

# CRYSTAL LINE WATER PROOFING



# PROOF - SEAL - REPAIR

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## INTRODUCTION

Crystal Line Water Proofing Trading LLC (CWP) – the ultimate water proofing solution provider for your concrete.

CWP is an UAE-based company providing chemical waterproofing solutions for your concrete. As the authorized distributor in UAE of Kryton International Inc. Canada, we use the latest crystalline technology to provide innovative waterproofing solutions to the construction world. The revolutionary technology behind our products is deemed to transform the way buildings are protected against ground water as well as surface water.

Armed with highly experienced personnel and a very reliable product line our objective is to give service with total reliability backed by integrity and trust. The strength of CWP lies not only in its unparalleled product line but also in after-sales service, which is second to none. With all our services we offer a warranty, which goes to show our fostering long-term relationships with all our clients.

Kryton International, a multinational company with presence in more than 50 countries has been supplying waterproofing solutions to leading names in the UAE for more than ten years and today boasts of a highly satisfied list of reputed clients from the construction world. Kryton products have been part and partial of several prestigious projects that shape the emirates of Dubai and Abu Dhabi today. Worldwide the products have been used in numerous iconic projects. We at CWP bring the same level of innovation and efficiency relayed by our principal company which has been fortifying buildings for the past about 36 years.

With strong backing and progressive thinking CWP is gearing up to be partners in progress of the UAE, which as a country has always welcomed innovation and growth. Our aim is to be part of more and more projects in the country providing the highest level of quality and assurance. Our vision is to build and strengthen not just structure but also a client base that is highly reputed, trusting and satisfied.



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## ● OUR MISSION

We work for and with our customers to provide preferred chemical water proofing solutions for construction projects of all scales.

We apply our commitment to innovation, our understanding of customer needs and our relationships with suppliers to deliver these solutions, wherever and whenever they are needed.

We believe in responsible industry leadership, creating profitable growth in harmony with environmental sustainability.

## ● OUR VISION

We will transform the practice of the widely common water proofing techniques into the industry's next generation of practices.





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● **PARTNERS**



**About Kryton**

Kryton International Inc. is the inventor of the crystalline waterproofing admixture and has been waterproofing concrete since 1973. The impact of our technology is evident in the world's most challenging construction projects.

From immense hydrostatic pressure in the deepest underground pits, to the rooftops of the highest skyscrapers; they provided solutions for them all.

They develop, manufacture and market products that waterproof, repair and protect concrete structures. Only they do it permanently. The revolutionary technology transforms concrete into a waterproof barrier. Short term, you'll shave weeks off construction schedules, cut waterproofing costs up to 40% and maximize your building footprint. Long term, you'll avoid leaks, discoloration, and costly callbacks.

Today, Kryton has offices around the globe, over fifty distributors in forty countries and operates the largest concrete permeability testing laboratory in North America. As Kryton was built on the spirit of science and research, it is still at the core of our business today.

[www.kryton.com](http://www.kryton.com)



**About BeSealed**

BeSealed has been producing Bentobar+, a self-expanding strip for sealing construction joints, for the past twenty-five years. Drawing on many years of construction- and sealing-related experience and expertise, they developed a water-swell able compound based on a thermoplastic elastomer (TPE). This compound has unique sealing characteristics that form the basis of the BeSealed product range.

Today, BeSealed is producing self-expanding sealing bars (Polybar+) and other innovative sealing products using their compound, e.g. Sealing Plug, Sealing UFO and Sealing Connector. These revolutionary sealing products are the first-ever, certified, active solutions for combating leakage and moisture problems in the construction industry.

[www.besealed.com](http://www.besealed.com)



C R Y S T A L L I N E W A T E R P R O O F I N G



## ● SERVICES

- KIM Water Proofing
- Pile Head Treatment
- Construction & Expansion Joints
- Water Tank & Swimming Pool Proofing
- Water Leaking Repair Services



## KIM Water Proofing

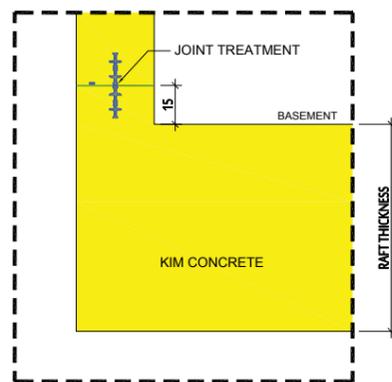
In order to make the substructure concrete waterproofing by using Crystalline technology with specialized KIM-HS Admixture in the foundation (split application) and keeping wall and Krystol water stop system (KWS) at construction joints as below:

NB: Consecutive steps to manage KIM-HS Mixing procedure for foundation concreting at site / batch plant with total application or separate application. For raft foundation slabs (depends the thickness of the raft slab), KIM admixture will use usually two different ways.

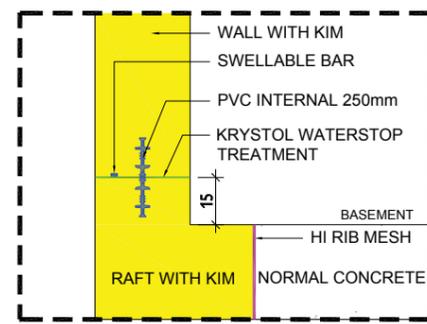
### 1. Full thickness with KIM

The full thick application means that the KIM concrete will stream entire raft thickness. Our principals for waterproofing to thick slabs has authorized and approved the split application by the manufactural.

- 1. Mobilization:
  - 1.1. A site meeting is necessary 3 days minimum prior to Raft Slab concreting between Consulting engineer, main contractor, CWP representative and Ready-mix supplier in order to discuss the following:
    - 1.1.1. Position of the pumps
    - 1.1.2. All application instructions as attached (Refer attached appendix 1a, 1b, 1c, 1d & 1e)
  - 1.2. In case of KIM mixing at site a platform(s) of minimum size 2.50m x 2.50m x 4.0m to be made by the main contractor for KIM mixing at least one day before the Raft slab concreting. (Refer appendix 4). If concreting is taking place at night, sufficient lighting arrangements should be provided and material (KIM bags or pails) shifting equipment needs to be provided as well.



FULL THICK APPLICATION



JOINT AT RAFT SLAB

### 2. Split application.

- 2.1 In case of split application, the Metal Lock-Rib Lath (galvanized) 0.40mm thick install by principal contractor and supply by crystalline along the raft slab periphery at the time of steel fixing for raft slab to separate KIM and non KIM concrete ( just as it is shown in the sketch below)

### 3. KIM Concrete Mixing and Pouring:

- 3.1. KIM mixing procedure by Crystalline as per confined instructions (Refer appendix 1a, 1b, 1c, 1d & 1e). KIM pouring steps as follows:
  - 3.1.1 In case of full application at the dosage of 6.00 kg/m<sup>3</sup> (dosage may vary due to various site conditions and slab thickness) KIM should be poured full thickness of the raft slab. In case of split, KIM concrete should be poured till 50cms level from the bottom of the raft slab and 50cms wide around the raft slab at dosage of 6.00 kg/m<sup>3</sup> (dosage may vary due to various site conditions) as shown in the sketch above (Split application). Non KIM concrete should be poured in the middle areas, as shown in the sketch. (Please refer and follow clause 3.3, 3.4 and 4.3)
  - 3.1.2 The PVC Waterstop (Internal) should be fixed with steel fixing. Place the PVC Waterstop internal as at the middle of the kicker by half of its width emerged above it as shown in attached drawing.
  - 3.1.3. After finishing the raft slab concreting and 7 days curing apply joint protection treatment – KrystolWaterstop System Treatment™ with PVC Waterstop and swellableWaterstop bar – between raft slab and retaining wall / water tank wall (please refer and follow clause 3.2 and 4).
  - 3.1.4. After applying the joint treatment the retaining wall for lower Basement should be casted with KIM concrete at dosage of 8.00 kg/ m<sup>3</sup> (dosage may vary due to various site conditions) (Please refer and follow clause 3.2 and 4.5)
  - 3.1.5. Once the retaining wall is finished casting should be applied for joint protection treatment at the joint between wall and lower basement top slab (please refer and follow 4.5)
  - 3.1.6. After finishing the Waterstop joint treatment and curing the same procedure will continue to the ground floor. The periphery of each basement will cast 0.50m wide at the dosage of 8.00 kg/ m<sup>3</sup> (dosage may vary due to various site conditions) as shown above
  - 3.1.7. The ground floor slab should be poured with KIM concrete by 0.50m wide at the periphery (please refer and follow clause 5) at dosage of 8.00 kg/m<sup>3</sup> (dosage may vary due to various site conditions).
- 3.2. Retaining wall casting method will be followed by conformably to British Standard approximate 6.00m length (this value can be discussed during the site meeting) in onetime pour. Retaining wall will be divided to different phases (each phase should be approximate 6.00m length). In fact, the all corner phase of wall will cast first and then will cast the remaining area phase by phase alternatively. The intervals between the alternative phases should be minimum 48 hours to avoid possibility of cracks by expansion of concrete. The main contractor prefers other methods, then the main contractor has to provide a crack control joint every 10m otherwise the main contractor will be held responsible for all future cracks or defects may happen.
- 3.3. It is essential to achieve the performance and benefits of KIM through correct consolidation of the concrete (Crystalline recommends self compacting concrete). Even if KIM improves the internal cure of concrete it is not always a replacement for proper curing procedures, curing should be done with project specifications. Repair should be protected from rain, wind and sun. KIM treated concrete will typically delay the initial and final setting times of the concrete, you should adjust your finishing and setting according to that.
- 3.4. Cover KIM concrete with a plastic sheet in order to avoid shrinkage cracks.
- 3.5. Crystalline needs 24 hours for de-shuttering of retaining wall after casting.
- 3.6. KrystolWaterstop Treatment (Slurry) should be applied to all cold joints, that could present an extra cost while concreting

### 4. Galvanized Metal Lock-Rib Lath fixing at upper basement slabperiphery:

- 4.1. High rib mesh should be installed as per CWP recommendations around the Raft slab (in Split application), each basement and ground floor slab where KIM concrete to be poured. The middle portion of the each basement and ground floor slab will be poured with non KIM concrete.

