

**NON-EXPLOSIVE
DEMOLITION AGENT**



HARLEN
QUARRY SUPPLIES

Nex-Pand



HARLEN QUARRY SUPPLIES

Harlen Quarry Supplies (Pty) Ltd provides a full and complete range of Rock Breaking products, namely rock drills, drill steel, drill bits, hoses and Nex-Pand the rock breaking chemical.

Harlen Quarry Supplies has a solution for you. If you are uncertain as to which solution will be best for you, please feel free to contact us and let us advise you. We may have a dealer close to you as well.



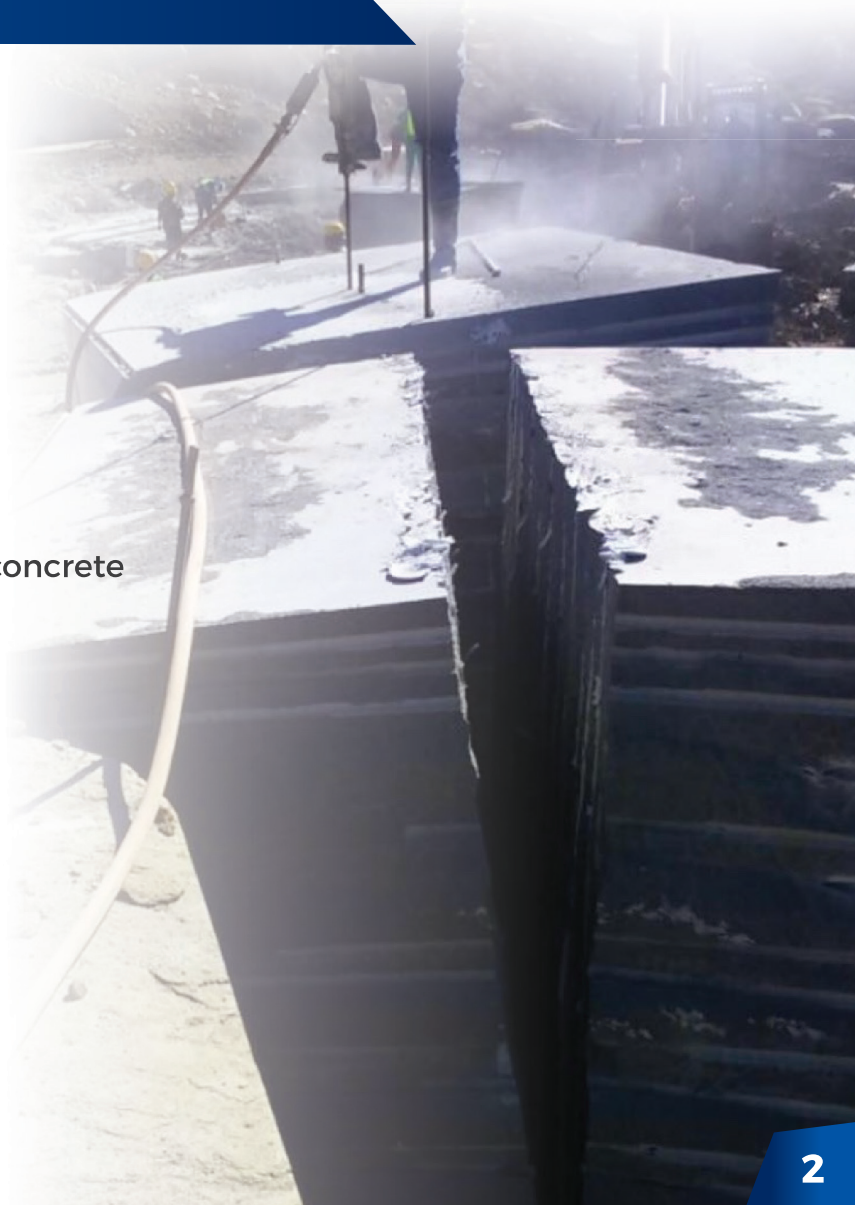
WHAT IS NEX-PAND?



