

Method statement for BC 702 Spray 45 , polyurethane foam application for shotcrete walls

This method statement describes application of BCI polyurethane foam BC 702 spray 45 insulation on the back of shotcrete walls and façade skin. This method focuses on insulation application for the external envelope.

Objective

To apply polyurethane foam insulation on the back of shotcrete walls and the façade skin to enhance thermal insulation and improve overall building envelope performance.

Materials

Closed-cell polyurethane foam , BC 702 Spray 45

Shotcrete wall surface (prepared as needed)

Protective coating (if required for UV exposure)

Tools and Equipment

Spray foam machine (with spray gun and hoses)
Personal protective equipment (PPE): goggles, respirators, gloves, coveralls
Moisture meter
Tape and plastic sheeting (for surface protection)
Ladder/scaffolding

Procedure

Step 1: Site Preparation

Ensure the work area is secure and free of debris.

Cover nearby surfaces with plastic sheeting to prevent overspray.

Confirm that the shotcrete wall and façade skin are structurally sound and free of moisture.

If the surface is damp, allow adequate drying time or use a dehumidifier to reduce moisture.

Surface Preparation

Inspect the shotcrete for any loose particles, dust, or debris, and clean thoroughly.

If required, apply a primer coat to improve foam adhesion to the shotcrete surface. Follow the manufacturer's instructions for the primer's drying time.

Foam Insulation Application

Mixing and Setup:

Prepare the spray foam machine according to the manufacturer's instructions, ensuring proper mixing ratios for the polyurethane foam.

Adjust the spray gun for optimal flow rate and spray pattern.

Application of BC 702 Spray 45

Begin applying foam from the top of the wall, working downward.

Maintain a consistent distance (usually around 12 to 18 inches) from the surface for even coverage.

Apply foam in layers, usually 1–2 inches per pass, to reach the specified thickness.

Ensure each pass overlaps slightly with the previous one for a continuous, uniform insulation layer.

Allow the foam to expand and set between passes.

Quality Checks:

Use a moisture meter to check for residual moisture if required.

Measure foam thickness periodically to verify compliance with project specifications.

Post-Application Curing and Protection

Allow the foam to cure as per the manufacturer's recommendations.

Apply a vapor barrier if specified to prevent moisture ingress.

For exterior installations exposed to sunlight, add a protective coating to shield the foam from UV damage.

Safety Precautions

Ensure all personnel wear appropriate PPE (respirators, goggles, gloves).

Follow all safety guidelines for handling and applying polyurethane foam.

Ventilate the area if working in enclosed spaces.

Cleanup and Disposal

Clean all equipment thoroughly after use.

Remove protective sheeting and dispose of waste materials according to environmental regulations.

Quality Control and Inspection

Conduct a final inspection to ensure consistent foam thickness, adhesion, and coverage.

Record application conditions (temperature, humidity) and any observations for project documentation.

This method statement provides a structured approach to applying polyurethane foam insulation on the back of shotcrete for external envelope applications, ensuring proper insulation and long-lasting performance.

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1. Scope of Work

This method of statement is for Plural component spray application of BC 702 Spray 45 polyurethane foam and related top coat application and describes the procedures intended to adopt for all associated works with this contract package.

2. Access/Egress

The Access/Egress to the site for the easy movement of workmen, material and equipment will be carried out in a safe manner. Any obstacle shall be properly cleared either manually or employing suitable mechanical equipment. The access to the trenches should be as per project safety procedures.

3. Lighting

3.1 Safety Lighting

Customer will provide Safety lighting at the entry point/s of the project as such adequate to the basic security of the site premises or in accordance with the project requirements.

3.2 Task Lighting

Tower light or portable light is use in the dark or in reduced visibility, lights will be fitted and used to enable the work area to be adequately illuminated. In addition, amber flashing beacons that give warning of the presence of the vehicle will be fitted and used if necessary.

3.3 General

Generally, if otherwise required Tamimi PEB will provide adequate lighting facility wherever there is a necessity for the lighting for the safety of its employees, material, equipment or any other asset of Tamimi PEB or Client.

