

# CONCRETE CANVAS™

Turkish Distributor



## CCS Deployment Instructions

# BETON KUMAŞ BARINAKLAR<sup>®</sup>

## Summary

CCS is a durable hardened building with 2 lockable double doors and a sterilisable liner. The expected lifespan is over several decades in all conditions. Deployment of a CCS requires 2 people and takes 1 hour. The shelter will be ready for use in 24 hours. It can be earth bermed\*

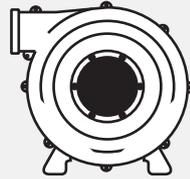
## Equipment List

### Supplied Equipment

- CCS deployment instructions
- Folded CCS
- Inflation Unit with speed controller and filter (110V or 240V as supplied)
- Clamping band
- 16 off 700mm steel ground pegs
- Safety knife
- 3 off 2T loading straps

### Required Equipment

- For 2 person deployment:
- >3T rated forklift with 1.8m forks/ heavy lifting equipment.
  - 2 off sledgehammers
  - 850L of water (may be sea water)
  - Water pump fitted with >8m hose and spray nozzle (recommended water flow 30l/min)
  - Uninterrupted power supply for 24 hours
  - Crowbar



Inflation Unit



Clamping Band



Ground Peg



Safety Knife

### Optional Equipment\*

- 16 off 150mm Ø10mm self tapping anchor bolts for deployment on rock/concrete
- Heated Inflation Unit (110V or 240V as supplied) for extreme cold climate deployment.
- CBRN / DECON upgrade equipment: forced air unit, re-sealable inner and decontamination vestibule.
- Water soluble accelerant sachet .
- Polyurethane sealant, for sealing between multiple shelters
- 3T rated standing winch with ground mount (CCS54 deployment only)

\*Contact Kanvas Beton for further information.

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## Deployment Instructions

### Deployment Notes

In arid climates, CCS should be deployed at dusk to avoid over-drying.

It is possible to deploy CCS in wet conditions. Concrete Cloth has a working time of 2 hours after hydration.

In cold climate conditions (below 5°C), a heated inflation unit should be used. Contact Concrete Canvas for further information on cold climate deployments.

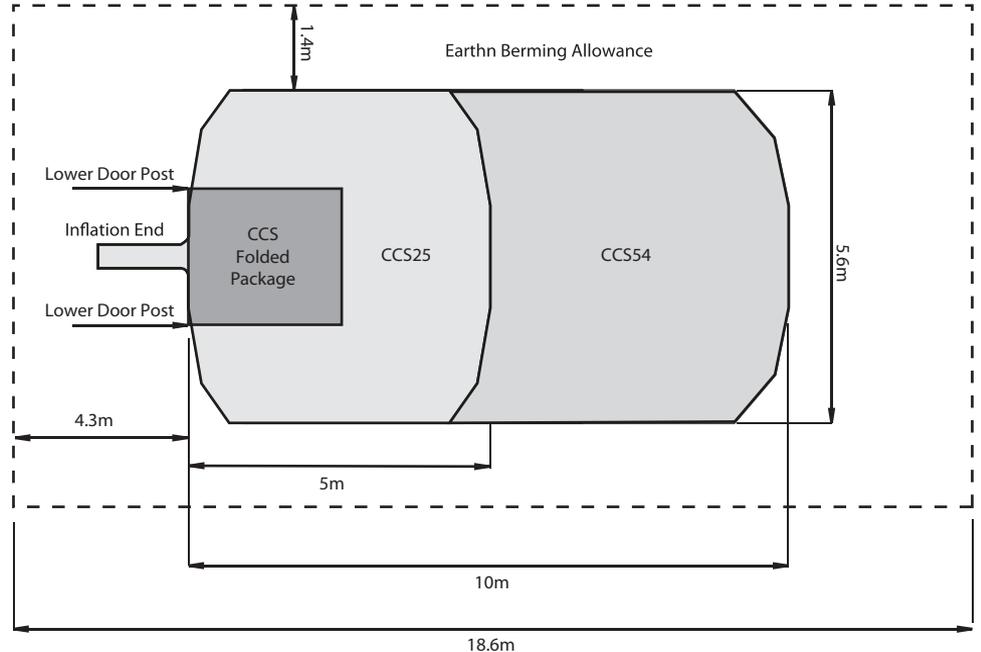
### Site Preparation

Plan the space to allow access to position the shelter and access to both double doors, taking account of planned docking of further shelters and force protection upgrades (Fig.1).

The ground should be firm, level and any protruding rocks or debris removed.

The shelter will inflate to a height of 2.8m, vegetation and branches below 2.8m should be removed. All sides need to be accessible for spraying.

Fig. 1 CCS Footprints



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## Deployment Instructions

### Step 1

Position the 3 lifting straps evenly along the fork lift tines when lifting the shelter out of the crate (Fig.2)

Note the 'Inflation End' marked on the crate. The shelter will unfold away from the Inflation End.