#### Notes:

High rib mesh to be installed / fixed between top and bottom steel bars of slab only The Main contractor / site in-charge must inform CWP two days prior to the next KIM concreting



**Important:** Kindly note that you are making a waterproofing membrane out of the concrete. KIM admixture is not like other traditional admixture, the concrete in this case don't just form the surface. But KIM concrete will be the only barrier to water penetration. This means that common cracks found in typical concrete cannot be tolerated. Poor consolidation, unplanned cold joints, cracks, penetrations, contaminations etc will all result in a leakage structure. You should follow the instructions in order to have an impeccable result.

**Self-Sealing Analysis for Cracked Concrete**

Self-sealing" is used when the concrete has the ability to repair and to close up cracks on its own, without the need to apply any product.

Two important objectives:

- Making a test method in order to replicate and analyze the real-life conditions of the self-sealing process.
- Studying the effects of several chemical and mineral admixtures on the self-sealing

**1. Self-sealing**

Through the service life time of a structure, concrete could develop micro cracks that could develop into macro cracks later on. These cracks will allow moisture infiltration that will lead to the reduction of the service life of the structure.

Self-sealing is a process where the concrete is able to repair small cracks on its own without applying any product or any assistance.

**2. Cracking Method**

The first challenge of this study was to induce repeatable cracks in the specimens. In fact, the consistency of the cracks depends on different factors as sample age and loading rate; younger samples will show ductile failure as for older samples, they are more brittle and their failure is harsh and explosive. Also, in order to obtain a consistent crack an optimum loading rate is required.

**3. Self-sealing Test Procedure**

- Cast and repair the samples
- Generate the crack
- Put the cracked samples into sample jacket
- Constantly apply head pressure
- Maintain pressure
- Measure flow rate

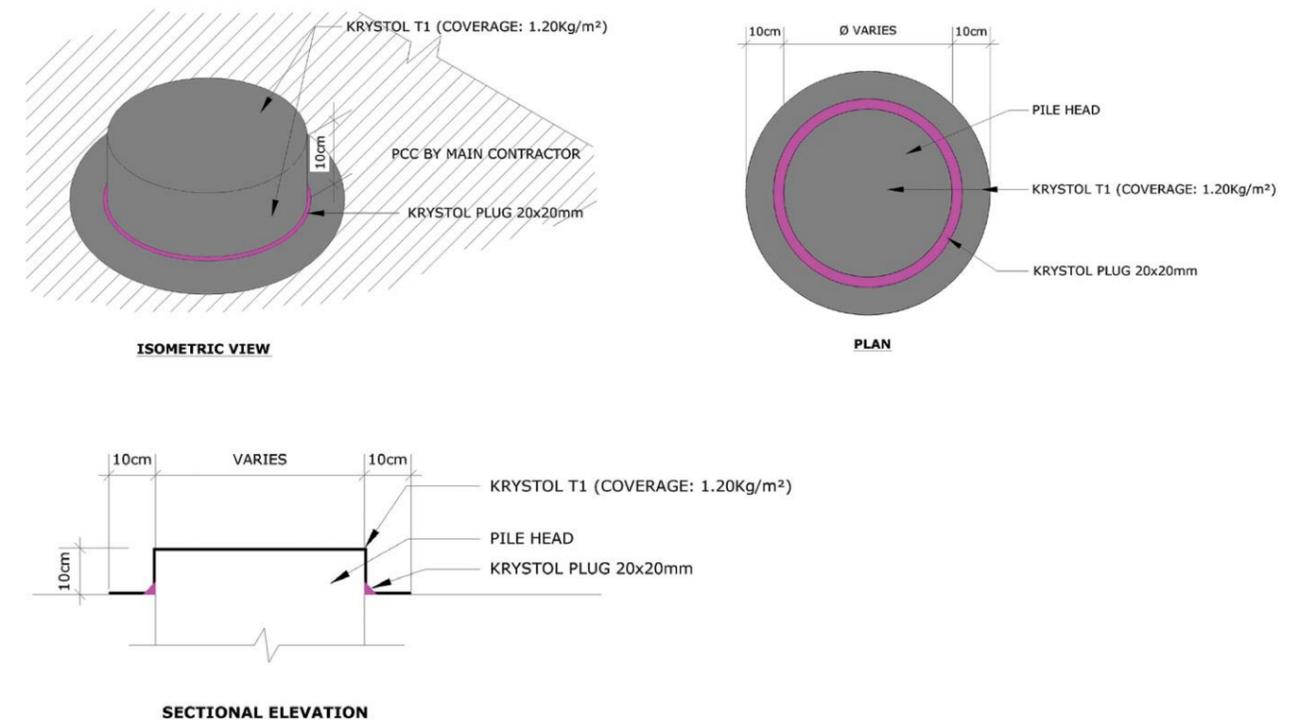
**4. Self-sealing and Crystalline Admixture**

Up until now, this technique has been used to test hydrophilic crystalline admixture. Water infiltration into the cracks allows this product to amplify the natural formation of precipitates. We will notice the formation and development of new crystal deposits that will block and fill in the cracks. Based on the results, this admixture can increase self-sealing properties of concrete while making it less permeable and much more durable compared to untreated concrete.

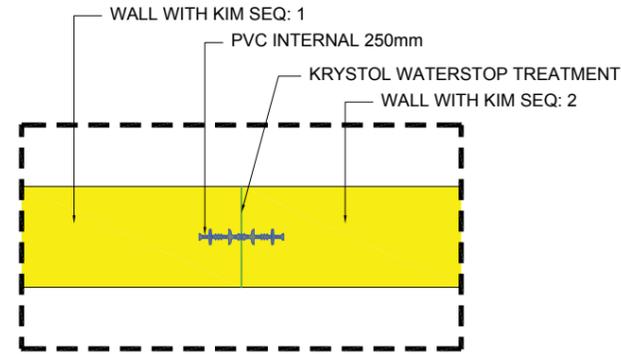


**Pile Head Treatment**

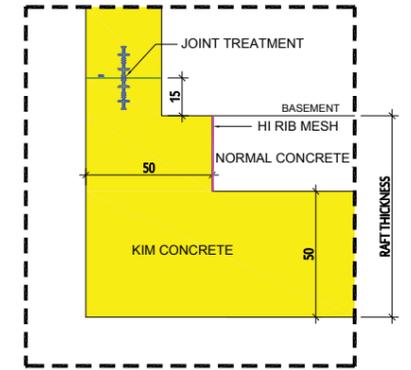
- 1 The surface of the pile head should not be dusty, oily or greasy. It should not be painted or coated with epoxies, curing agents, bitumen, laitance, etc... In order to achieve an open pour surface you should clean the concrete surface with a steel wire brush.
- 2 The presence of water will allow to the Krystol chemicals in Krystol T1 to be transmitted through the concrete easily. Before the application of Krystol T1 slurry the concrete should be soaked, the more it is soaked the more the slurry application will bond better and dry harder. Moisten the surface because the surface should have been pre soaked with clean water in order to be in SSD condition. Remove water before applying.
- 3 Use a brush to apply Krystol T1 coating (3 T1 : 1 Water) on the sides and top surfaces of the exposed pile head.
- 4 The Krystol treatment should not dry out; that's why a mist spray of clean water is used or you can cover the applied surface with wet cloth. Protect the application from heavy rain, direct sunlight and wind for 72 hours.



C R Y S T A L L I N E W A T E R P R O O F I N G



VERTICAL JOINT (TOP VIEW)



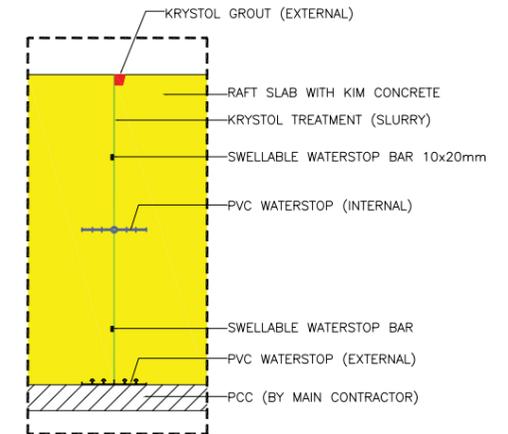
SPLIT APPLICATION

**Construction & Expansion Joints**

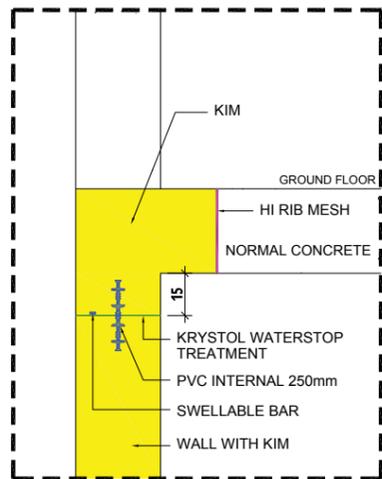
**Construction Joints**

- 1.1. The schedule of concrete casting and the exact location of horizontal and vertical construction should be provided to the CWP at least 3 days before the raft slab concreting.
- 1.2. The surface where to apply joint treatment should be even along the width of wall while concreting the raft slab. The surface should be clean from dust and clean all nails pieces of wires should be removed. Joints should be prepared by high water blasting to remove any form of oils, curing compounds, dust or other contaminants.

