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art'otel Hoxton

Squire and Partners has designed a bespoke 'cogwheel' façade for art'otel, a 26-storey art-inspired hotel in London's Hoxton. Partner Murray Levinson talks to Architecture Today about the challenges involved.



Located in the South Shoreditch Conservation Area, the flagship development includes a hotel, creative studios, workshops, an arts hub, spa and cinema

Squire and Partners is currently on site with the flagship London art'otel, a 26-storey development in Hoxton providing an art-inspired hotel alongside creative studios, workshops, an arts hub, spa and cinema. Occupying a prominent corner site where Old Street meets Great Eastern Street, within the South Shoreditch Conservation Area. Squire and Partners' Murray Levinson explains the thinking behind this highly idiosyncratic design.

What inspired the cogwheel form?

The design responds to a precedent of bull-nosed buildings within the Conservation Area, with a cylindrical form that maximises city views in all directions. Through the design process the cylindrical shape evolved into a fractured cogwheel form in plan, rising and adapting in response to its context and functions.



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Each section of the cogwheel facade is extruded over two floors and articulated by a series of twisting metal fins.

How have you achieved the cogwheel effect?

Each section of the cogwheel is extruded over two floors, separated by a horizontal aluminium shelf which allows each cog to read individually within the overall composition. Double-height floorplates are then rotated to give the illusion of a series of moving components. Within each cogwheel, twisting fins span from top to bottom in a variety of sizes, densities and surface treatments giving a depth of articulation to the façade.

What determined the position of the fins?

The location of the fins is carefully orchestrated across the elevations to reinforce the cogwheel concept. No two fins are placed directly above each other, animating the façade up the full height of the building. The twisted shape of these elements has an elegance and lightness which, as the fins dance in a syncopated rhythm around the façade, enhances the overall appearance of the building. Although the glazed performance skin for the building is a relatively straightforward unitised panel system, the double-height decorative fin elements that sit outboard of the glazing on deep metal spandrels are more complex. Design development required testing, patience and ingenuity to reach a successful final solution.





Can you tell us about the testing process and how it impacted the design?

The main issue was weight. The centre of each fin is located approximately 800mm outboard of the slab edge, with all additional support structure concealed within the metal spandrels, which meant that the fins needed to be as light as possible. We considered using other materials, but the weight issue meant that they were quickly discounted and aluminium was decided on as the best material selection.

Hollow aluminium tubes inherently have stiffness and strength. These properties are significantly improved when the tubes are grouped together. We looked to entwine clusters of tubes as twisted elements, which further improved their stiffness-to-weight ratio.

Materially, we were conscious that powder coating the aluminium could result in a flat finish. We researched a PPC which would add texture and reflective qualities in both natural and artificial light.

Another concern was the issue of aero-acoustics – essentially whistling in the wind – which we addressed via a full analysis by acoustic consultant RWDI. The company advised on fixings across the full height of the fin to minimise acoustic risk.



Fin being craned into position on site. A two-storey cladding mock up, including the metal fins, was performance tested in 2020 before construction began

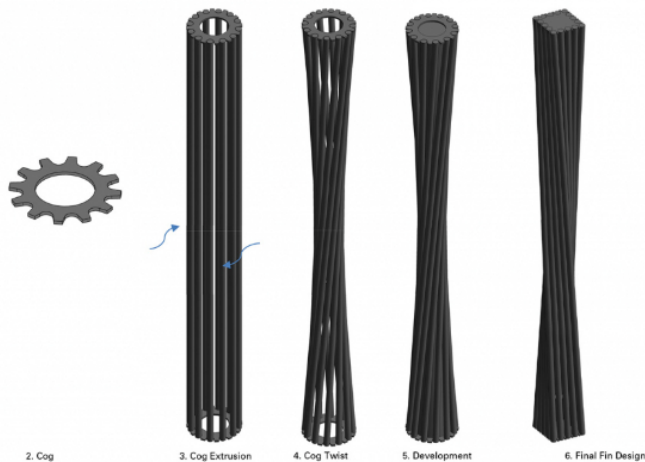
The cladding contractor, Yuanda, was commissioned to mock up one full-size fin in the selected finish for assessment by the design team and the Local Authority. Once approved, the elements were also included in the full cladding visual mock up. Performance testing of a two-storey cladding mock up, with the fins in place, took place in 2020 and the first panels were recently erected on site. art'otel is due to complete in 2024.

Do the fins serve any practical purpose or are they purely decorative?

The fins are non-structural design elements which have been developed and employed as a crafted, decorative addition to art'otel's façade. That said, they do have a role to play in terms of both user experience and environmental performance.

The placement and spacing of the fins are key to creating privacy, which was a particularly important consideration for the hotel rooms. One of the main design challenges was to space the fins in a way that ensured the required level of privacy whilst also maintaining views. Fin type and frequency of placement are linked to the building's uses at each level (entrances, offices, hotel bedrooms and conference rooms with hotel bar at the crown).

At ground level, the fins are arranged to create permeability for guests upon arrival and in the restaurant. Visually, these fins are grander than anywhere else on the development, increasing proportionally in width as they span over the lower levels. Moving up the building, the office floors(levels 2-6) benefit from a low density of fin placement to allow natural light to permeate deep into the open plan floorplate. This creates optimum comfort levels and reduces the need for artificial lighting. Fin placement becomes denser in the hotel programme to allow an optimum level of privacy in each room, whilst maintaining unobstructed views across London. Finally, the top two floors which crown the building have a less dense spacing arrangement to enable guests visiting the bar or using the conference facilities to benefit from panoramic views.



Cog concept diagram. The cogs or fins are non-structural and comprise clusters of entwined, hollow aluminium tubes. Located 800mm outboard of the slab edge, they provide both privacy and solar shading for the curtain walling behind

This frequency, which seeks to create a balanced composition across the façade, comprises entrance and public spaces: 18 fins; office levels: 34 fins; hotel accommodation: 52 fins; crown: 44 fins. The fins and the projecting spandrels that they sit on act as solar shading, reducing cooling loads and carbon emissions. The project is targeting BREEAM 'Excellent.' Throughout the design process, the team sought to minimise carbon emissions in accordance with the 'Be Lean, Be Clean, Be Green' energy strategy.

Do you see this as a one-off or can you envisage other applications for this twisted column model?

The cogwheel concept and the development of the lightweight aluminium fins, which represent the tooth profile, are a response to the site's unique history and location, art'otel's design references, and Old Street's regeneration and association with technology. One of the very first computers to exist functioned using a series of cogs and levers, which provided the inspiration for art'otel's form and external detail, with the fins representing the series of stacked cogs' tooth profiles. So, although non-structural, the fins assist in rooting the project in its context and were developed specifically for this project.



Materials library: Squire & Partners

Maria Cheung explains how two meticulously organised materials libraries reflect the importance of materiality, craft and making to the practice's design approach.

Credits

Client

Aspirations Limited

Architect

Squire and Partners

Structural and services engineer

Meinhardt

Planning consultant

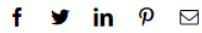
DP9

Project manager

Gear Construction

Cladding contractor

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