlying surface and remove voids, or for Warmer Climate Detailing: e.g. where CC profile lengths exceed 10'.

The intermediate anchor type, performance requirements and installation locations should be specified by the designer to suit the anticipated load conditions. 'Round Head' anchor pegs are typically used. Consult the construction drawings.



8.0 Custom Detailing

Consult the construction drawings for custom detailing such as specific measures for accommodating penetrations, junctions or interface details.

Concrete Canvas USA can provide advice on unforeseen custom details.

9.0 Hydration

If necessary, to prevent wind uplift and prevent voids from forming underneath the material, the Installer should place temporary ballast, such as sandbags, on top of the laid CC to ensure that it lies flat to the substrate prior to hydration.

After anchoring and jointing, the surface of the CC can be brushed clean to remove marks and debris before spraying with water to hydrate.

Spray the fibre surface multiple times until the CC is fully saturated. The wet CC will first darken and then become lighter as it absorbs the water.

Do not spray high pressure water directly onto the CC as this may wash a channel in the material.

CC can be hydrated using fresh water or salt water, it is not possible to over hydrate CC and it will hydrate and set underwater.

A minimum volume of water equal to 40% of the material weight is required. For example, CCT2™ requires 1.5gal per 10ft².

To check proper hydration, the CC should feel wet to the touch several minutes after hydration. Press your thumb into the CC and release. If water is present in the depression in the CC, it has been sufficiently hydrated. If no water is observed, then more water must be applied.

Specific hydration methods are required in drying conditions (installing in high air temperatures (>72°F), wind (>7.5 mph), strong direct sunlight or low humidity (<70%)) and in low temperature conditions. Please consult the [CC User Guide: Hydration](#) which is also attached on all CC Bulk Rolls.

It is not recommended to rely on rainfall to provide hydration.



CC cut to fit around existing upstands



Anchor trenches should be a minimum of 4"



Backfill anchor trench



Secure all perimeter edges

10.0 Setting

There is a working time of 1-2 hours after hydration.

Backfill anchor trenches/benches with non-erodible fill as specified in the construction drawings to create a neat termination and encourage surface water runoff to flow over the anchor trench prevent undermining.

CC hardens to strength in 24 hours and is then ready for use.

If the weed suppression area is intended for pedestrian trafficking, then it is advised to apply a textured coating to provide an anti-slip high friction surface and prevent non-root organic growth to the top fibrous surface of the CC.

Allow the CC to cure for at least 48 hours before applying any post installation surface treatments such as jet washing or painting.

11.0 Installation Sequence

Planning of CC installations is necessary to ensure tools and materials (e.g. hydration water) are available when required.

Only install what can be fully jointed, anchored and hydrated before the end of construction day to minimize any adverse effect on the installation and/or performance capabilities of the product.

If installation continues the following working day, protect the edge of the last layer of CC overnight with waterproof sheeting to enable jointing on return to work.

An example install sequence is described below:

- Morning - Deploy CC panels and secure along the perimeter edges.
- Early afternoon - Jointing of panels (e.g. hydrate underlap, apply sealant, screw joints), install intermediate fixings.
- Late afternoon - Hydration (following drying/low temperature condition guidance as required).

12.0 Inspection Maintenance and Repair

CC lined structures should be inspected 24hours after hydration and at regular intervals thereafter. Consult the [CC User Guide: Inspection, Cleaning and Maintenance](#) for more details. For the majority of projects, CC does not require cleaning or maintenance. If damage is found during a periodic inspection, contact Concrete Canvas USA for repair advice.



Clamping bar perimeter anchoring



Mechanical anchoring to concrete



Hydration

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