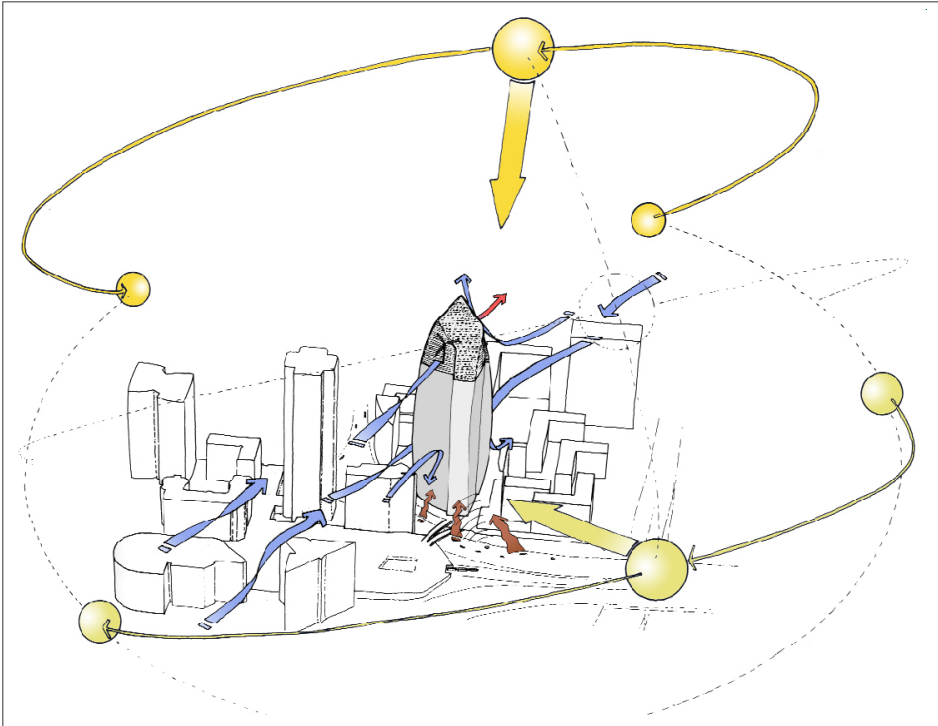


# BATTLE McCARTHY®

Consulting Engineers & Landscape Architects



## PROJECT:

AXA Tower, La Défense, Paris

## CLIENT:

Classified

## ARCHITECTS:

Skidmore Owings Merrill, London

## BM SERVICES:

Sustainable design, MEP services.

## VALUE:

Classified

## DESIGN BRIEF

The renovation and remodelling of an existing 1960's triform tower in La Défense to modernise and upgrade the office spaces. Battle McCarthy we invited by SOM to join them at competition stage to help inform the shaping of the tower and devise low energy strategies to meet the stringent brief.

Although the tower could grow in both height and within the plot envelope the overall useable office space could not increase. This allowed the top of the tower to become an energy producer, in order to reduce the reliance on mains supplies of electricity and chilled water.

The brief specified the creation of a high quality office environment, and a tower of architectural expression and integrity.

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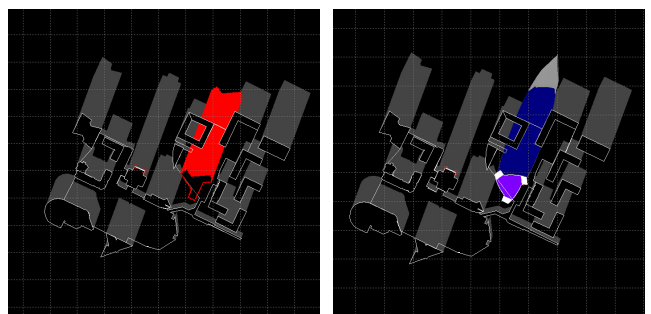
## DESIGN INITIATIVES/ACTIONS UNDERTAKEN

The approach undertaken by Battle McCarthy was twofold: to improve on the existing layout and structure and to maximise the positive impact of the building facade; and secondly to provide alternative sources of energy from renewable sources.