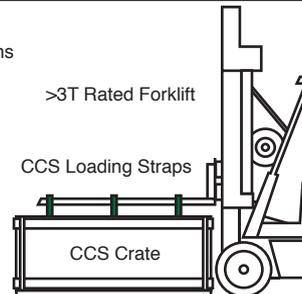
Position the package by locating the feet of the lower door frame (Inflation End) where the front door of the deployed shelter is required. The front door of the deployed shelter will be in the same location as these feet are in the folded state (Fig.3).

Fig. 3

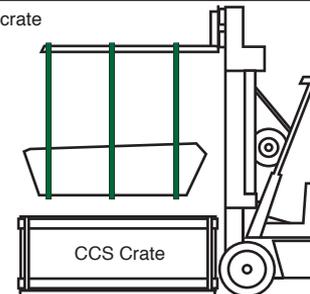


Fig. 2

Loading Strap Positions



Lift CCS package from crate



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## Deployment Instructions

### Step 2

Remove the plastic packaging with the safety knife provided, be careful not to cut the white lining of the shelter. Then pull out the 3 lifting straps (Fig. 4).

### Step 3

Unfold the inflation tube and attach the Inflation Unit to the shelter using the Clamping Band. (Fig.5)

Fig. 4



Fig. 5



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### Step 4

Plug in and turn on the Inflation Unit at full power, the CCS will begin to unfold. A person should stand on either side of the shelter and help to lift the upper door frame until it clears the vertical. The air pressure will do most of the work. Lift the frame in several stages allowing the pressure to build up between each lift (Fig.6).

**CAUTION: Ensure the area on the far side of the shelter is clear as the door frame is heavy and will fall here as the shelter unfolds.**

### Step 5

The sides of the shelter will now begin to unfold. With one person standing on each door, unroll each side off the doors. This will not require much force (Fig.7).

Fig. 6



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Fig. 7



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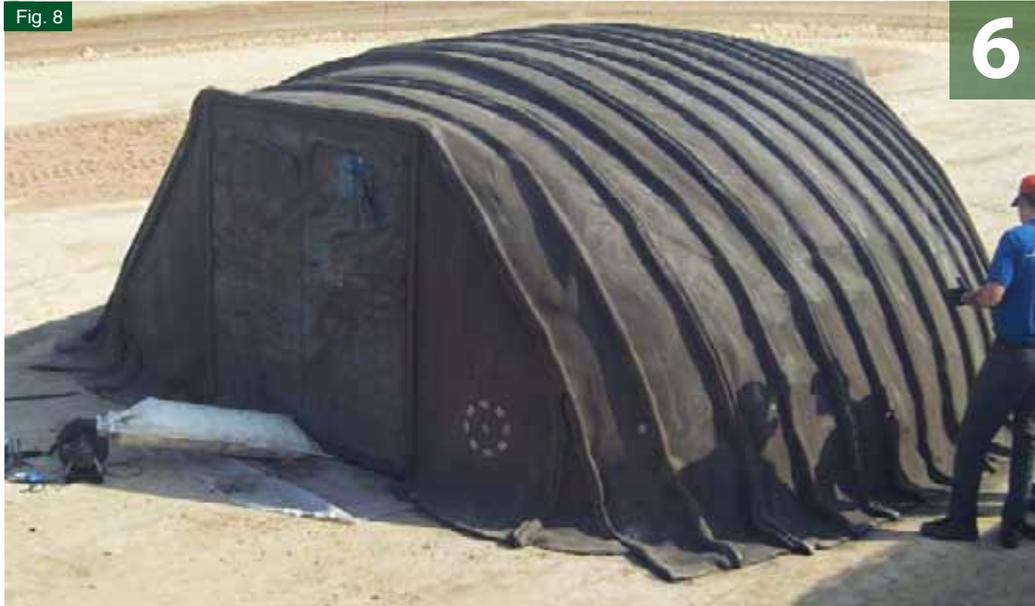
## Deployment Instructions

### Step 6

Once the ridge is fully formed (Fig.8), set the Inflation Unit to the minimum setting and adjust until a stable pressure of 3.5hPa is reached. At this point the footings should be pulled out from under the shelter (Fig.9).

The footings should rest on the ground around the entire perimeter with the white peg marks just above ground level (Fig.10). Small adjustments to the pressure setting may be necessary.

Fig. 8



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Fig. 9



Fig. 10



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### Step 7

Hammer the pegs in starting from the centre hoop on alternate sides working towards the door frames.

Hammer each peg vertically through the white target marks and ensure that footing is pulled out so that the sides of the shelter are vertical. (Fig.11)

Once the peg enters the ground, pull it out to 30° from the vertical and hammer the peg in. (Fig.12)

The pegs must be hammered into the ground until the hook lies over and compresses the joint next to it. The hook of the peg should be parallel to the side of the shelter. (Fig.13)

Once all the pegs are in, increase the pressure slowly to 7.0hPa. Monitor and make small adjustments to the fan until the pressure remains stable between 6.0 and 8.0hPa. The shelter should be taught and have the correct shape. The pressure must remain in this zone for at least the first 12 hours after spraying.