- **Nex-Pand** is a non-explosive expansive mortar, used extensively in the following industries: dimension stone/quarries, mining, civils, and construction. In addition it is used for the breaking of concrete and reinforced concrete blocks, slabs, beams, and other structures.
- **Nex-Pand** is an environmentally friendly product and therefore produces **NO vibration, NO noise, NO toxic gases, NO fly rock, and NO residue.** It is completely harmless and environmentally friendly.
- **Nex-Pand** does not leave debris or dust, nor does it form gas or cause shock waves. Unlike explosives, there are no permits required for the storage, transport or use of Nex-Pand.
- **Nex-Pand** maximizes production time whilst avoiding waste of valuable stone in the dimension stone mining industries. Unskilled labour can be easily trained to use Nex-Pand in less than
- **Nex-Pand** can be used adjacent to existing structures, buildings, homes without damage to property.

WHERE CAN NEX-PAND BE USED TO:

- Quarrying
- Removal of unwanted boulders
- Excavating foundations
- Leveling boulders for road works
- Excavating rocks for trenching
- Underground excavation
- Demolition of concrete or reinforced concrete
- Demolition of refractory structures



- Non-Hazardous
- Environmentally Friendly.
- Easy to transport – No licenses necessary
- Easy to mix
- Reliable non-explosive method of rock breaking
- Easy to store
- **NO** vibration, **NO** fly rock, **NO** toxic gases, **NO** noise
- Available in three types or categories; Winter, Summer and Extreme Summer

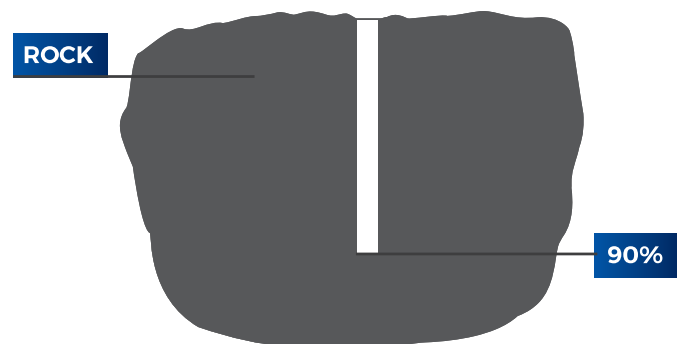
Nex-Pand is a safe and reliable product in the hands of trained personnel. The knowledge contained in this manual is sufficient to enable the users to conduct Sensitive Rock Breaking safely and reliably.

IN SUMMARY

- Drill holes correctly
- Mix the Nex-Pand Carefully
- Pour the Nex-Pand into the pre-drilled holes
- Wait for the rock, concrete or reinforced concrete to crack

ROCK PREPARATION BEFORE USING NEX-PAND

- 1 Measure the size of the rock.
- 2 Select from a 28 - 50mm drill bit.
- 3 Drill the holes at 90% of the depth of the rock/boulder.
- 4 Drill 20 to 40cm apart. In the event of the rock being very hard; drill 15 to 20cm apart.
- 5 Clean the drilled holes by blowing them out with compressed air.
- 6 With reinforced concrete drill in between the reinforcing in the center of each square at 90% of the depth of the concrete. The reinforcing is normally around 200mm square
- 7 For the best results, it is advisable to carry out inspection prior to work commencing with **Nex-Pand**.
- 8 When using **Nex-Pand** with highly absorbent materials like concrete, the walls of the holes should be dampened before the mortar is poured. Ensure there is no excess water lying in the holes.



