Advantages of Using Foam Concrete

High Strength with Low Density

Typical cast densities range from 350-1600 kg/m³, with compressive strengths of 0.2 to 12+ MPa respectively. With its low density, Foam Concrete imposes little vertical stress on the substructure, a particularly important issue in areas sensitive to settlement. Due to its low density, Foam Concrete is a viable solution for reducing loading on burden soil. Additionally, Foam Concrete is less susceptible to differential settlement. Heavier density Foam Concrete with higher strengths is produced and used for specialty applications.

Figure 1 - Foam Concrete Being Poured
Well Bonded Body

Foam Concrete forms a rigid, well-bonded body after gelling (hydrating); thus, it is effectively a freestanding structure on its own and does not impose lateral loads on adjacent structures. The material can be constructed into various formations and profiles through forming and stepping of successive lifts. Foam Concrete can also be machined to create a desired effect.

Figure 2 - Stepped and Successive Pours
No Compaction Required

In some cases mechanical compaction can be difficult and unsafe due to limited or inaccessible areas. In excavations with poor soils that are not easily compacted. Foam Concrete forms a 100% compacted foundation over the soft soil. With compaction of conventional backfill against retaining structures or deep foundations, traditional methods can cause damage or movement to the adjacent structure in these instances Foam Concrete is a great solution.

Figure 3 - Self-Levelling, No Compaction Required
High Fluidity

Foam Concrete pumps easily and relatively low pressure via hoses over long distances. For applications over 1000 meters such as pipe in tunnel backfill, the slurry is pumped through the pipe with the pre-formed foam injected near the point of placement. The material is naturally self-levelling and fills the smallest voids, cavities and seams. When placing in excavations, Foam Concrete conforms to every sub grade.

Figure 4: Self-Levelling and Fills All Voids Naturally
Rapid Installation

High volume production and placement (via hoses) of Foam Concrete is a continuous operation from the mobile central batching plant located on site. Since the foam is the largest volume contributor in Foam Concrete, limited deliveries of the raw materials are required, which results in minimal disruption to the construction site. With our patented high volume production equipment Foam Concrete Limited can produce and place Foam Concrete on location at rates of 100 cubic meters per operating hour over distances of 800 linear meters from the batching plant.

*Figure 5 - Compact, Rapid Plant Installation, Minimal Deliveries during Operations*
Settlement Free Construction

The principle of equilibrium and the use of Foam Concrete aims for settlement-free construction. When higher density soils are excavated, they are replaced with Foam Concrete, so that the combined weight of the Foam Concrete and the new construction is less than or equal to the weight of the removed soil. Thus the effective stress of the underlying soil has not changed preventing settlement.

Figure 6 - Soil Equilibrium and Settlement Free Construction
Ease of Removal

Foam Concrete can be designed for specific strengths to allow for the future removal for maintenance of utilities or excavations. Sometimes excavations of CLSM (cement lime sand mortar) or other flowable fill material can be susceptible to unpredictable gains in strength due to delivery and production methods. Foam Concrete is produced on site to exact requirements, and can be easily excavated with common construction equipment.

Figure 7 - Easy Removal for Additional Utility Maintenance
Time Saving

The application of Foam Concrete can be a great time saver over conventional ground treatment methods for settlement free construction.

- No waiting period for consolidation of sub soil
- Minimal amount of soil removed to be placed with Foam Concrete
- Can be applied directly on existing marginal ground
- Reduce or eliminate the need for piling
- Deeper placement of lifts, due to reduced lateral loading and no compaction steps
- Eliminate the need to correct completed construction which has settled

![Figure 8 - Canary Wharf (London) Prior to our Foam Concrete Pour](image)
Figure 9 - Canary Wharf (London) During Pouring
Cost Saving

Foam Concrete is an economically viable solution particularly in large volume applications. Its use can also have an effect on other aspects of construction.

- Mix designs are tailor made for the project and budget requirements
- Minimal lateral loading enables reduced building costs for earth retained structures
- Construction on marginal ground reduces the need for piled foundations
- Lower maintenance costs because of durability of Foam Concrete and lack of settlement
- Innovative methods to correct or prevent subsidence in lieu of expensive treatment
- High volume equipment with rapid installation reduces installed unit costs

Why not contact Lynton Cox for an informal discussion of your needs, prior to contract, to see if we can reduce your carbon foot-print and costs, minimise traffic movements around your site, and help you to produce the next modern wonder.