Fig. 11

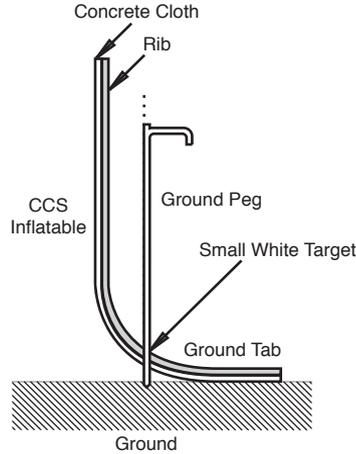


Fig. 12

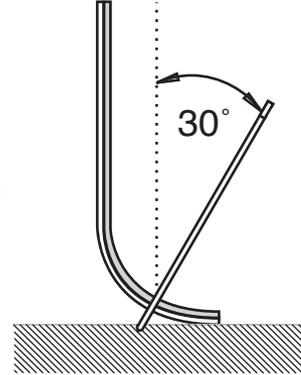
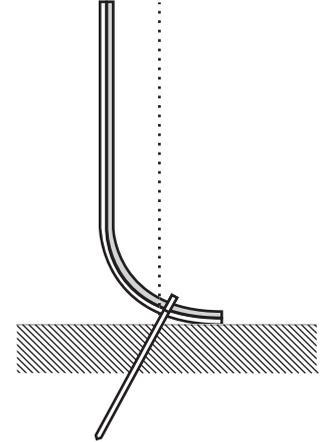


Fig. 13



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### Step 8

Divide the shelter into quarters and spray each quarter evenly with water (Fig.14). Seawater may be used. Do not jet pressurized water onto the shelter.

Start at the top and work downwards. Spray an area evenly until it is saturated and the water begins to run off.

Continue spraying each quarter alternately, until a **minimum of 850 litres of water** has been used. Pay particular attention to the top and joints. The material will change color once saturated, it cannot be over wetted. (Fig.15)

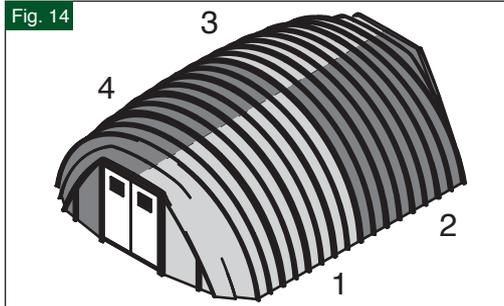
In a hot/drying climate it is recommended to spray the shelter at dusk and if there is significant evaporation to re-spray the shelter after 2 to 4 hours.

Fig. 15



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Fig. 14



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### Step 9

After 24 hours, remove the blower and open the doors (the keys are attached). Remove the steel packing shims above and below the shoot bolts and cut the exposed white liner behind the doors leaving a 50mm border. The inflation pipe can be rolled up and placed under the door frame. The shelter is ready for use. (Fig.16)

### A/C Ducting Ports and Conduits

CCS shelters have a manifold welded into the liner adjacent to each door frame (Fig.17). To access the manifold cut through the set Concrete Cloth at the white target (Fig.18). Care should be taken not to puncture the liner. Holes can be cut as required using an angle grinder or masonry drill to accept conduits for electrical/data cables. Do not cut through ribs.

### CCS Demolition and Removal

CCS can be demolished using basic tools. The structure has a very low mass leaving little material for disposal, the rubble can be crushed to provide aggregate fill.

Fig. 16



9

Fig. 17

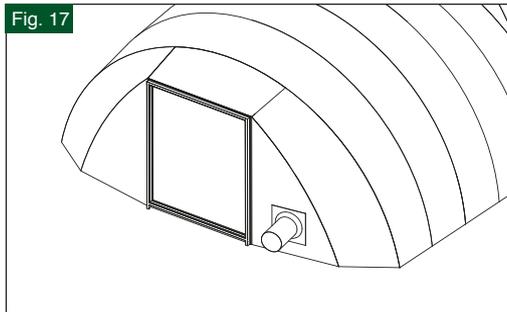


Fig. 18



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Concrete Canvas Shelters use Concrete Cloth (CC), a unique material that has a wide range of other applications throughout the Defence and Construction industries.



Sandbag reinforcement - Gabion reinforcement - Ditch lining - Dust suppression - Trackway

# CONCRETE CANVAS™

Türkiye Distribütörü

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Patent applications are pending in UAE (Application No 932/2006), Australia (2005254788), Brazil (PI 0511408-0), Canada (2570532), China (200580026705.X), Europe (05755221.8), Israel (180130), India (20/DELNP/2007), Japan (2007-516049), Mexico (PA/a/2006/014789), Norway 20070245), Russian Federation (RU 2007101232), USA (11/570811), South Africa (2007/00471)