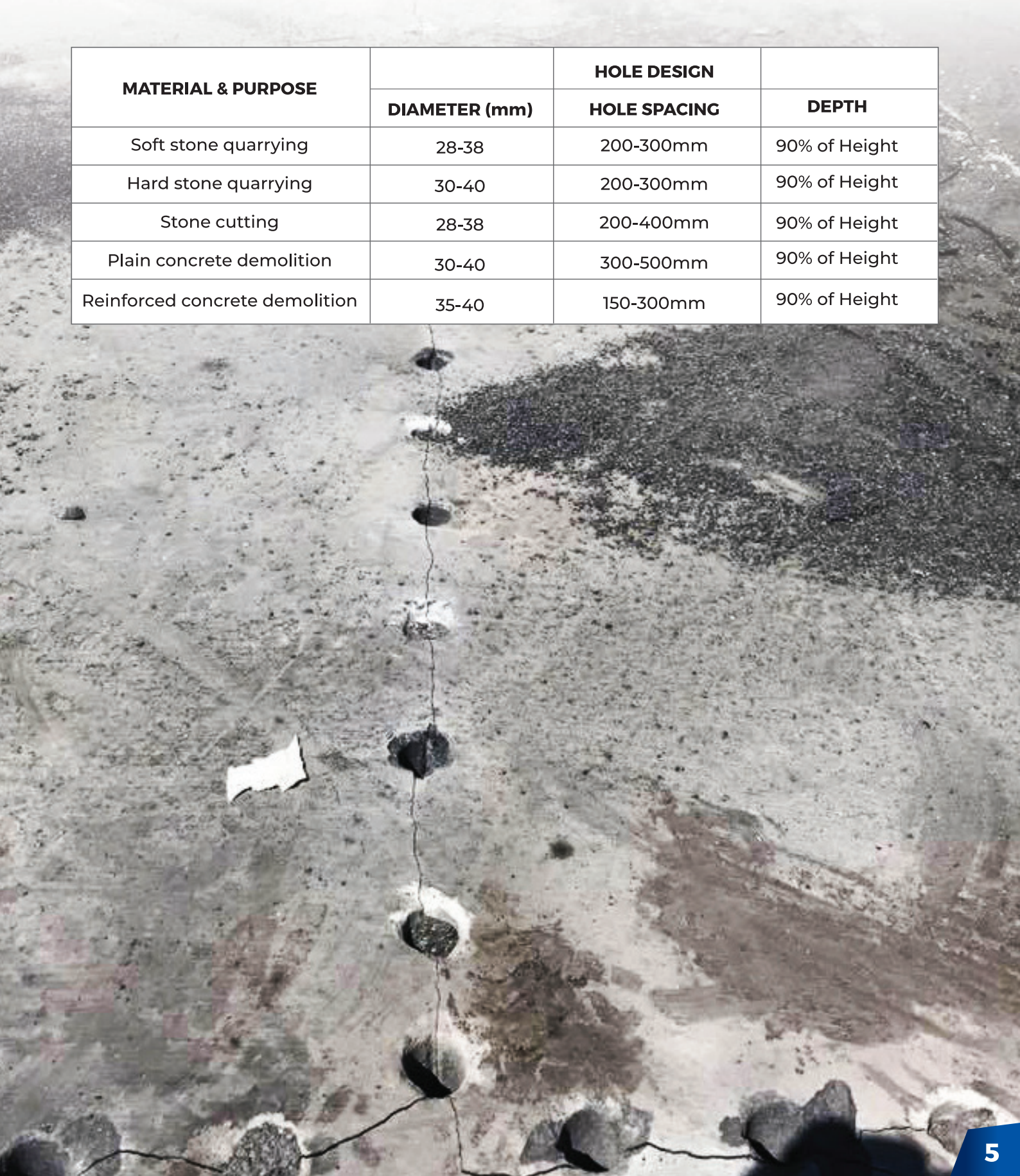
- 9 For in-situ/flat-bed rock, holes must be drilled in a cone-shaped pattern to create a breaking point. This can be achieved by drilling at a 45° angle in the center of the slab or rock. Fill these holes first with Nex-Pand.

The mortar will expand and crack hole to hole moving the cone upwards. Once the cone is removed, drill more holes 10cm back now at a 70° angle. Mix and fill with Nex-Pand. Repeat the steps with 90° holes. Once this is completed you now have a free face to work from.

Hole spacing varies depending on the type of material and the diameter of holes.

Diameter of hole is crucial in achieving the desired result. Should the hole be too small it will decrease product performance, while holes that are too big may result in blow-outs. **For guidance on the best result please contact us.**

MATERIAL & PURPOSE	HOLE DESIGN		
	DIAMETER (mm)	HOLE SPACING	DEPTH
Soft stone quarrying	28-38	200-300mm	90% of Height
Hard stone quarrying	30-40	200-300mm	90% of Height
Stone cutting	28-38	200-400mm	90% of Height
Plain concrete demolition	30-40	300-500mm	90% of Height
Reinforced concrete demolition	35-40	150-300mm	90% of Height



DRILLING HOLES FOR NEX-PAND

When drilling holes for **Nex-Pand** it is very important to know the type of rock you are drilling. This will determine the burden between the holes and the hole diameter required for that type of rock. The depth to drill is to be determined prior to drilling.

Drill at least 90% of the depth of the rock with no less than a depth of 350mm to 400mm. This is because a certain volume of **Nex-Pand** and is needed per hole to generate the pressure required to break the rock, so the shallower the hole the bigger the diameter required.

