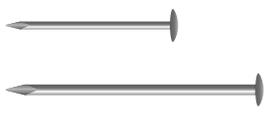


Concrete Canvas® GCCM* (CC) does not require specialist contractors for the majority of applications. Installation is quick and easy, provided that design specifications, construction drawings and installation guidelines are followed and appropriate equipment is used.

**There are five steps to all CC installations which must be followed:
1. Substrate Preparation, 2. Deployment, 3. Fixing, 4. Jointing, 5. Hydration**

Equipment needs will vary from project to project but the following is suitable for the majority of installations.

1. SUBSTRATE PREPARATION	CC will follow the contours of the structure it is placed upon, which must be stable, free from vegetation, rocks and protrusions and have a smooth profile		Required equipment			
	Profiling	A smooth and uniform subgrade should be prepared excavators or hand tools. For large channelling works, a 'V' bucket can be used to create the required profile.	Excavator (& 'V' Buckets if required, or hand tools)		<input checked="" type="checkbox"/>	
	IF REQUIRED	Installing a suitable geotextile on the prepared surface can prevent washout of fines through unwanted seepage paths (that may cause erosion under the CC), provide a clean working area and protect the PVC backing from snags and installation damage. Check designer requirements	Suitable geotextile		<input checked="" type="checkbox"/>	
2. DEPLOYMENT	Bulk Rolls of CC weigh approximately 3300-3530lbs. Appropriate plant for handling and deployment of heavy goods is required on site		Required equipment			
	Delivery & Handling	A mechanical means of offloading and transporting palletised heavy goods is required.	4500lbs rated tele-handler (or similar with fork attachment)		<input checked="" type="checkbox"/>	
	AND					
	Deployment	Bulk rolls of CC are typically deployed via plant mounted spreader beams (rated to 4500lbs SWL) in a similar fashion to conventional geosynthetics	4500lbs rated spreader beam		<input checked="" type="checkbox"/>	
	AND					
Cutting (Small Projects <1000ft²)	CC can be cut using basic hand tools. The cement dust within the material will blunt blades so replaceable or disposable knives are recommended	Snap-off-blade utility knife		<input checked="" type="checkbox"/>		
OR						
Cutting (Large Projects >1000ft²)	For larger projects with numerous cuts required, a cutting power tool such as an angle grinder or disc cutter is recommended	Angle grinder / disc cutter (cordless recommended)		<input checked="" type="checkbox"/>		
3. FIXING	Deployment the CC must be secured to the substrate to prevent movement during use. The following fixings can be used depending on the substrate and design requirements		Required equipment			
	Edge Fixing in Soil Substrates	The entire perimeter of the CC installation must be buried in anchor trenches that are backfilled with non-erodible material to prevent undermining. J-pegs can be used to improve pull out resistance and secure the CC in place during deployment and prior to backfilling	Steel J-pegs (galvanised or stainless steel recommended)		<input checked="" type="checkbox"/>	
			Lump Hammer (or similar)		<input checked="" type="checkbox"/>	
			Non-erodible backfill (soil or concrete depending on design)		<input checked="" type="checkbox"/>	
	OR					
	Edge Fixing in Concrete or Rock Substrates	The entire perimeter of the CC installation must be secured to the substrate to prevent undermining. Stainless steel anchors must be used with clamping bar or washers. The frequency and diameter of the washer depends on the shear strength of the fixing and is project specific. A means of installing the fixing is required	Stainless Steel Fixings (e.g. masonry bolts, screw anchors >0.6in washer)		<input checked="" type="checkbox"/>	
IF REQUIRED		Drill and Torque Driver (including drills, bits and sockets)		<input checked="" type="checkbox"/>		
Intermediate Fixings (if required for profiling, warm climate detailing or as part of design)	Intermediate fixings may be required for to ensure the CC conforms to the underlying surface, prevent movement in warmer climates or resist external loading from hydraulic shear or wind uplift. The intermediate fixing type depends on the requirements. For profiling and drying conditions, round head pegs can be used. For external loading conditions, fixings should be specified by the designer	'Round Head' fixings to suit design and substrate conditions (e.g. galvanised pegs, earth percussion anchors or mechanical fixings & washers)		<input checked="" type="checkbox"/>		

*Geosynthetic Cementitious Composite Mat

4. JOINTING	CC layers are overlapped by 4in in the direction of water flow and jointed using any of the any of the following options. Jointing methods are specified by the designer. See the relevant CC Specification Guides and individual application user guides for further details.		Required equipment		
	Screws	This joint is suitable for the majority of applications and is fast and simple to apply. It provides good mechanical strength but with limited impermeability. The screws should be applied at 2-8in spacings (as specified in the design) and 1.2-2in from the edge of the CC. Important: Hydrate the CC under the overlap before jointing.	Auto-fed screwdriver (cordless recommended)		<input checked="" type="checkbox"/>
			Collated Screws (stainless steel recommended)		<input checked="" type="checkbox"/>
	OR	For applications where improved impermeability is required, an 0.3in bead of adhesive sealant can be applied in the overlap, following the position of the screws to minimise leakage. Suitable CC approved adhesive sealants are available from Concrete Canvas Ltd. Important: Hydrate the CC under the overlap before jointing.	In addition to the above		
	Screws and Sealant		Caulking gun (powered unit recommended)		<input checked="" type="checkbox"/>
Adhesive Sealant Cartridge (use CC approved adhesive sealant)				<input checked="" type="checkbox"/>	
OR	For applications where non-penetrative jointing is required. The joint can be formed using hand welders or using an automatic thermal welding machine. The latter allows joints to be formed at a rate of 40-60in/min. Consult the CC User Guide: Thermal Bonding for more information. Important: Thermal Bonding must be carried out in dry conditions prior to hydration.	Leister Twinny S of T (2in solid wedge set up) or Leister Triac AT with 2.4in perforated slot nozzle		<input checked="" type="checkbox"/>	
Thermal Bonding					

5. HYDRATION	Following deployment and fixing, it is required to hydrate the CC. This must be proactively done and it is not advised to rely on hydration from rainfall. See CC User Guide: Hydration for further details.		Required equipment		
	Mains Water Supply	A minimum volume of water equal to 50% of the material weight is required and an appropriate means of application	Mains water supply		<input checked="" type="checkbox"/>
	OR	A water bowser can be used as an alternative means of hydration if access to mains water supply is unavailable	Water Bowser (or similar alternative)		<input checked="" type="checkbox"/>
	AND		Petrol/diesel water pump		<input checked="" type="checkbox"/>
		Hosing	Adequate length of hosing is required to hydrate the entire area of the CC structure. A Spray nozzle is needed. No focussed jets	Adequate length hosing and spray nozzle	
IF REQUIRED	If installation continues the following working day, protect the edge of the last layer with a waterproof sheeting and temporary ballast prior to hydrating the rest of the structure	Waterproof sheeting and temporary ballast		<input checked="" type="checkbox"/>	

Personal Protective Equipment (PPE)

PPE is required for handling CC, consult the [CCUSA SDS](#) document. Dust Hazard.

The equipment required for a specific CC installation should be risk assessed and the installers must be provided with appropriate PPE to use the required tools.