4. Plant & Equipment

4.1 Plant & Equipment Schedule

Plant and Equipment

<u>Sn</u>	<u>Description</u>	<u>Q t y</u>	<u>Model</u>	<u>Utilization</u>
2.	Graco Reactor, Polyurethane Machine	1 2	Graco EP - 30	1 year
3.	Heater Hose (240 bar), 15cm with Scuff Guard	2 2	E-XP2, 240	3 years
4.	Whip Hose (240 bar), 3m with Scuff Guard	8	E-XP2, 240	9 months
5.	Fusion Gun AP	1 6	Fusion	7 months
6.	Transfer Pump	2 4	T2 Pump	2 years
7.	Air Supply and Fusion Gun	2 4	Kit for Pumps	4 years

4.2 Personnel Protective Equipment(PPE)

Safety Helmet
Clear Goggles
Black Goggles
Coverall
Safety vest
Safety Shoe
Hand Gloves
Face Shield (Where required)

4.3 Manpower

Foreman/Supervisor
Site Engineer
QC
Plumbers
Labors (As Required)
Flagman's (As Required)
Operators (As Required)
Masons (As Required)

5. Materials

Surface preparation tools like grinding wheels , cleaning tools
BC 702 Spray 45 polyol (Foam component B)
BC 768 Isocyanate (Foam component a)
BC Shield, Acrylic elastomeric top coat



B. Waste minimization

BCI shall endeavor to minimize waste streams in line with the principles of the waste hierarchy

- Avoidance of waste at source
- Reduction of waste volumes
- Re-use of uncontaminated spoil within the works
- Arrange for recycling of the waste
- Disposal as a last option

C. Operations of vehicles and plant

To ensure minimal impact from the operation of vehicles and plant, operators shall give due regard and implement the following

- Minimize route and journey mileage to and from and around site
- Prevent nuisance to the community caused by parking, spoil from vehicle movements, noise and access restrictions
- Ensure prevention of spillage of spoil, fuels, coolants, hydraulic oils and other vehicle fuels
- Maintain vehicles
- Ensure all vehicles and machinery are turned off when not in use
- Ensure suitable control for the means of access and egress to public highway

D. Noise and nuisance

Care shall be taken to ensure good image and relations with the local community by the following

- The use of offensive language, behavior and or discourtesy to the public prohibited
- Excessive noise from plant, equipment, vehicles and employees being monitored
- Strict compliance with noise and working hour restrictions
- Excessive emissions of dust, fumes and odors
- we will ensure a high standard of housekeeping and litter control on all sites at all times

F. Air Quality

- Any black smoke / unsightly emissions from vehicles and other equipment must be reported.
- Tamimi shall ensure that smoking is only permitted in designated areas.
- All material stockpiles to be adequately covered to prevent loss of material through wind erosion as well as dust lift.
- Where possible, avoid simultaneous instances of side-by-side material handling to prevent excessive generation of nuisance dust.

7.5 General

Personal Protective Equipment and selection refer to Employer Requirement (AML-DEV-H&S-GLE-0014 Personal Protective Equipment) for minimum requirements for selection, use and maintenance of PPE.

7.6 Communication and Fire Precautions

- Ensure fire extinguishers, type ABC dry chemical, are provided in all active work areas. Units shall be sized and spaced according to work activity occurring, quantities of combustible and flammable materials in the work area, and level of potential for fires.
- Ensure temporary enclosures are equipped with a minimum of one fire extinguisher suitable for all classes of fires that are expected inside the enclosure

8. Training

- All on site must complete customer site safety induction.



- Toolbox meeting must be conducted prior to commence the activity.
- Provide awareness training for the new employee for (tools, equipment and etc.) and discuss a wide variety of hazards that new workers can encounter while performing different types of tasks, and explains what they need to do to avoid those hazards.
- Working at height training.

9. Supervision

- Works to be supervised by SK site management.
- The Site Supervisor manages and assesses any potential safety hazards on site and looks at eliminating them. Conduct a regular site inspection and provide a safety program.
- Ensure that a project is seen through and completed safely.

10. Supervisor

- To ensure that the approved reparation methodology is well executed by all of the team.
- Safety of the Manpower should always be promoted in all the duration of work daily to avoid any kind of accidents.

A. Foreman

- To ensure the high level of workmanship. To ensure that the preparation methodology adopted by the Supervisor involved is well executed.
- To ensure the availability and the quality of the tools and product use by the team.
- The provision to his responsible Supervisor in charge the adequate information for works performance.
- The provision to his responsible Supervisor the daily report illustrating work progress / reparation methodology applied / resources / manpower / completed work.
- Manage the equipment's in the working zone in a safe way.

B. QC Inspector

- Inspect and conform the quality and test report of the required backfilling materials.
- Witness placement, compaction and compaction test.
- Responsible for random inspection required during the execution
- Responsible for the witness testing approval and records.
- Responsible for arranging third parties required for testing at site whenever needed.