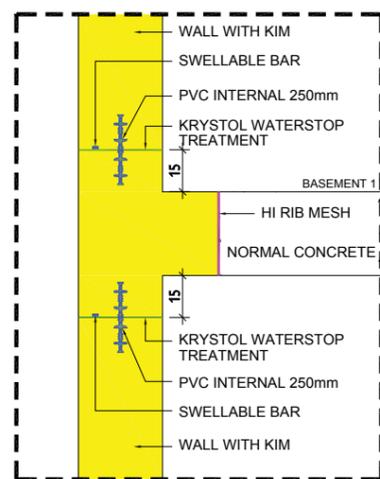
- 1.3. Apply KrystolWaterstop System (KWS) Treatment™ after surface preparations. After curing Krystol Treatment Swellable bar should be applied by Crystalline at the horizontal construction joint PVC Waterstop internally (as mentioned clause 3.1.2) at the construction joints. (Refer attached appendix 6b). The PVC Waterstop should be placed as inserted minimum 25cm depth in the vertical construction joints. If not possible to fix 25cm depth, Crystalline prefer to fix it as much deep as possible to the raft slab (Please see clause 4.1).
- 1.4. Krystol Waterstop Treatment (Slurry) should be applied to all cold joints which may cost a bit more while concreting.



**TYPICAL WATERPROOFING DETAIL FOR RAFT CONSTRUCTION JOINT**

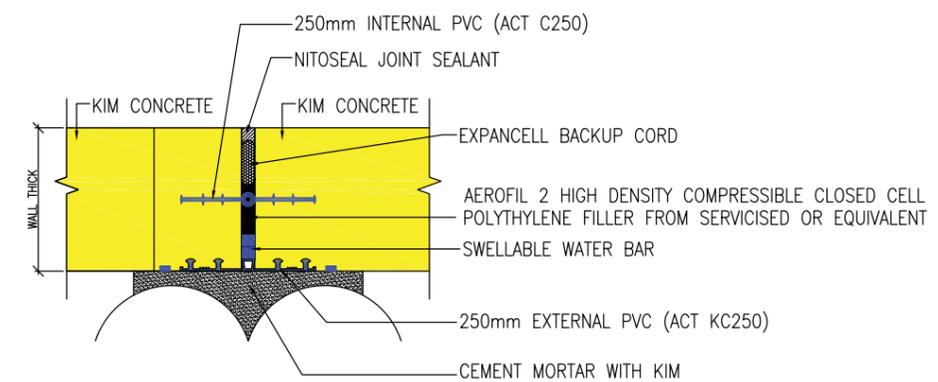


JOINT AT BASEMENT 1 SLAB



JOINT AT BASEMENT 2 SLAB

**Expansion Joints**



**TYPICAL WATERPROOFING DETAIL FOR WALL EXPANSION JOINT**

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### Water Tanks & Swimming Pool Water Proofing

Krystol T1 and T2 is crystalline waterproofing treatment, applied on surfaces, that is used to protect concrete against water infiltration. It comes in a form of powder, that once mixed with water will become a coating applicable on the inner or outer sides of the concrete.

**Important:** Every leaking defect should be repaired. You should also consider apply the surface coating on the non-leaking repairs because they might leak in the future. Contact your CWP representative for more information.

**Safety Precautions:**

This product is for professional use only, so read carefully the Material Safety Data Sheet. It can be caustic if you mix it with water or perspiration. Keep away from skin or eye contact and breathing its dust. Always wear safety goggles, long sleeves and gloves

1. The concrete surfaces should be clean and free of paint, sealers, form release agents, dirt, laitance or any other thing. In order to remove loose concrete and surface contaminates, sandblast the surface, blast it with high pressure water, scarify it, shot blast it or use any other method of mechanical surface. Concrete with some exposed aggregate is perfect. If needed, use detergent or concrete degreaser to wash and rinse the surface of the concrete.
2. Mechanical surface preparation will open up the pores closed due to smooth towed surfaces or formwork, even for uncontaminated surfaces. Freshly roughened surfaces will provide maximum adhesion and better penetration of the waterproofing chemicals.  
Tip: If acid ethnic must be used, even if it is no recommended, all the acid residues must be neutralized before applying the Krystol T1 and T2.
3. Surfaces should be under SSD condition before receiving Krystol T1 and T2. Concrete should be completely saturated with water in order to allow Krystol chemicals to infiltrate deeply and react. However, surfaces on the outside must be slightly damp. Pre-soak the surface with water, and then remove the excess with a sponge or a vacuum.  
Tip: During cleaning and saturating the concrete it is effective to use high pressure water blasting

**Important:** Make sure that Krystol T1 and T2 are applied to a surface under SSD condition. In order to maintain a damp (SSD) surface, you might need to wet the concrete constantly, while applying Krystol T1 and T2. A failure in keeping the surface in SSD condition will result in a weak bond between the Krystol coating and the concrete, and could lead to dusting, flaking of the Krystol treatment.

1. Mix Krystol T1 to a thick paste, knowing that 3 parts of powder need one part of clean water. Mix only a quantity that you'll use within 30 minutes.
2. Make sure that the surface is damp.
3. Use a concrete brush and apply the Krystol T1 in aggressive, circular scrubbing motion. To ensure a good bond, push the coating into voids in the concrete surface.
4. Repair and protect, as in Step 4 below

Tip: Apply two coats in order to ensure complete full coverage of the surface. You can use Krystol T1 for both coats, but it is preferable to use Krystol T2 because it will give a harder and a more durable result. Sometimes it is acceptable to use only a single coat.

1. Once the Krystol T1 has set hard you can apply the second coat, it takes usually 6 to 24 hours depending on conditions. In order to apply Krystol T2 wash and rinse the hardened coat. Some exposed aggregate in the Krystol T1 coating is ideal.
2. Make sure that the surface is under SSD condition.
3. Follow the procedure used to install Krystol T1 in order to install the Krystol T2.

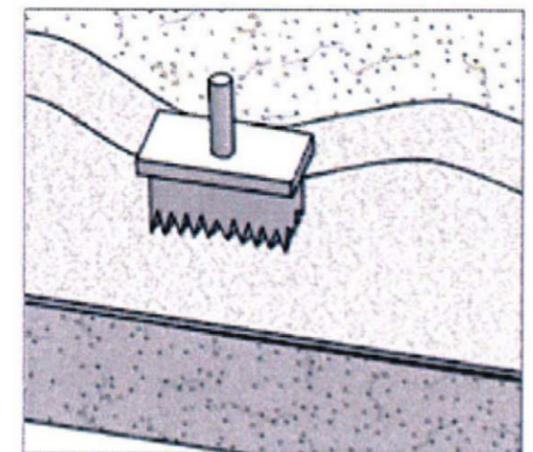
**Important:** For a duration of 3 days, keep Krystol T1 and T2 wet cured to develop its full properties. If the coating is still soft to touch do not apply water curing, it will wash out the coating and will have a negative influence on the results. However, use protective covering in order to retain moisture during the initial hardening period.

1. To avoid water loss due to evaporation, cover the surface with tarps or plastics. As soon as the Krystol coating has hardened you can start we curing, it usually takes between 6 to 24 hours. It also has to start when the coating starts to dry out.
2. Water should not gather on the surface during the first 24 hours or at least before the coating is hard. Sprinkle the surface with water, once it is hardened, as needed to keep the surface moisten for 3 days. Apply curing water at least 3 times per day; it might require more frequent application in hotter conditions.
3. During curing period and in order to keep retain moisture; do not move the protective coverings. The stronger the coating is the more it needs to be soaked in order to keep it fully saturated.
4. During the next 24 hours wet cure the surface protecting it from frost, rain and traffic should be avoided during the curing period.

**Important:** Krystol T1 and T2 could develop a surface bloom that will probably prevent adhesion of the following coats. Make sure that you clean and prepare the surface. Performing a test patch is also recommended.

#### TOOLS & MATERIALS

- Krystol T1
- Krystol T2
- Clean water
- Mixing bucket, drill and paddle
- Natural bristle concrete brush
- High-pressure water blaster.





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## Water Leaking Repair Services

### • Crack Repair

**DESCRIPTION:** This system is used to make waterproofing leaking cracks, joints and holes in concrete; it replaces other less efficient crack repair systems. It also protects the concrete from every side even under high hydrostatic pressure

**LIMITATIONS:** This repair system works only on firm subjects, which means that it cannot fix cracks in moving subjects. Actually, these moving cracks can only be fixed with more flexible systems as in urethane injection. You should be careful when fixing a concrete where the cracks are too close to each other and the temperature shouldn't be less than 4°C. Do not forget to contact your CWP representative for any help

**SAFETY PRECAUTIONS:** This product is for professional use only, so read carefully the Material Safety Data Sheet. It can be caustic if you mix it with water or perspiration. Keep away from skin or eye contact and breathing its dust. Always wear safety goggles, long sleeves and gloves.