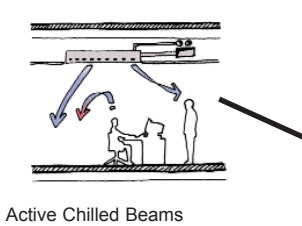
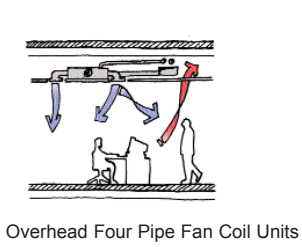
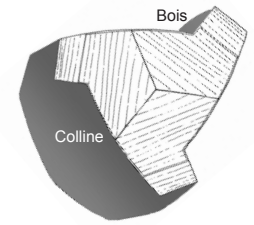
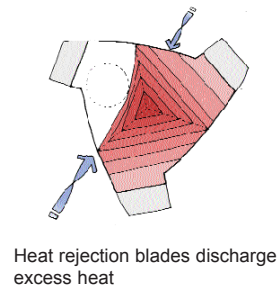
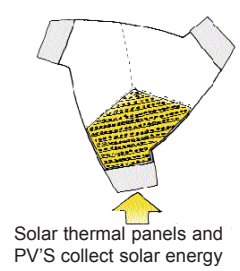
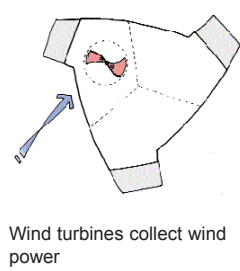
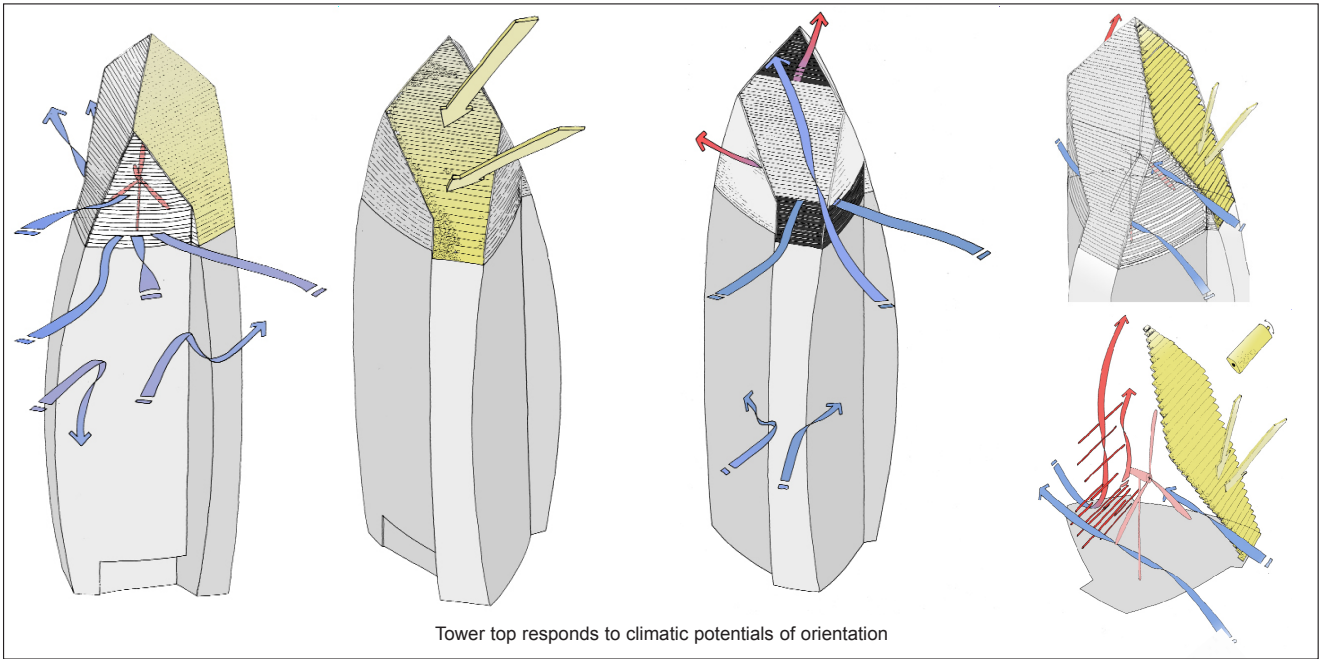
Initial investigation looked at improving the office environment through maximising floor to ceiling heights, the provision flexible and controllable mechanical systems and the optimisation of solar control and daylighting through the façade. On-floor systems were investigated in order to address the issues of servicing an extended floor plate, reducing the energy needed, optimising riser space and reducing plant room requirements. Fan coils was proposed, alongside a reduced energy option using active chilled beams; both capable of being installed in the same ceiling void and riser space.

