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LIGHTWEIGHT CONCRETE FOR STRUCTURAL LOAD REDUCTION: THE POLITERM BLU SOLUTION

In both new construction and refurbishment, designers face a common challenge: reducing permanent loads while improving the performance of floors, roofs and slabs. Lightweight concrete based on Politerm Blu is a practical, high-performance answer.

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Structural lightening is no longer a niche requirement: today it is a central strategy to increase safety, simplify design and extend the service life of buildings and infrastructure.

By combining controlled-grading EPS beads with hydraulic binders, **Politerm® Blu** enables the production of ultra-light, thermally insulating concretes and screeds that deliver major advantages wherever dead-load reduction is critical.

Why structural lightening matters

Every building or infrastructure element carries two main categories of loads:

- **Permanent loads (dead loads):** the self-weight of structural and non-structural layers.
- **Variable loads (live loads):** occupancy, traffic, equipment, snow, etc.

While variable loads are dictated by use, permanent loads can be optimised through material choice. Reducing the weight of non-structural layers – such as filling screeds, levelling beds, roof slopes and service-covering layers – brings several benefits:

- **Improved seismic response.** Lighter buildings generate lower inertial forces during earthquakes, enhancing structural safety and reducing the demand on foundations and vertical elements.
- **Greater design freedom.** Lower permanent loads allow longer spans, thinner structural sections and more efficient retrofit strategies.

- **Safer refurbishment.** In existing buildings, especially heritage or ageing stock, dead-load reduction can be the key to adding new floor systems without overstressing the original structure.
- **Optimised logistics on site.** Lightweight mortars are easier to handle and faster to place on upper levels, terraces and roofs.

What Politerm Blu is

Politerm Blu is a super-lightweight aggregate engineered for cementitious mixes. Its controlled grading and pre-treatment with additive allow the EPS beads to bond homogeneously with water and binders, producing stable lightweight concrete with consistent performance.

Unlike traditional lightweight solutions that may suffer from segregation or inconsistent density, Politerm Blu mixes remain uniform, pumpable and dimensionally stable.

Key performance advantages

- **Very low density, high structural value.** Politerm Blu lightweight concrete can reach densities starting from about **150 kg/m^3**, much lower than traditional cementitious layers. This translates into a significant reduction of permanent non-structural loads, especially relevant for large surfaces or thick filling layers.
- **Dimensional stability and no shrinkage.** A frequent issue in conventional cement-based fills is drying shrinkage, which can lead to cracking, loss of flatness and long-term detachment of finishes. Politerm Blu systems are designed to avoid this, ensuring durable stability and reliable support for subsequent layers.
- **Fast and predictable drying.** Lightweight mixes based on Politerm Blu dry rapidly – around **1 cm of thickness per day** – helping contractors keep to schedule and reducing downtime before screeds or finishes are applied.
- **Thermal insulation integrated into the structure.** The lightweight concrete is not only a filling or levelling layer: it also provides certified thermal performance, improving the energy behaviour of floors and roofs without adding extra insulation boards.
- **Compatibility with modern floor systems.** Politerm Blu subfloors work effectively under radiant heating and cooling systems and in multi-layer floor assemblies, thanks to their flatness and mechanical reliability.

Typical applications where weight reduction is crucial

Floors and slabs
When covering service installations or correcting level differences, Politerm Blu lightweight concrete forms a stable, ultra-light base layer that protects the services, reduces loads and provides a flat substrate for the final screed.

Roofs and terraces
Creating slopes for drainage often requires thick cementitious pours. Politerm Blu lightweight concrete allows designers to form roof gradients while keeping the structural burden low – a major advantage on large spans or retrofitted roofs.

Refurbishment and seismic upgrades
In renovation projects, especially on older buildings, dead loads are often the limiting factor. Replacing heavy fills with Politerm Blu lightweight layers reduces stress on existing structural elements and supports safer upgrades.

Prefabrication and lightweight elements
Politerm-based mixes are also suitable for producing lightweight insulating blocks and prefabricated components, where weight reduction improves transport, handling and installation.

A proven technology with global reach

Politerm Blu is part of Edilteco’s long-standing lightweight construction technology, developed to meet the needs of designers and contractors worldwide. Edilteco operates through a broad international licensing and production network, with **around 45 production plants across the world**, ensuring local availability and consistent know-how in multiple markets.

Conclusion

Structural lightening is one of the most effective ways to improve building safety, simplify design and make refurbishment feasible even on demanding substrates. Lightweight concrete made with Politerm Blu combines ultra-low density, dimensional stability, fast drying and integrated thermal performance.

From floors to roofs, from new builds to renovations in seismic areas, Politerm Blu enables designers to reduce dead loads without compromising reliability – turning weight optimisation into a measurable, long-term advantage for the entire construction system.