Step 1: Prepare the crack or joint

**Important :** Make sure that you fix the whole crack, because if you only fix the place where it's leaking that will cause a new leaking in another place in the crack.

- Use a 25mm square chisel to make a chase along the crack: its depth should be 40mm. This shape is important to the success of your work. In case the concrete breaks apart you'll have to dig deeper until arriving to 40mm.  
Tip: In order to have the best and the most productive result, put the chisel about one inch ahead of the surface of the crack and press back towards the chase. Chisel to the full depth which means 40mm.
- Clean the chase with water, you can use a vacuum to remove dust, debris or water.  
Tip: Wire brush both of the sides of the repaired place; this will give a better adhesion for Krystol T1 coating

Step 2 : If you don't witness any leaking you can skip this step.

- Use cold water to mix Krystol Plug to a putty consistency (knowing that 4 parts of powder need 1 part of clean water).
- To block the water, press the putty in the chase and compact it very well. Do not forget to wear gloves. Try to not move the plug or it will break apart.
- Repeat this process until the water is totally blocked.  
Tip: When there is a lot of water, use a robber hose and install Krystol Plug around it. The hose will leave a hole and it will be easier to plug it with a single portion of the material.

**Important:** The plug must not fill more than the third of the chase. Its thickness shouldn't be more than 13mm. Grate any excess of Krystol Plug so that 25mm minimum of the space remains in the chase. In fact Krystol Plug should not remain on the sides if chase to facilitate the bonding with the concrete. Make sure that all water leakage is stopped before proceeding.

Step 3:

- The chase should be in SSD condition. Moisten it then remove any trace of water before proceeding.
- Mix Krystol Grout to a rigid putty consistency:  
Mix 3 parts of powder with 1 part of clean water. Continue to add powder until you obtain a good mixture; it will seem a bit dry at the beginning but keep mixing and it will become smoother.
- Put the Krystol Grout into the keyway for it to wash out the surface.
- Be careful from damage caused by the rain or from rapid drying or freezing.

**Important:** Mix a quantity of material that you'll use within 20 minutes and beware that stirring the mixture will restore the plasticity. Working time will decrease when the temperature increases. Do not add a lot of water and especially when the material has set because it will cause cracking.

1-Mix Krystol T1 with a fluid paste ( knowing that 3 parts of powder need 1 part of clean water). Make a mixture that will be used within the next 30 minutes.

2- Make sure that the concrete is in SSD condition.

3- To apply Krystol T1 scrub it in a circular way with a concrete brush coating over the repair extending maximum 15cm in each side and put only 0.8 kg/m. Its thickness should be between 1 and 2 mm.

Tip: The entire surface should be coated with Krystol T1 . Consult Application Instruction 2.11 — Waterproofing with Surface Application (Brush Method) or 2.12 — Waterproofing with Surface Application (Spray Method) for further information.

4- Keep the repair from drying out, cover it with plastic to prevent water loss. Once the coating becomes harder moisten the surface with water. The repair should be protected against frost and rain for 24 hours.

### TOOLS & MATERIALS

Krystol Plug
Krystol Grout
Krystol T1
Chipping hammer with 25 mm (1 in.) square blade chisel
Clean water source
Mixing bucket
Margin trowel
Natural bristle concrete brush



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• **Pipe Penetration**

Description: Use this procedure to waterproof pipe penetration

Limitation: This system is not effective on moving subjects, but is only effective on solid subjects. Contact your CWP representative. The temperature should not be less than 4°C.

Safety precautions: This product is for professional use only, so read carefully the Material Safety Data Sheet. It can be caustic if you mix it with water or perspiration. Keep away from skin or eye contact and breathing its dust. Always wear safety goggles, long sleeves and gloves

Step 1:

- Use a 25mm squared chisel to chip a 25mm chase around the pipe. Its depth should be 40mm.  
Tip: In order to have the best and the most productive result, put the chisel about one inch ahead of the surface of the crack and press back towards the chase. Chisel to the full depth which means 40mm.
- Clean the chase with water. Use a vacuum if necessary to remove dust, debris or water.

Step 2:

- If you don't witness any leaking you can skip this step.
- Mix Krystol Plug to a putty consistency (knowing that 4 parts of powder need 1 part of clean water). Make a mixture that will be used within 1 minute.
- To block the water, press the putty in the chase and compact it very well. Do not forget to wear gloves. Try to not move the plug or it will break apart.  
Keep on doing this process until all water has been completely blocked.

**Important:** The plug must fill maximum one third of the chase. If the amount of Krystol Plug fills more than the third use a chisel to remove it

Step 3: Pipe Preparation

- It is essential to prepare the pipe surface so that the repair products will suitably adhere to the pipe before installing the repairs material.
  - a. Metal Pipes: The surface of a metal pipe should be cleaned and roughened, especially the area that will be in contact with the Krystol® repair materials. Clean all grease, oil, corrosion, and scale. To accomplish a coarse surface profile, abrade by coarse sanding or sandblasting
  - b. PVC or ABS Pipes: The surface of a PVC or ABS pipe must be ready through applying a silica sand layer to the area that will be in contact with the Krystol repair materials. The sand is adhered to the pipe using the joint cement (glue) that is usually used to gather the pipe sections.

- a. Using the suitable joint cement for the material (either PVC or ABS joint cement), use a thick coating of joint cement to the pipe in the area that will contact with the Krystol repair materials. Instantly apply dry silica sand to the joint cement to totally cover it.
- b. Let the joint cement become harder then remove excess loose sand through using a blow pipe or vacuum. This will lead to a continuous coating of dry silica sand firmly cemented around the pipe. This dry sand layer will give the adhesion of the Krystol repair materials.

Step 4: Install Krystol Repair Grout

- Make sure that the chase is in SSD condition. Dampen with water, after that, remove any standing water before continuing.
- Mix Krystol Repair Grout to a stiff putty consistency as follows: Begin by adding 3 parts powder with 1 part clean water by volume until smooth. Add an extra part of powder (for a total of approximately 4 to 1) and continue mixing until you have a sag free paste. At first, the mixture will look dry but with mixing will become smooth and workable. Mix in extra powder until the grout holds in place, if the grout sags during installation tightly pack the Krystol Repair Grout into the keyway so that it is flush with the surface

1. A protection must be ensured for Krystol products from rapid drying and kept damp in order to develop their full properties. To contain moisture, cover the repair with plastic sheeting or damp burlap. After the repair has become harder, mist the surface with water to keep moisture levels for 48 hours.

2. For at least 24 hours, protect from freezing temperatures.

**TOOLS & MATERIALS**

- Krystol Plug
- Krystol T1
- Krystol Bari-Cote
- Clean water source
- Mixing bucket
- Margin trowel
- Chipping hammer with 25 mm (1 in.) square blade chisel



• **Tie Rod Hole Treatment**

Description: Use Krystol Plug and KrystolWatershop Grout (External) in order to repair defects in concrete and to make it waterproofing. The three general types of applications are tie holes, rock pockets and pop outs. It is acceptable to replace Krystol Bari-Cote with KrystolWatershop Grout (External) in some cases. Consult the Application Instruction 5.21 — Placing Defective Concrete and for specific recommendations contact your CWP representative.



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Limitation: This system is not effective on moving subjects, but is only effective on solid subjects. Contact your CWP representative. The temperature should not be less than 4°C.

Safety precautions: This product is for professional use only, so read carefully the Material Safety Data Sheet. It can be caustic if you mix it with water or perspiration. Keep away from skin or eye contact and breathing its dust. Always wear safety goggles, long sleeves and gloves.

Step 1:

- Tie holes In order to expose tie holes, remove plastic cones, snap-ties and tapered rods from the concrete.
- General repairs With a chipping hammer and a sharp, flat 25mm chisel rout out the defect so the edges would be squared.
- Wash the area with water. Use high-pressure water blasting or mechanical cleaning in order to remove any release.
- It is not acceptable to use an acid cleaner. To remove dust, debris or water use a vacuum.

Step 2: If you don't witness any leaking you can skip this step.

- Mix Krystol Plug to a putty consistency (knowing that 4 parts of powder need 1 part of clean water). Make a mixture that will be used within 1 minute.
- To block the water, press the putty in the chase and compact it very well. Do not forget to wear gloves. Try to not move the plug or it will break apart.

**Important:** Krystol Plug should fill maximum one third of the tie hole or the defect. If it exceeded the third use a chisel to remove it and to keep the other two thirds free for KrystolWatershop Grout

Step 3:

- Mix KrystolWatershop Grout to a rigid putty (knowing that 4 parts of powder need 1 part of clean water). Make only a mixture that you'll use within the 15 minutes. 2- The surface should be is SSD condition before applying KrystolWatershop Grout, which means that the pores are filled with water but there is no water on the surface of the concrete. Pre-soak the surface with water, and then use a sponge to remove the water.
- Use KrystolWatershop Grout to fill empty flushes to the surface. To put the material tightly into the depth, use a rod when it is necessary.

Step 4:

- Curing Beware from rapid drying and keep the repair moisten for it to achieve its complete development, that's why cover it with a plastic sheet or something like that. After it is completely hardened sprinkle some water on it to keep it moisten for 48 hours.

