

BGC Concrete's exclusive range of exposed mixes will add value to your building project.

The success of using this range of mixes depends upon planning and attention to detail, an experienced contractor should always be appointed to achieve the best results. The contractor should be aware of the limits and details of the mix supplied, correct ordering and placement of concrete in addition to expert finishing skills are required to ensure that a consistent presentable job is achieved. Remember the trade skills employed are as important as the mix being supplied, don't cut corners. The process is not just good luck on the day!

To assist your selection process all mixes are coded, no names, just codes. It is imperative that you quote the correct code, it will have the appearance of EX2514A12, the detail identifies the type of mix, in this case exposed, its strength, aggregate size and type and the cement colour. Without the code we are unable to supply. BGC Concrete personnel are available to provide expert advice once you have selected the mix and required finish.

#### • Shrinkage reducers

Every effort needs to be made to avoid cracking BGC recommend the use of shrinkage reducers which are capable of achieving up to a 40% reduction in shrinkage. Shrinkage reducers in our opinion are a MUST, a 25Mpa mix typically shrinks 7mm in 10m, this can be reduced to 4mm, going a long way to avoid cracking. All polished mixes are priced including shrinkage reducers.

#### • Polythene

Ensure it is secure, taped and most importantly you use two layers, this will allow concrete to slip on the ground, there is less resistance against shrinkage, consequently less likelihood of cracking. Two storey residences with thickenings anchor concrete to the ground profile, two layers of polythene will afford some movement at the ground/concrete interface.

#### • Flat Slab

Engineer details have to be complied with, its best to have a flat slab. 'M' Classification sites with thickenings require special attention. Construction joints may be required at ground beams to ensure cracks do not emanate at the line of the beam. Structural engineers should be consulted to assess the options of such, its probably advisable to increase the overall slab thickness to provide a consistent thickness and the desired stiffness to the slab.

#### • Ordering

Make sure you order enough concrete. Plan the pour, make an allowance for wastage and order the full amount required, you don't want delays in trucks, these lead to cold joints which are unsightly. If it's a part polished slab, over order the polished concrete requirement, adjust the grey concrete quantity to suit, allow a 1 meter overlap to the polished concrete. The same admixtures (shrinkage reducers) should be used in all concrete in the slab. The same concrete grade should be used on the slab, don't pour 25Mpa in the polished area and 20Mpa grey concrete to the balance.

#### • Concrete Grade

25 Mpa grade as a minimum, this can be overridden by the engineers details, you may need to use a higher grade of concrete for structural reasons eg: 32 Mpa, a mix design will be required for this. It is not always possible to use the aggregate you require, not all aggregates comply with AS2758.1, aggregates required in structural elements take precedence over aesthetics.

#### • Slab detail

- Check and double check dimensions before the pour.
- The mesh is secure and level.
- You have doubled re entrant bars at corners (other than where a control joint is to be located) at all pipes, steel columns and penetrations, narrow sections of slab and risky areas, which may require additional steel to be in position.
- Steel columns in the slab are generally clad with pressings, make sure expansion foam is used around the columns and that the columns are in position before you pour.
- Full height windows, ensure that the edge board is straight and true, close the cavity 10-15mm at the location of full height windows to avoid unsightly patching at the slab edge once completed.
- Don't rely on the contractor to form up special slab details, it's often worthwhile asking a formworker to place step down forms, steps, drains, grates etc – it will ensure that such forms are secure and accurate making life easier for the polisher.
- Floor heating, make sure that the correct cover is achieved, pipes or wires can be exposed during the polishing operation if they are too high in the slab. They should be securely tied to the mesh and held down.

#### • Stairs

Fully vibrate they are difficult to patch, especially the risers take extra care, don't rush.

#### • Reinforcement

Use a high grade of mesh (SL82), keep the correct cover and make it secure, you don't want the mesh too close to the surface, it may be exposed by the polishing process. It is better to go overboard with re entrant bars than not supplying enough. Overlap and tie the mesh.

NB: Always comply with minimum engineering requirements if heavier than SL82.

- **Sequence**

Plan the pour sequence, pour the polished section first, do not allow contractors to walk in the polished area once screeded. Contamination of black sand, yellow sand, grey concrete, etc. on boots can affect the final finish.

- **Slump**

Pour the concrete at the correct slump, don't pour the concrete too wet, water = shrinkage, if the contractor wants to pour >80slump you must look at using a super plasticiser (SP). (You can increase the slump without adding water.) The addition rate of SP must be controlled, the higher the initial slump, the less SP that will be required to achieve the desired final slump. Too much SP can cause segregation of the mix.

- **Columns + Inserts + Pipes**

Place them before you pour the slab both centrally and at the perimeter. Place your order early to ensure they are on site when required, you don't want to be patching unsightly block outs. Columns should be attached to the footing not slab. Brass or stainless strips, floor wastes should be fully secured and in position. Check the height of such inserts, remember the polisher will probably be taking 3-5mm off the slab surface. Pipes within the concrete thickness create a weakness and an area subject to cracking, it is imperative that the concrete thickness is uniform, pipes should be lowered within the sand pad.

- **Seeding**

Expensive aggregates can be hand seeded, be aware this is a subjective issue, supervise the contractor, or seed the slab yourself to the desired level. Make sure you have enough aggregate

to seed the slab before you start pouring, divide the aggregate into portions and place it at locations around the slab to ensure that each area is covered and that you don't run out. Seeded aggregates should be soaked 1 hour before using. Always comply with the safety regime on site, wear PPE as required and ensure scaffold is in place on all elevated work areas.

- **Screeding**

The Contractor needs to take extra care to ensure that the surface has an even amount of fines. If finishing in a consistent technique this will be achieved, the slab should be vibrated. Screed marks can occur when the screed is pushed into the concrete surface resulting in lines in the polished slab which will require additional cutting to remove, similarly feet marks can be seen if the slab is thin and the areas cannot be filled with a uniform mix once the grano has stepped backwards out of the concrete, additional cutting generally addresses this problem.

- **Pumping**

As polished mixes contain a higher percentage of coarse aggregate difficulties can be experienced in pumping such mixes. We recommend squeeze pumps as opposed to piston type pumps, if the mix contains white sand a squeeze pump is a MUST.

- **Toppings**

Polished concrete can be used as a topping there are however a unique set of problems which should be considered.

- Cracks in the base slab can be reflected through to the polished slab. To minimize the likelihood of such allow to repair the crack first with epoxy, and mesh over the crack before pouring.

- Use an epoxy to bond the old concrete to the new topping, you don't want the topping delaminating.
- Aggregate size and selection, may be restricted by the topping thickness, as a rule of thumb the aggregate size should be a maximum of 1/3 of the topping thickness.

- **Trials**

If you are unsure about the mix appearance or selecting a mix outside of BGC Concrete's standard range, samples can be arranged. There is a charge for this service.