MIXING NEX-PAND

Nex-Pand is a powder that must be thoroughly mixed with clean cold water. What is required is one 5kg bag of **Nex-Pand** and 1,5 liters of COLD CLEAN water. Pour the 1.5 liters of cold clean water into a bucket, then gradually add one bag of 5kg powder into the water, stirring all the time to maintain a smooth, lump-free slurry. Once mixed thoroughly pour the mixture into the pre-drilled holes.

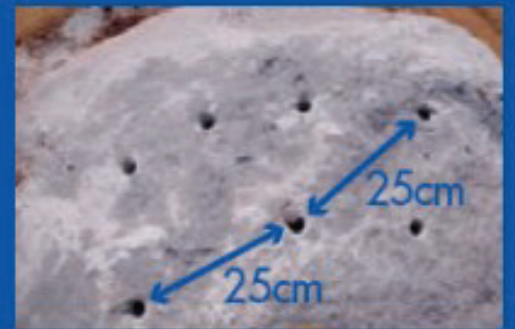
Make sure your bucket is rinsed every third or fourth time you mix. This is necessary as the little left in the bucket will start to warm up and may cause the mixture to heat up before it is poured into the pre-drilled holes.

POURING NEX-PAND

When pouring **Nex-Pand** into the pre-drilled holes it's best (where possible) to use a bucket with a lip, reducing waste and increasing accuracy. For slanted or angled holes, insert a slightly smaller plastic pipe or a funnel into the hole, and then pour the **Nex-Pand** into the funnel slowly until the hole is filled to the top.



1. Drill holes into the rock & clear.



2. Space < 25cm apart, 90% deep.



3. Mix Nex-Pand with water.



4. Pour NexPand into your holes.



5. Leave for 2-3 hours to set.

Nex-Pand

ESTIMATED CONSUMPTION OF NEX-PAND PER 1 METER DRILLED



Hole Diameter (mm)	30mm	32mm	34mm	38mm	40mm	45mm	50mm
Powder Mass kg/m	1.1	1.3	1.5	1.8	2.0	2.6	3.0

NEX-PAND PRODUCT RANGE

It is important to select the correct Type of **Nex-Pand** product for the correct ambient temperature. The reaction time of Nex-Pand is determined by ambient temperature on the day.

We have three types or categories of Nex-pand

- **Winter Product** – Temp between -5° to 10° C (Green)
- **Summer product** – Temp between 10° to 25° C (Yellow)
- **Extreme Summer** – Temp between 25° to 40° C (Red)

Nex-Pand	Type 1	Type 2	Type 3
Temperature Range	-05 to 10°C	10 to 25°C	25 to 40°C

NEX-PAND is packed in 20kg box, each box containing 4 x 5kg bags

STORAGE OF NEX-PAND

- 1 Store **Nex-Pand** in a cool area and use within 12 months of manufacturing date.
- 2 When storing, do not place the **Nex-Pand** cartons or the bags directly on the floor. Always pack the product on a pallet.
- 3 Do not open the cartons unnecessarily.
- 4 **Nex-Pand** should only be unpacked right before use.
- 5 It is recommended to utilize a steel container for storage



- 1 When mixing manually, its recommended not to mix more than two bags (10 kg) at a time.
- 2 If the mortar becomes slightly stiff add a little more water to achieve the required fluidity.
- 3 Ensure that holes are dry before pouring in the **Nex-Pand**; with the exception of concrete holes.
- 4 If the whole is drilled right through, use the plastic bag ffrom the **Nex-Pand** to tamp into the bottom of the hole then pour the **Nex-Pand** on top.
- 5 Pour the **Nex-Pand** into the prepared holes as soon as the mixing is finished.
- 6 Fill each hole to the top.
- 7 ONLY horizontal holes are to be plugged are using a ball of newspaper or plastic. In the event of rain please cover the area with a plastic roof sheet, this is to prevent the rain water diluting the mixture, making it in-active.
- 8 The reaction time is weather dependent. It may take 2-3hrs up to 24hrs depending on ambient temperature, and if the rock is in direct sunlight or in a shady area.

WHAT IS A “BLOW-OUT”?

- A blow-out refers to Nex-Pand being ejected out of the hole; causing a loud bang.
- **This occurs under the following conditions:**
 - When the **Nex-Pand** powder is mixed with warm/hot water, a chemical reaction starts, during this reaction heat is generated, if this reaction happens to quickly, it may cause a “blow out”.
 - When using the wrong category of product e.g. winter product in summer
- Make sure that everybody using **Nex-Pand** understands the possibility of a blow-out and wears full Personal Protective Equipment at all times.