**TOOLS & MATERIALS**

- Krystol Plug
- KrystolWaterstop Grout or Krystol Bari-Cote
- Clean water source
- Mixing bucket
- Margin trowel
- Chipping hammer with 25 mm (1 in.) square chisel blade )



**• Patching Defective Concrete**

Description: Use Krystol Bari-Cote to repair ordinary defects. To repair leaking defects use it with Application Instruction 5.31-Waterproofing Tie Holes & Defective Concrete. Contact your CWP representative for more recommendations.

Limitations: This system is not effective on moving subjects, but is only effective on solid subjects. Contact your CWP representative. The temperature should not be less than 4°C.

Safety precautions: This product is for professional use only, so read carefully the Material Safety Data Sheet. It can be caustic if you mix it with water or perspiration. Keep away from skin or eye contact and breathing its dust. Always wear safety goggles, long sleeves and gloves.

Step 1:

- Prepare the surface With a chipping hammer and a sharp, flat 25mm chisel rout out the defect so the edges would be squared.
- Wash the area with water. Use high-pressure water blasting or mechanical cleaning in order to remove any release. It is not acceptable to use an acid cleaner. To remove dust, debris or water, use a vacuum.

Step 2:

- Mix Krystol Bari-Core to a putty consistency (knowing that 4 parts of powder need 1 part of clean water). Make a mixture that will be used within 15 minutes.
- The surface should be is SSD condition before applying Krystol Bari-Core, which means that the pores are filled with water but there is no water on the surface of the concrete. Pre-soak the surface with water, and then use a sponge to remove the water.
- Use a towel to apply Krystol Bari-Core. If you want to use it for deep patches-thicker than 13mm- mix it with 10mm of pea gravel (knowing that 4 parts of powder need 1.5 parts of gravel and 1 part of water). Repair all defects first, and then mix approximately 6.5 parts powder to 2 parts clean water. Trowel this mixture over the surface to a thickness of approximately 3 mm.

Step 3:

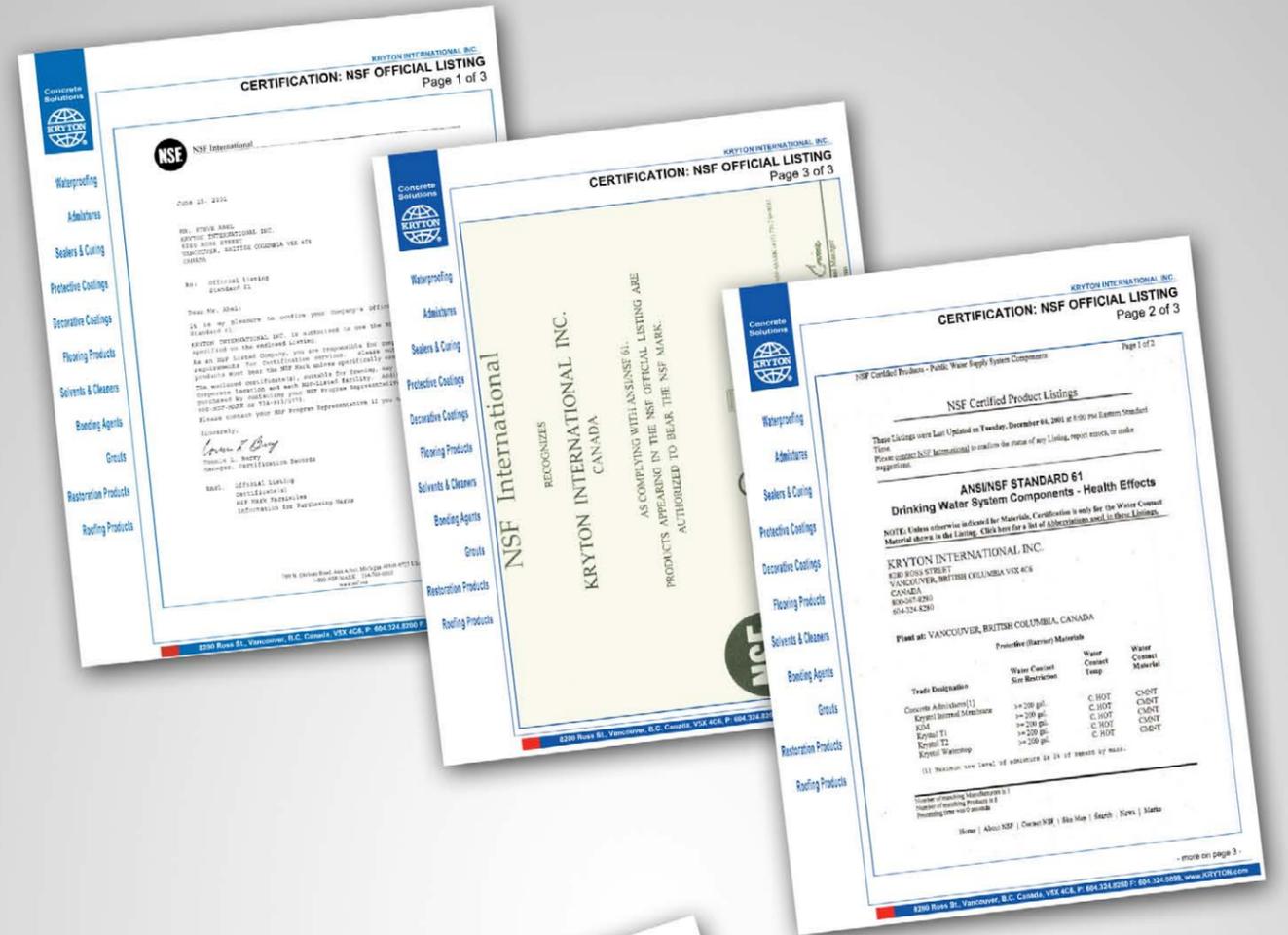
- During the hardening process heat will increase which may lead to fast drying. That's why protect it by covering it with plastics to protect it from water loss caused by evaporation.
- After hardening, sprinkle water to moisten the repair. Restore surface coverings between each mist. Keep on doing that for at least 48 hours.
- Keep it away from extremely low temperatures for at least 24 hours.



C R Y S T A L L I N E W A T E R P R O O F I N G

## CERTIFICATES & REGISTRATION

Being one of the most important products in waterproofing concrete, Kryton's unique line of products will help you to have the most effective and sustainable results in your use. All what we care about in final is the satisfaction of our clients, this is why we will always be engaged in the assure and to verify that our products will meet or even exceed the international standards.





## SUSTAINABLE CONSTRUCTION

The products provided by CWP can contribute to achieving valuable LEED points for your structure.

LEED (Leadership in Energy and Environmental Design) certification measures a building's impact on the environment. It is one of the most widely used project rating systems for new construction and major renovation. The program is regulated by the US Green Building Council.

Our products can reduce waste and site disturbance, and most importantly the products do not contain volatile organic compounds (VOCs), and being safe for use with portable water.

Here are just a few tips that our products can contribute in providing LEED points for our stakeholders as follows:

### Materials & Resources

- MR Credit 2.1: Construction Waste Management (1 point)  
While membrane coated concrete goes straight to the landfill, KIM concrete can be recycled post demolition, eliminating waste.

### Indoor Environmental Quality

- EQ Credit 4.2 Low-Emitting Materials: Paints & Coatings (1 point)  
Our products contain no volatile organic compounds, and does not affect air quality.

### Sustainable Site

- SS Credit 5.1 Site Development: Protect or Restore Habitat (2 points)  
Our products can help reduce site disturbance. Less excavation is required because Krystol Internal Membrane (KIM) waterproofing admixture is added directly to the concrete mix. No need to excavate to accommodate space for workers applying physical membranes.
- SS Credit 7.2: Heat Island Effect: Roof (1 point)  
CWP can waterproof roofing, adding to a building's green roof.

### Innovation and Design Process

- ID Credit 1.1-1.4 Innovation in Design (1 point)  
KIM and Krystol concrete waterproofing products contribute to the overall durability and life expectancy of a building by stopping corrosion, increasing freeze/thaw durability, and protecting against chemical attack, carbonation and other detrimental effects.





