

CANALETTO TOWER

Architect: UN Studio
 Civil & Structural Engineer: URS
 Client: Orion City Road Trustee Limited
 Development Manager: Groveworld Ltd
 Location: 257 City Road, Islington, London, EC1V 1JE
 Building surface: 21,907 m²
 Start of construction: 2012
 Completion date: 2015

element of evaluation: aluminium facade frame



EXPECTED OBJECT



OBJECT AT THE MOMENT

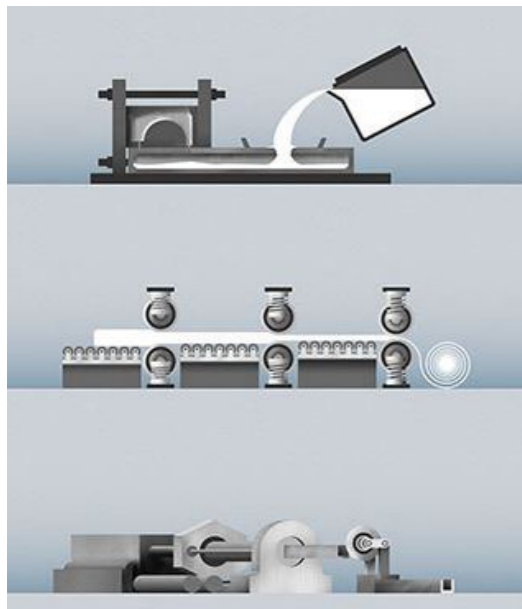


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MATERIAL OF INTEREST

Aluminium is well known for its durability, lightweight, flexibility and recyclable properties:

- The material protects itself with its oxide skin.
 - When the material is equipped with a protective layer (anodised layer or polyester powder coating) it is resistant against all kinds of weather.
 - 99.9% recyclable and using only 15% of the energy used in the original manufacture to recycle the product.
- Moreover, aluminium is the third most abundant chemical element after oxygen and silicon, whilst the most abundant metal in the Earth crust. It is collected in form bauxite in tropical and subtropical regions and fused at a temperature between 510 and 650°C. Not being local the aluminium is only in part a green material as soon as we consider the transportation energy used for the delivery into situ.



SHEET CASTING PROCESS

PROPERTIES OF ALUMINIUM

Aluminium has a density around one third that of steel (2.700 kg/m³) and is used advantageously in applications where high strength and low weight are required as in the Canaletto's facade.

Aluminium alloys commonly have tensile strengths of between 70 and 700 MPa. The range for alloys used in extrusion is 150 – 300 MPa. Unlike most steel grades, aluminium does not become brittle at low temperatures. Instead, its strength increases. At high temperatures, aluminium's strength decreases. At temperatures continuously above 100°C, strength is affected to the extent that the weakening must be taken into account.

Aluminium is an excellent conductor of heat and electricity. For this reason it's important to ensure not contact between exterior element and internal structure unless through an insulation pad which effectively cut the thermal bridge.

Another of the properties of aluminium is that it is a good reflector of both visible light and radiated heat. This can be considered in a good point in London since the prevalence of diffuse light can be enforced by an exterior cladding.

Eventually Aluminium doesn't present any level of toxicity as long as it naturally present in our food.

ELEMENT OF INTEREST

The element of interest is the aluminium cladding covering the enormous metal frame of the facade and working as balcony parapet and ventilation services channel.

It is obtained through a double curved 10 mm sheet of aluminium by Twin-belt casting (TBC) with a three wheels set (two as counterrotating part and one in the middle as pressing part). The element is so folded to achieve structural rigidity.

The surface has been further anodised to enhanced the protective layer the aluminium naturally developed against oxydation once in contact with air.

