



# 80 Fenchurch Case Study

**Location**

London

**Architect**

TP Bennett

**Contractor**

Skanska

**Facade**

Focchi

**Stone Supplier**

LSI Stone

**Stone**

Moleanos

80 Fenchurch is a building located in the city of London. This huge project was conceived as a refreshing alternative to the more traditional towers in the city and counts with 24,000m<sup>2</sup> of office and residential space.

This project was designed by TP Bennett Architects and developed by the main contractor Skanska. Focchi was responsible for the application of the exterior facades.

The building's elevations are made with a refined Portuguese Limestone cladding supplied by LSI Stone. This natural material is used in a contemporary aesthetic that provides the building with characteristics that differ from others.

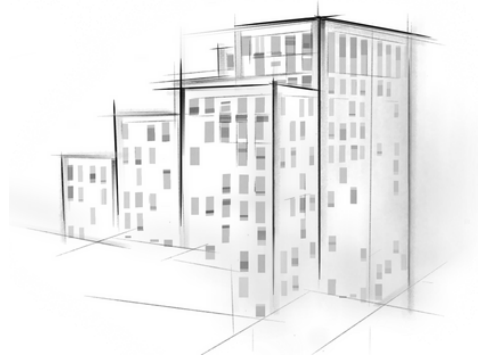
The facade application is done through a unique curtain wall system developed by Focchi and manufactured by LSI Stone, which reduces the application time considerably. In contrast to the traditional facade application, this process takes approximately 20 minutes to install each unit. These panels consist of an aluminum profile, where the stone tiles are directly assembled, making the facade application process much easier. Each panel weighs between 200kg and 700kg and has dimensions of 3 meters in height and can vary in width between 80 cm and 1.30 m, depending on the desired application site.

In total, 1600 panels are being produced to cover the entire building, and around 40 panels were applied to the building's façade, per day. Custom-made frames were to safely guarantee the transport of the stone system panels directly to the job site.

The production is highly complex, as there cannot be variations in the size of the stones. Its precision must be extremely controlled and has a very low tolerance so as not to compromise its application on the aluminum profile.

In terms of logistics, exclusively frames were developed to this process to optimize space, increase transport safety and significantly reduce costs.

Quality Control tests are being made at every step of the production. At every 10 blocks of stone, a control test takes place to ensure the quality and performance of the stone.



Very low tolerances were required to correctly adjust stone units to the system, this demanded a highly precise stone drilling process for the undercut anchor placing and the perfect installation of every stone in the aluminum frame. Beige silicone was applied to close joints, this allowed to standardize the overall aesthetics of the facade.

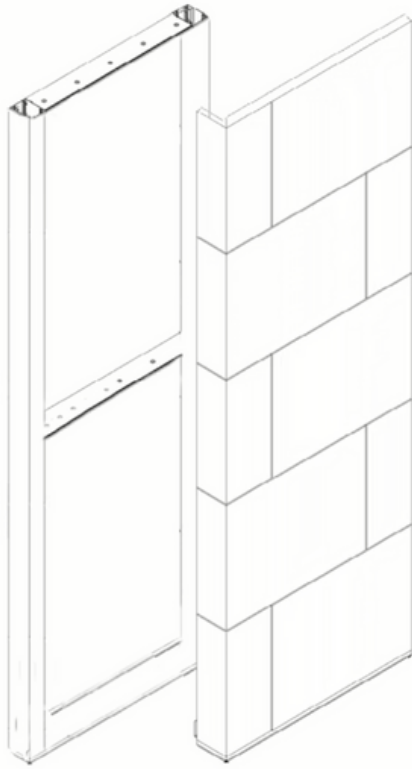
The respective stone is drilled so that it is possible to fit and install the Fisher anchoring, to join the stones, and the consequent assembly on the aluminum panel. In order to mitigate the spacing between the stones, a beige silicone is applied in order to standardize the facade and achieve a more aesthetically cleaner finish.

## Curtain Wall Fixing System

- Reduces the application time considerably: In contrast to the traditional facade application. Instead of applying each tile individually, this system allows it to apply multiple tiles in one attachment. That allows the construction team to attach more area of the façade in less time.
- Easy Application: the application of these tiles is done in one attachment only, eliminating any work on-site such as drilling or adjusting the materials.
- High complexity: extremely controlled precision and very low tolerance: The production is highly complex, as there cannot be variations in the size of the stones. Its precision must be extremely controlled and has a very low tolerance so as not to compromise its application on the aluminum profile.
- Assembly on factory: the entire panel is assembled on the factory, so it goes directly to the project site as so. This is helpful for the construction workers that only need to put together the entire façade.
- Less probability of breaking on-site: because the assembly is done entirely in the factory, Project workers don't need to handle smaller and fragile pieces of stone, so the probability of breaking a piece of stone is smaller.
- Installation cost control: Lower installation time reduces both "on-site" installation time and costs. Direct transport to the job site through a just in-time delivery process, avoids stock management, these are key factors that contribute to project costs control.
- Aesthetical Criteria: the pieces of stone are attached with Fisher system in the back of the stone, so we can't see the fixing system. To mitigate the spacing between the stones, a beige silicone is applied to standardize the facade and achieve a more aesthetically cleaner finish.
- Quality control on the factory floor: When the quality control process is done in a controlled industrial location, such as a factory floor, it can cover issues related to dimensional quality control or aesthetical quality control. This has been proved to be more effective than when it is done at a construction site.







### Ventilated Facades

Structural Wall Backing: a ventilated façade is a construction that allows air between the insulation and the façade cladding. All these systems are ventilated. They allow water from rain to slide through the building without the accumulation of water. This gap is located at the top and bottom of the façade. This natural ventilation gives the façade space to adapt and move as forces are applied to it. This is very important to keep the façade stronger and cleaner for longer.

### Moleanos Limestone

This specific layer of Moleanos, M0 limestone is a natural material that guarantees an overall aesthetical homogeneity to the facade of 80 Fenchurch Street, this light beige material delivers limited background color variation, and limited shell content and blended perfectly in to this historical area of the city of London.

Mechanically this natural stone guarantees performance in a ventilated facade application, falling in to the category of a medium-density limestone by ASTM - C568/C568M - Standard Specification for Limestone Dimension Stone.



Flexural Strength (MPA)	Pull-out load (KN)	Mass by unit of volume (Kg/m3)	Open porosity (%)	Water absorption (%)
10.7	7	2430	9.9	3.9

” The façade application uses a curtain wall system, which reduces the application time to approximately 20 minutes for each panel. ”

*Regina Vitoris*

### CONTACT

info@lsi-stone.com  
 +351 244 403 673  
 www.lsi-stone.com