C R Y S T A L L I N E W A T E R P R O O F I N G

PROJECTS

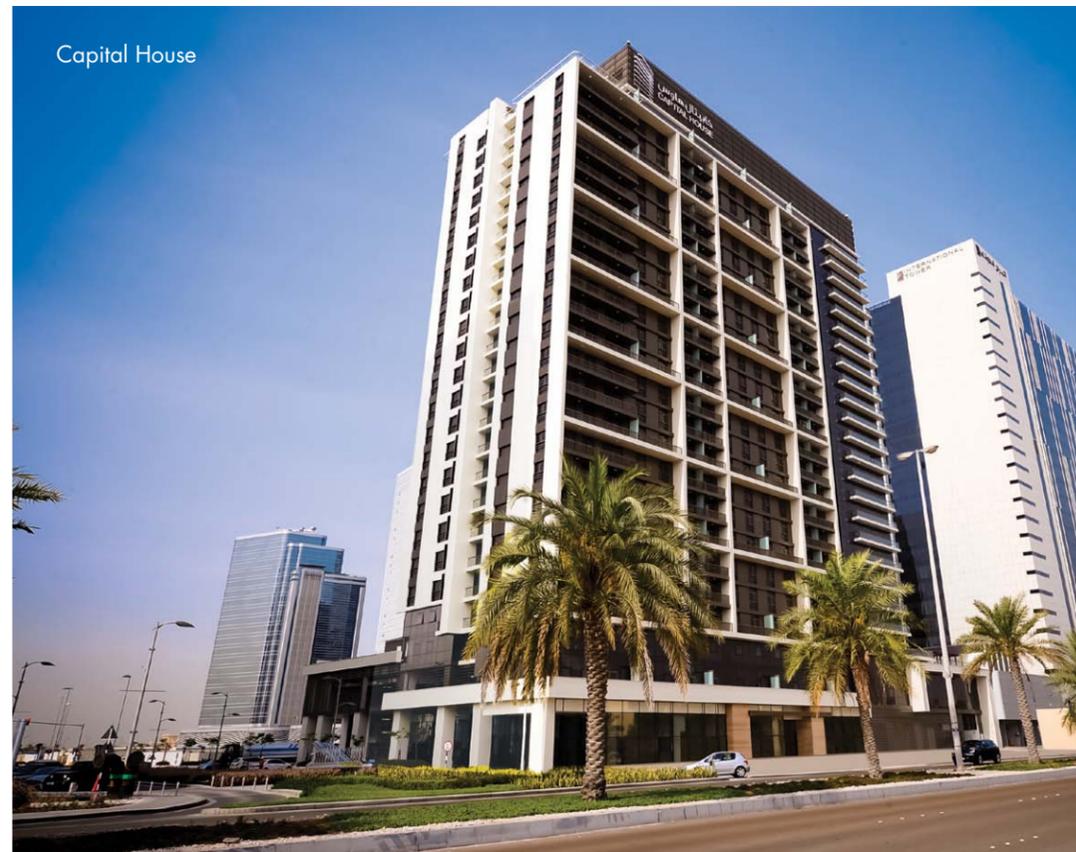




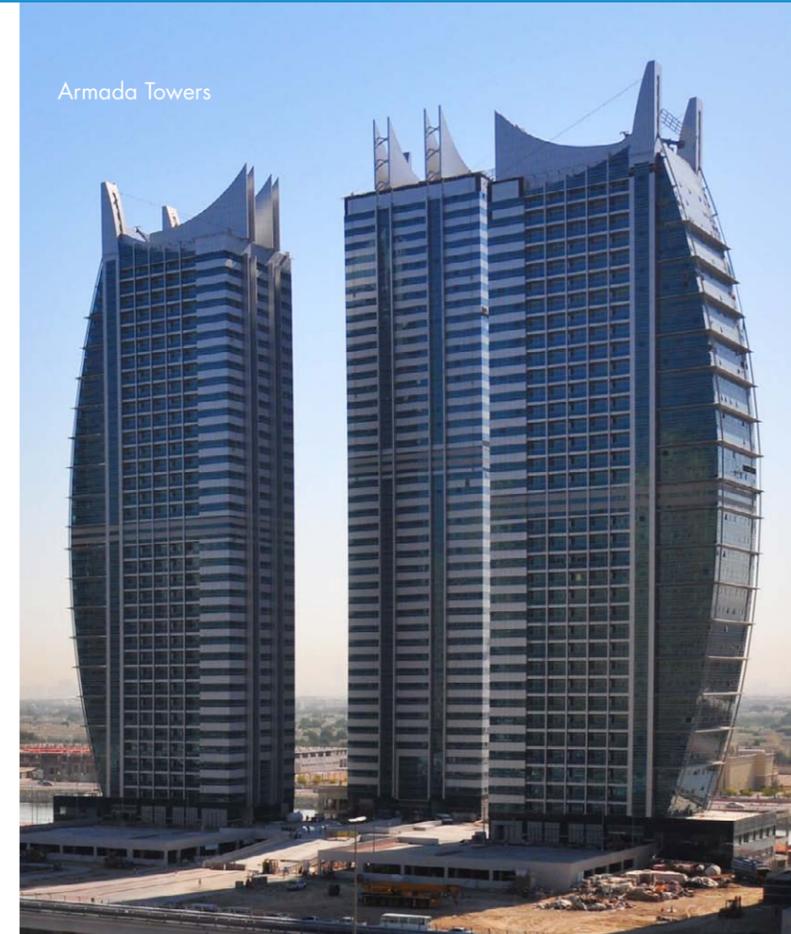
C R Y S T A L L I N E W A T E R P R O O F I N G