HOW TO PREVENT BLOW-OUTS

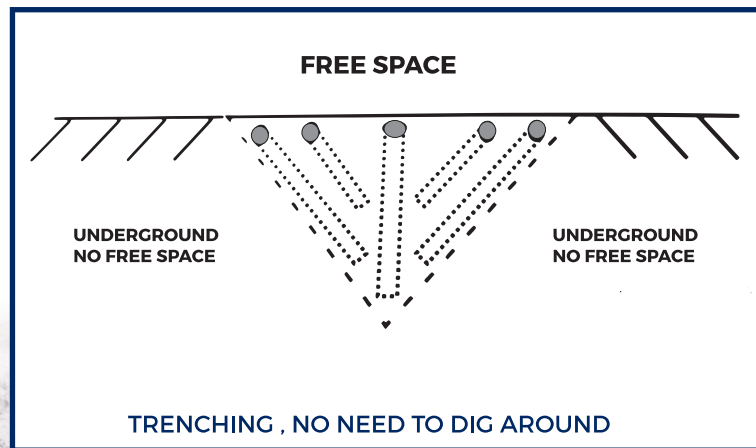
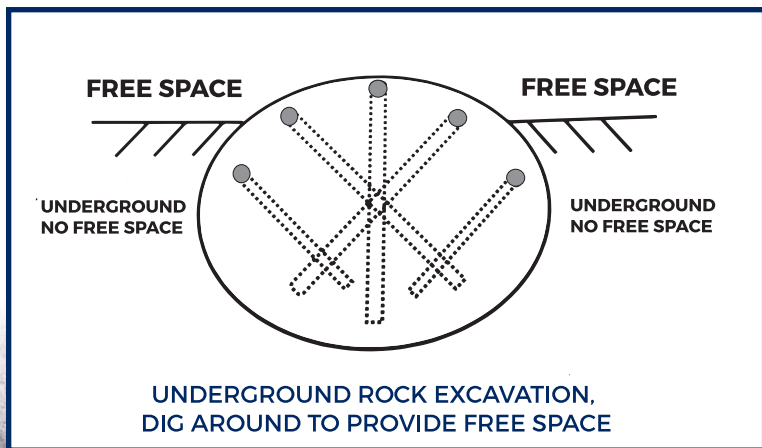
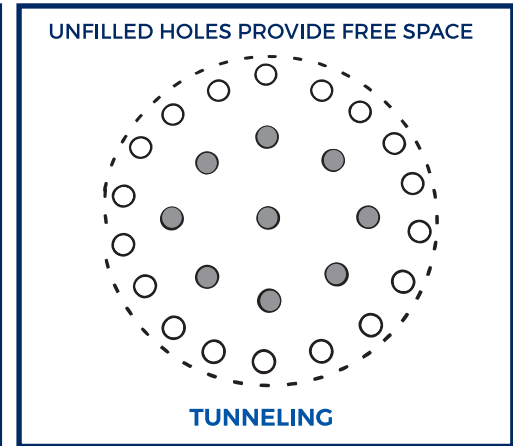
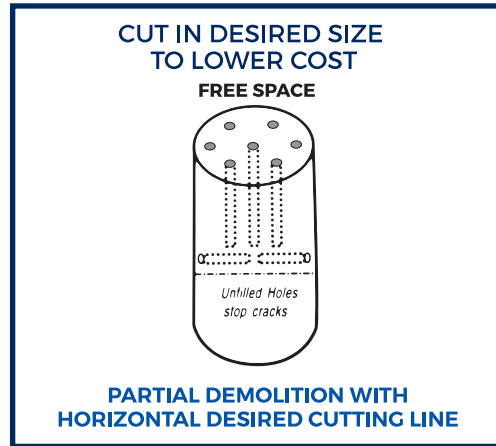
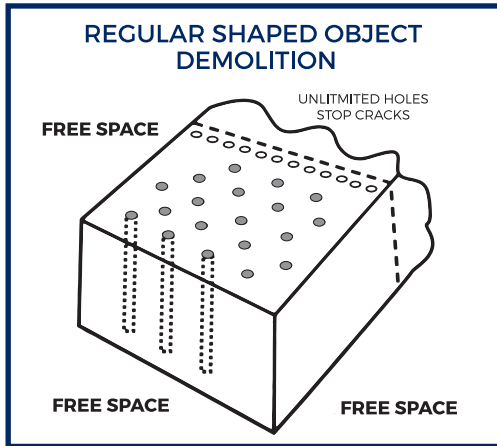
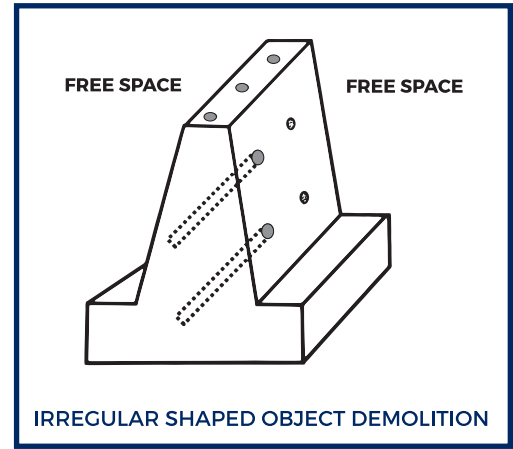
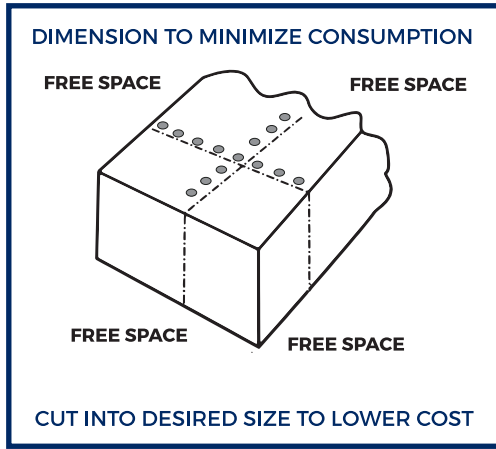
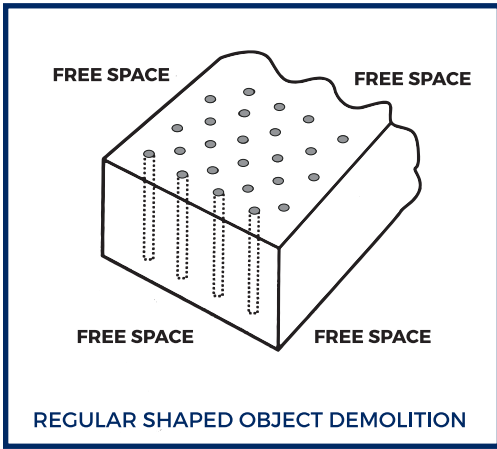
Nex-Pand