Secondly a set of energy strategies were investigated, considering the potentials of each of the arms of the tower based on their orientation. The south facing Bois wing lends itself to solar collection, both for hot water using Solar Thermal Tubes and electricity from Photovoltaics. The Colline arm sits perpendicular to the prevailing wind axis and can be used to generate power from wind turbines. The fleuve wing and underneath the solar panels allows space at the top of the tower for passive heat rejection elements.

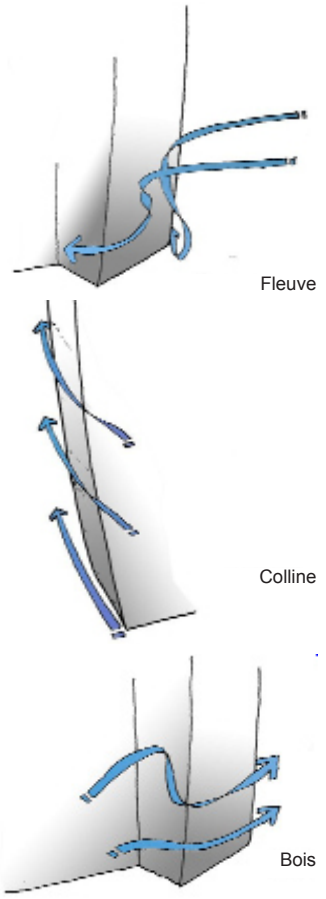
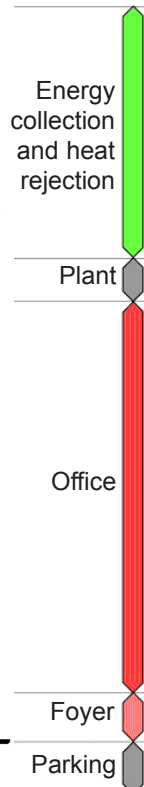
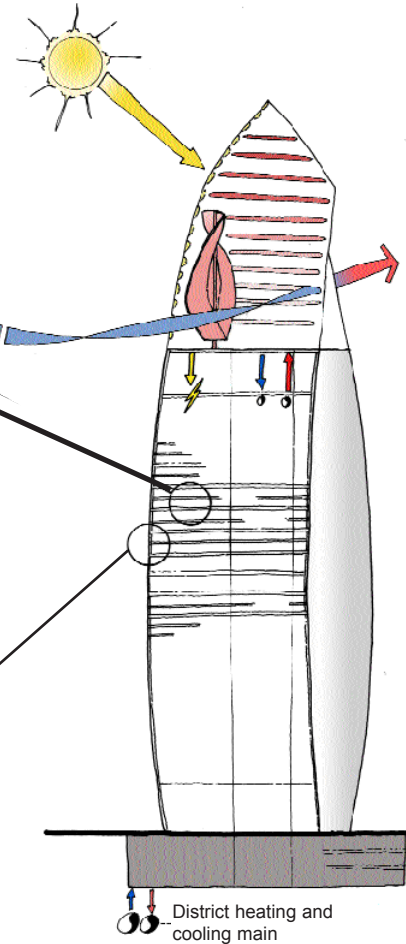
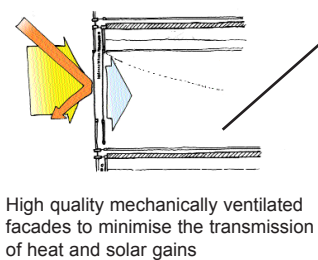
Each of these wings are enclosed under a louvred skin that acts to channel the wind over the heat rejection elements and wind turbine and angles the PV panels to the sun to optimise their yield.



Minimising the impact from overshadowing



On-floor servicing options to meet the competition brief, and low energy variant using same riser and ductwork



Minimising the impact on the pedestrian wind environment of the tower's massing