Damac Heights



Capital House



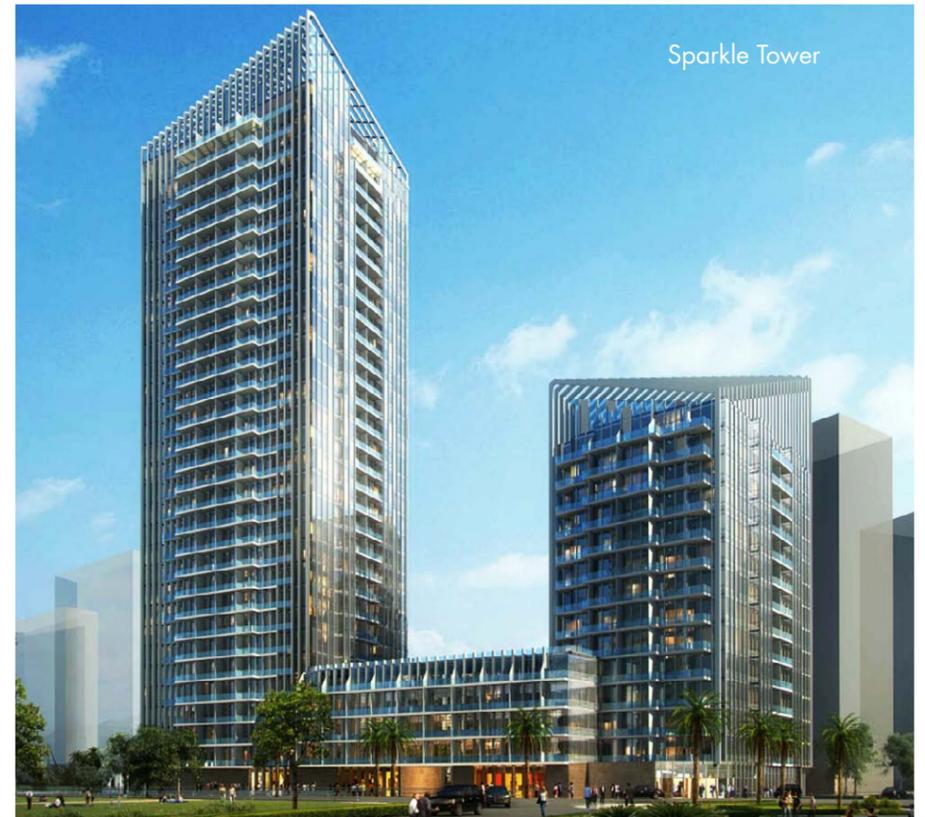
Armada Towers



Gems American Academy



C R Y S T A L L I N E W A T E R P R O O F I N G





NO.	PROJECTS LIST & TYPE	DATE OF COMPLETION	CLIENT	CONSULTANT	CONTRACTOR
1	Armada Holdings (B+G), Residential Building, JLT	2005	Armada Holdings FZ LLC	Al Khawajah Engineering Consultancy	Al Khaitoob Building Contracting
2	Emirates Airlines Call Center 2B+G+6+Office Building, Dubai Outsource Zone	2008	Emirates Airlines	Design Concepts	City Diamond Contracting
3	EMAAR 2020 Real Estate, 2B+G+7+Gym Commercial Building, Dubai	2008	EMAAR 2020 Real Estate	Archdome	Delta Emirates Contracting
4	Water Tank for Dubai (3B+G+25 Building), Silicon Oasis-Dubai	2008	Mr. Mohammed Nasser Mohamed Iqbal Falak	Adnan Saffarni	Bejing Emirates
5	Al Ansari Real Estate (B+G+14+HC+SP) Building, Al Barsha Dubai	2008	Al Ansari Real Estate	Schuster Pechtold	Ali & Sons Contracting
6	Delta Properties(2B+G+20)Commercial Building, Dubai Marina	2008	Delta Properties	NEB	Engineering Contracting -ECC
7	Juma Humaidan Al Falasi(3B+G+14) Residential Building, Al Barsha Dubai	2009	Mr. Mohammed Juma Humaidan Al Falasi	Al Ajmi	Delta Emirates Contracting
8	Mr. Abdul Wahid Hasan Al Rustaman (3B+G+14F+R) Residential Building, Al Barsha Dubai	2009	Mr. Abdul Wahid Hasan Al Rustamani	Al Takaful Al Handasi EC	Construction & Building Engineering
9	Coral Deira International (2B+G+P+21)Hotel Apparments,Dubai	2010	Arabian Investment	BHNS Engineering Consultants	Kaveri General Trading
10	Exchange Tower(3B+G+10)Commercial Building, Business Bay Dubai	2011	Mr. Sulayman Abdul Aziz N Al Majed	MBA Engineering Consultants	Delta Emirates Contracting
11	Luxorios Villa (B+G+1) Villa, Dubai	2012	Mr. Mansoor Mohamed Al Sayed Abdulla	Design Center Engineers Consultants	Progress Construction LLC
12	Commercial Building, MBZ City(2B+G+M7), SE09 Abu Dhabi	2012	Mr. Ahmed Ali bin Khalfan Al Dhahery	APG Architects & Planning Group	Ali & Sons Contracting
13	Capital House , ADM Plot C-19 (2B+G+2P+4+Roof Building), Abu Dhabi	2012	Island Office Investment LLC	Maisam Architects & Engineers	Ali & Sons Contracting
14	Al Diyafah International School(G+1, G+2) School Building & Water Tank, Musaffah Abu Dhabi	2013	Al Diyafah School	NEB Engineering Consultancy	Perfect Construction General Contracting LLC
15	Bawabat Al Sharq School-Baniyas, Swimming Pool & Water Tank, Abu Dhabi	2013	Bawabat Al Sharq School	NEB Engineering Consultancy	Perfect Construction General Contracting LLC
16	Al Tawam Dialysis Center, Underground Water Tank , Am Maqam Al ain	2013	SEHA - Abu Dhabi Health Services Company	Stantec	Civil Power General Contracting LLC
17	Sila'a Community Hospital, Underground Water Tank, Al Sila'a Abu Dhabi	2013	SEHA - Abu Dhabi Health Services Company	Stantec	Al Fara'a General Contracting Co.
18	500 Legend Villas (G+1)+500 Villas	2013	Tammiyat Global Real Estate	Al Burj Consultants	Delta Emirates Contracting
19	Residential Tower (B+G+14F+R) TECOM Investment FZ LLC	2013	Mr. Mishal Saleh S. Alardi	Al Khawajah Engineering Consultancy	Beacon Construction LLC
20	Proposed Villa (B+G+1) Al Khawaneej 1st, Dubai	2013	Mr. Muhammad Ibrahim Abdullah Al Murad	Scale Architectural Engineering Consultancy	Al Banna Conewood Contracting LLC
21	Commercial & Office Building (2B+G++9F+R), Dubai	2013	Mr. Adnan Rafat Shukri Musthatha	Emirates Engineer-Consulting Engineering	Juma Al Suwaidi Contracting LLC
22	Hotel Building (1B+G+2), Mulk at Al Ayah, Sharjah	2013	Mr. Muhammad Jasim Saif Al Midfaa	Smart Solutions Engineering Consulants	Muhammad Bin Jasim Building Contracting Est.
23	Residential Building (2B+G12+R) Al Nahda 2nd Dubai	2013	Mr. Abdullah Salem Mohammad Al Mana	Al Ajmi Engineering Consultants	Al Arif Contracting Co. LLC
24	Residential Tower (B+G+8 Floor +Gym+Roof), Al Quasais Dubai	2014	Mr. Hussain Moahmed Habeeb Al Redha	Al Khawajah Engineering Consultancy	Al Kaitoob Building Contracting LLC
25	Commercial & Office Building (2B+G+8+R), Silicon Oasis Dubai	2014	Sheikh Jassim Faisal M.T. Al Thani	Mimar Engineering Consultants	Aroma Int'l Building Contracting LLC
26	Commercial & Offices Building (B+G+M+1) Al Qouz, Dubai	2014	Mr. Tayyeb Mohammed Ibrahim	Al Ajmi Engineering Consultants	Al Arif Contracting Co. LLC
27	Residential Building (B+G+6) Al Warqa 1st Dubai	2014	Mr. Thariq Mir Abdul Khadir Ahmad Khoori	Al Ajmi Engineering Consultants	Future Towers Contracting
28	The Court Tower at Business Bay (5B+G+3P+29F+3Roof Building)	2014	Tammiyat Global Real Estate	Al Hamzi Associates & Consultants	Delta Emirates Contracting
29	UG Water Tank at Private School (G+1) Al Rahmaneia-6 Sharjah	2014	Al Resalah School of Science	Cubic Engineering Consulting	Omis Building Contracting
30	Proposed Building (2B+G+8+Terrace)Silicon Oasis, Dubai	2014	Mr. Abdul Rahman Hamood Mohammad Al Attar	Hadi Architectural & Engineering Consultants	Square Meter Construction
31	Residential Building (B+G+Gym)	2014	Mr. Abdullah Qasim Al Qasimi	Al Khawajah Engineering Consultancy	Future Towers Contracting
32	H.E. Juma Al Majid Tower -Residential Tower & Parking Building ( 3B+G+8+R)	2014	H.E Juma Al Majid	Khatib & Alami Engineering Consultancy	Ali & Sons Contracting
33	Commercial & Residential Building (4+B+G+2P+6 Offices+5 Residentials +Penthouse+Roof), Al Rawdhath Abu Dhabi	2014	Ali & Sons Contracting	Al Mara Al Shakira	Ali & Sons Contracting
34	Residential Tower (B+G+8+R), Al Barsha, Dubai	2014	Mr. Othman & Abdulla Mohamed Sharif Abdulla Zaman	Al Khawajah Engineering Consultancy	Becon Construction LLC
35	Residential Building (B+G+12+Gym) Al Nahda 2nd , Dubai	2014	Mr. Abdulla Abdulrahman Mohad Al Moammad	Access Engineering Consultants	Modern Executive System Contracting
36	Building 2B+G+M+15+Gym Al Rigga, Dubai	2014	Mr. Yousuf Ghanim Mohamed Ahli	Design Center Engineers Consultants	Modern Building Contracting



NO.	PROJECTS LIST & TYPE	DATE OF COMPLETION	CLIENT	CONSULTANT	CONTRACTOR
37	Proposed (B+G+3) School Building, Al Bateen Abu Dhabi	2014	Sheikh Zayed Private Academy for Boys	National Engineering Bureau	Al Raka'a Contracting
38	Omis Tower (2B+G+3P+21F+R+UR) Al Qasimiya, Sharjah	2014	Mr. Mohammad Sultan Mohammad Al Owais and Omar Mohammad Al Owais	Khatib & Alami Engineering Consultancy	Omis Building Contracting
39	Residential Tower (4B+G+P+14)	2014	Mr. Rashed Bin Darwesh Al Ketbi	Mark Hebre & Associates	RDK Contracting
40	Commercila and Residence Building(2+B+G+47), Marsa Dubai	2014	Marina Arcade Real Estate LLC	Al Ajmi Engineering Consultants	Al Rostamani Pegel LLC
41	Commercial Building (3B+G+2P +11F+Health Club+R), Al Rawdhat Abu Dhabi	2014	Mr. Mohammad Abdulrahmin Al Ali	Arabian Canadian Engineering Project Management Services(ARCAN)	CIVILCO
42	Proposed Commercial &Residential Building (2Basement), Al HamriyaDubai	2014	Utmost Properties	Arif & Bin Took Engineering Consultants	Al Arif Contracting Co. LLC
43	Proposed Residential Building (2B++G13+R),Al Mamzar Dubai	2014	Ms. Al Mahdi Ali Hassan Redha	BHNS Engineering Consultants	Al Arif Contracting Co. LLC
44	Proposed Commercial &Residential Building (3B+G+13+Gym), Al Mamzar Dubai	2014	Ghasan Hasan Fatein Tahboob	Al Khawajah Engineering Consultancy	Al Arif Contracting Co. LLC
45	Proposed Residential Building (B+G+6+R),Al WarqaFirst, Dubai	2014	Omar Ahmed Mohd Aldowais Al Shamsi	Al Ajmi Consultancy	A Safa Contracting
46	Proposed Residential Building (B+G+5+R) Al Warqa First, Dubai	2014	Noora Ahmad Mohammad Obaid Al Shamsi	Al Ajmi Consultancy	A Safa Contracting
47	Proposed Residential Building (B+G+5+R) Al Warqa First, Dubai	2014	Mr. Abdulla Ali Abdul Razzaq Al Madani	Al Ajmi Consultancy	Arifco Building Contracting
48	Proposed Residential Building (B+G+11) Al Nahda Second,Dubai	2014	Mr. Salim Obaid Salim Obaid Al Suwaidi	Al Ajmi Consultancy	KSS Contracting
49	Commercial & Residential Building (2+G+12+R), Al Nahda Second, Dubai	2014	Mr. Mohammad Aqil Ali Alzarooni	Inspiration Consulting Engineers	Modern Executive System Contracting
50	Commercial & Residential Building (2B+Mezz+3+Gym), Al Nahda Second, Dubai	2014	Mr. Rashid Bin Thani Bin Khalaf Al Thani	Archdome Consulting Engineers	Bin Shafar Contracting
51	Proposed Private Villa (GF), Al Wathba Gabht Al Ghuzlan	2014	Mr. Matar Saif Lahhej Al Hajri	National Engineering Bureau	Al Madaein Building Contracting Company
52	Medicare Hospital (B+G 2 Floor +R), Al Safa 2	2014	Medicare Hospital		Belhasa Engineering and Contracting Company LLC
53	UG Water Tank for Proposed School Building, The Villas Dubai land	2014	Gems Premiere Schools	National Engineering Bureau	Chicago Maintenance & Construction Company LLC
54	Jumeirah College, Hadaeq Sheikh Mohammad Bin Rashid, Dubai	2014	Gems Education	Arkiplan Consulting Architects & Engineers	Chicago Maintenance & Construction Company LLC
55	Bollywood Park, Saih Suhaib, 1, Dubai	2015	Bollywood park		Bin Shafar Contracting
56	Proposed Elite Private School at Mohammad Bin Zayed City, Abu Dhabi	2015	Mr. H. Obeid Ahmed Hamed Al Dhaheri	Perfection Architects & Consultants	Teejan Trading & Contracting LLC
57	Proposed (G+M)Warehouse , Al Qusais Fifth	2015	Mr. Mohammed Ahmed Dhaen Alqemzi Storage & Industrial Activity	Al Ajmi Engineering Consultancy	Sun Island Contracting LLC
58	Porposed Villa(B+G+2+Service B+Services), Nadd Al Shiba 4th, Dubai	2015	Al Shiekha Rod Zayed Bin Sultan Alnehyan	Al Khawajah Engineering Consultancy	Sun Island Contracting LLC
59	Proposed Asyal Tower (G+4P+14). Industrial 2, Ajman	2015	H.H. Sheikh Ammar Bin Humaid Al Nuaimi	AJ Design Consultancy & Town Planning	United Seven Constructions
60	Residential Building (2B+G+9+R), Nakhlet Jumeirah (Palm Jumeirah), Dubai	2015	Asma Yousuf Abdulla Al Daboos	Safeer Engineering Consultants	Taif Al Emirates Building Contracting LLC
61	Proposed Villa (B+G+1) Al Barsha South Second, Dubai	2015	Mr, Habib Moosa Habib Alyousuf	Scale Architechtrual Engineering Consultancy	Hi Tech Group of Companies
62	Proposed Villa (B+G+1), Wadi Al Safa 5 Dubai	2015	Mrs. Asma Anwar Muhammed / Mr. Tariq Abdulaziz	Islamic Architects Conculting Engineers	Accord Building Contracting LLC
63	Proposed Residential Building (G+8typ+Gym), Nadd Hessa (DSO), Dubai	2015	Mr. Mishel Saleh Ardi	Al Khawajah Engineering Consultancy	Becon Construction LLC
64	Al Jawrah Residential Building, Al Majaz Sharjah	2015	Mohamed Sulthan Mohamed Al Owais	Khatib & Alami Consulting Engineers	Omis Contracting Company
65	Proposed Residential Building (B+G+5), International City Dubai	2015	Mr. Islam Abdulrahman Bayasein Al-Amoudi	Mimar Engineering Consultants	Al Rashed Contracting
66	Proposed Residential Building (B+G+5) International City	2015	Mr. Islam Abdulrahman Bayasein Al-Amoudi	Mimar Engineering Consultants	Al Rashed Contracting
67	Proposed Commercial & Offices (3B+G+M+3+R), Al Wasl Dubai	2015	Al Tayer Group	ARTS Consultants	Fujairah National Construction Company LLC
68	Proposed Commercial Development, Bodang Al Qasmiya, Sharjah	2015	Mr. Mohammed Sultan Mohommad Al Owais	Arif & Bin Took Engineering Consultants	Omis Contracting Company
69	GEMS American Academy (B+G+3+R), Al Barsha Dubai-Phase 1	2015	Gems Education	Aedas Consultant	Chicago Maintenance & Construction Company LLC
70	Proposed Residential Building(B+G+M+1+R), Al Sabhka Dubai	2015	Mr. Khalil Merza Mohamed Ali Husain	Abdul Rahim Architectural Consultants	Becon Construction LLC
71	Porposed Villa(B+G+1),Al Wasl Dubai	2015	Mr. Mohammed Ahmaed Obaid Bin Toak	Scale Architechtrual Engineering Consultancy	Al Faisaliyah Contracting LLC