C. Safety Officer

- Ensure that work is performed according to the safety instruction and precautions specified in the work permit.
- Ensure that barricades and warning tapes are erected where required and safety equipment is readily available at the site.

D. Work Permit Receiver

- Submit the activity permit request.
- Must abide by the instructions provided in the activity permit.
- Responsible for obtaining work permits required for the daily job and maintain the record as per project requirements.

11. Working Hours

SK generally have an 8 hour working schedule. However, working hours may be extended by the Project In charge which is paid in accordance with the Saudi labor laws. Usually breaks are considered as per project requirements and Saudi labor laws.

12. Housekeeping

- All rubbish and debris must be cleared from the work site on a daily basis in progress with the work.
- No excess rubbish or debris will be permitted to be left onsite at the end of the working shift.
- Sufficient bins must be available for the Contractor at each work face to cope with debris generated.
- Bins must be emptied/changed immediately when full.

13. Other Information

- Safety induction to be conducted to all new workers that involved to this activity.
- Safety tool box meeting shall be conducted to remind the workers about concerning the safety.
- Make sure that material will be stored at temp storage area and should be barricaded properly.

Table 1 – Hazard Consequence

Level	Descriptor	Health & Safety	Environment
5	Catastrophic	Multiple fatalities or multiple permanent disabling injuries or disease.	Massive pollution with significant recovery work lasting more than 12 months. Global media interest. Significant permanent damage.
4	Major	Fatality or permanent disablement from injuries or disease. Long term absence.	Significant pollution with offsite impact and recovery work requiring 6 – 12 months to fix. Some permanent damage. National and regional media interest
3	Serious	Life threatening injury/major health affect to individual requiring medevac to hospital facilities.	Pollution with some offsite impact and recovery work lasting 1 – 6 months.
		Short term absence from work.	Possible outside assistance required to contain. Some local media interest
2	Medium	Injury and illnesses requiring treatment by medically qualified person. Complete recovery. No lost time.	Minor pollution, slight or negligible impact, negligible remedial / recovery work lasting less than 1 month. Full recovery possible.
1	Minor	Injury which may or may not require first aid treatment. Slight health effect not affecting performance or causing absence.	Minimal pollution effect, contained locally. Complete recovery possible immediately.

Table 2 – Hazard Probability

Level	Descriptor	Health & Safety	Environment
5	Almost Certain	> 1 per week >25%	Continuous or will happen frequently
4	Likely	1 per week – 1 per month 10-25%	5 – 12 times per year
3	Possible	1 per month – 1 per year 1-10%	1 – 5 times per year
2	Unlikely	1 per year – 1 per 10 years 0.1-1%	Once every 5 years
1	Rare	< 1/10 years 0.1%	Less than once every 5 years

Table 3 – Risk Level Matrix

		CONSEQUENCE				
		1 Minor 1 st Aid First Aid Injury 1 < SAR10k	2 Medium MTI Medically Treated Injury SAR10K - SAR20k	3 Serious RWI Restricted Work Injury SAR20k – SAR100k	4 Major LTI Lost Time Injury SAR100k – SAR500k	5 Catastrophic Fatality > SAR500k
LIKELIHOOD	A – Almost Certain > 1 per week (>25%)	MODERA TE 11	HIG H 16	EXTRE ME 20	EXTRE ME 23	EXTREM E 25
	B – Likely 1/week – 1/month (10-25%)	MODERA TE 7	HIG H 12	HIG H 17	EXTRE ME 21	EXTREM E 24
	C – Possible 1/month – 1/year (1-10%)	LO W 4	MODERA TE 8	HIG H 13	HIG H 18	EXTREM E 22
	D – Unlikely 1/year – 1/10 years (0.1-1%)	LO W 2	LO W 5	MODERA TE 9	HIG H 14	HIGH 19
	E – Rare < 1/10 years (0.1%)	LO W 1	LO W 3	LO W 6	MODERA TE 10	HIGH 15
TOLERABILITY	RESIDUAL RISK RATING (after controls in place)	RESULT			CONTROL LEVEL (Authority)	
	EXTREME	Unacceptable			CEO / COO	
	HIGH	Undesirable			Project Director/Manager	
	MODERATE	Tolerable, but risk should be reduced if reasonably practical			Supervisory Staff	
	LOW	Broadly acceptable			Procedural Control	