- ▶ Always use the correct type of **Nex-Pand** as per the ambient temperature range.
- ▶ Do not use hot water to mix the **Nex-Pand - EVER**.
- ▶ Never use a winter product in summer, this may cause a blow-out. If you use a summer product in winter, it may take up to 2/3 days for the **Nex-Pand** to react.
- ▶ If the water is lying in a hose pipe, let the water run for a few seconds to make sure it's cold water... **DO NOT PUT THE HOT WATER INTO THE BUCKET**. Make sure it's cold water.
- ▶ Make sure your mixture is lump free. Mix the **Nex-Pand** thoroughly.
- ▶ Try not to mix and pour in the hottest time of the day. Mix and pour early morning or late afternoon.

SAFETY PRECAUTIONS WHEN USING NEX-PAND

- ▶ Always wear
 - PROTECTIVE EYEWEAR**
 - RUBBER GLOVES**
 - DUSTPROOF MASKS**
 - HARD HATS**
- ▶ After holes have been filled, keep your face away from the hole during the first 2-3 hours as the product might (though unlikely) eject from the hole ("blow-out") if instructions have not been followed correctly.
- ▶ Do not use small or narrow-mouthed containers, or glass containers such as bottles as the product is expansive.
- ▶ In the event of **Nex-Pand** contamination to your eyes, rinse the eyes immediately with plenty of cold running water for 10 minutes and consult a doctor - **DO NOT RUB** the eyes.
- ▶ **Nex-Pand** is very alkaline, with a pH value of approximately 13, and could cause severe irritation to the skin, mucous membranes, and to your eyes.

BASIC HOLE DESIGNS





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