NO.	PROJECTS LIST & TYPE	DATE OF COMPLETION	CLIENT	CONSULTANT	CONTRACTOR
72	Proposed Hotel Building (B+G+M+12+HC), Al Ghuwair Sharjah	2015	Al Soor Investments	Al Emmar Consulting Engineers	Omis Contracting Company
73	Residential & Commercial Building (3+B+G+4P+M+26), Jebel Ali Dubai	2015	Mr. Waleed Mohammad Mohammad	LACASA Architects & Engineering Consultants	Tiger Contracting
74	Proposed Residential Building (2B+G+12+R), TECOM Dubai	2015	Mrs. Mouza Obaid Al Amimi	IAS Lootah Contracting	SS Lootah
75	Commercial & Residential Building (4+B+G+14), Al Barsha 1st, Dubai	2015	Mr. Hisham Abdulla Al Qasim	LACASA Architects & Engineering Consultants	Future Towers Contracting
76	DAMAC Heights-Residential Building(5B+G+5P+76+R)	2015	DAMAC Gulf Properties	Group Consultant Int'l/Ramboll Middle East	Arabtec Construction LLC
77	The Forum Tower (5B+G+3P+31+F+3Roof Building), Business Bay Dubai	2015	Tanmiyat Global Real Estate	Al Hamzi Associates & Consultants	Delta Emirates Contracting
78	Living Legends at Wadi Al Safaf -3rd, Dubai (12 Residential Building)	2015	Tanmiyat Global Real Estate	Adnan Saffarini	Delta Emirates Contracting
79	Under Ground Water Tanks for Reem Ram Projects, Dubai Land Dubai	2015	Mizin	Khatib & Alami Engineering Consultancy	Engineering Contracting Company
80	Proposed Commercial & Residential Building (3B+G+14+/29), Marsa Dubai	2015	Mr. Talal Sliman Al Ghunaim	Mimar Engineering	Sun Engineering Contracting Company
81	Commercial & Residential Building (B+G+12) at Al Raha Ladies Beach, Abu Dhabi	2015	Al Dar Properties	Graham Jones Alewan Architectural Consultants	Saif Bin Darwesh Contracting
82	Proposed Al Fattan Tower, Umm Ramool, Dubai	2015	Al Fattan	AE7 Consultants	Delta Emirates Contracting
83	GEMS American Academy(B+G+3+R), Al Barsha, Dubai -Phase 2	2015	GEMS Education	Aedas Consultants	Chicago Maintenance & Construction Company LLC
84	GEMS United School (G+2), Baniyas Abu Dhabi	2015	ADEC GEMS United Indian School	Nationa Engineering Bureau	Chicago Maintenance & Construction Company LLC
85	Proposed Building (2B+G+5+Roof),Al Gulayaa, Sharjah	2015	Mr. Ali Obaid Bakhit Bel Resheed	Sharjah Engineering Consultants	Bel Rasheed Contracting
86	Saadiyat Rotana Hotel & Resort Complex (LG+G+5+R), C3 Saadiyat Island, Abu Dhabi	2015	Rotana Hotel Management Corporation Ltd	Khatib & Alami Engineering Consultants	Ali & Sons Contracting LLC, Kier Construction LLC JV
87	Proposed Residential & Commercial Building (2B+G+3P+15+Helipad), Al Qasimia Sharjah	2015	Mr. Faisal Ali Moosa Ali al Naqbi	Investment Engineering Consultancy	FAM Contracting
88	Proposed Residential (B+G+5+R), International City Dubai	2015	Mr. Eshagh Mohammad Ali Al Hashemi	Mimar Engineering Consultants	Al Ghurair Contracting & Engineering Works
89	Proposed Residential (B+G+5), International City Dubai	2015	Mr. Ayman Khaled Rafiq Mahmoud	Mimar Engineering Consultants	Daman Contracting
90	Residential & Commercial Building (B+G+8+Gym), Dubai	2015	Mr. Abdul Karim Majeed Shanada Abudaqqa	Pioneers of Experts Engineering Consultants	Sumer Contracting
91	Proposed Building (3B+G+8+3+Gym)Al Jadaf, Dubai	2015	Mr. Abdulla Mohamed Ibrahim Almarzooqi	Al Asri Engineering Consultant	Fujairah National Construction LLC
92	Proposed B+G+2 Showroom & Office Building, Umm Al Sheif, Sheikh Zayed Road, Dubai	2015	Dubai Fund Financial Limited	Mimar Engineering Consultants	Aroma International Building Contracting LLC
93	Proposed Residential Building (2B+G+P+12+R), Al Barsha 1st , Dubai	2015	Mohamed Ahmed Dhaen Al Qemzi	Bel Yohah Architectural Dahan Al Qemzi	Aroma International Building Contracting LLC
94	Residential Building (2B+G+5P+H.C+TEC+22), Al Mamzar Dubai	2015	Mr. Hamid Bin Ahmad Dray	High Art Engineering Consultants	Tiger Contracting
95	Proposed Commercial Residential Building (B+G+18/21), Business Bay, Dubai	2015	Mr. Abdulrahman Mohd Thaher Mohd Wali	Al Ajmi Engineering Consultants	UNEC
96	Proposed Retail/Residential Building (B+GR+7 Res. Floor), International City, Dubai	2015	Mr. Wissam Kalisi/Mr. Naser Yaser & Mr. Ziad Khalouf	Mazaya Consulting Engineers	Al Saifi Building Contracting
97	Proposed(2B+G+11+Gym), Dubai Land Dubai	2015	Mr. Mohammad Mohsen Mahdavi	Abdul Rahim Architectural Consultants	Bin Shaer Contracting
98	Proposed Commercial & Residential Building (2B+GR.+9+Gym), Al Qusais Industries. 5th, Dubai	2015	Mr. Rafa Adnan Rafat Mushtaha	Emirates Engineering	Silver Legend Contracting
99	Al Ali Development - Commercial Development (B+G+2), Umm Al Sheif Dubai	2015	Mr. Mohmmad Abdul Rahim Mohammad Al Ali	Khatib & Alami	Modern Executive Systems Contracting
100	Proposed Commercial Building (4B+Partial+GF+MZ+12 Typ+R+TR), Abu Dhabi	2015	Mr. Sultan Obaid Al Suwaidy	Fajer Engineering Consultants	Al Mezn Contracting LLC



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