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it's all about innovation





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The technical perspective

Approached from a northern climate

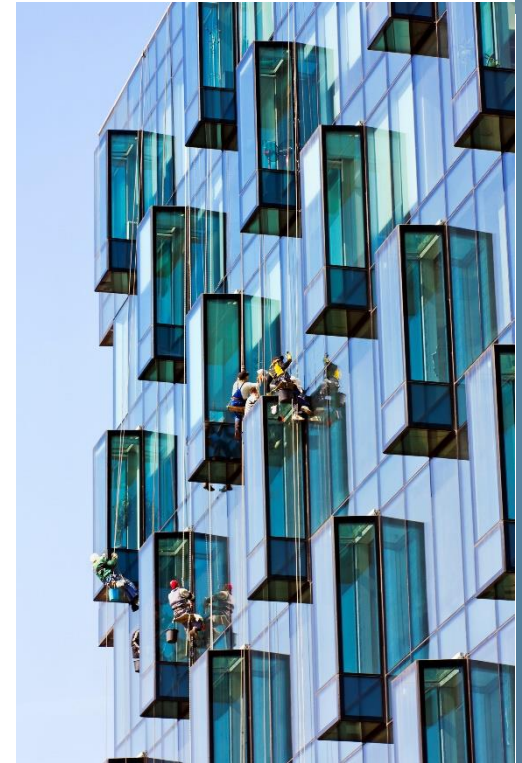
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Design phase in simplification



Designing thermal indoor environment

- Façade
 - Window/wall ratio
 - Insulation
 - Internal/external solar shading
 - Orientation



Design phase in simplification



Designing thermal indoor environment

- Ventilation
 - Mechanical ventilation with heat recovery
 - Natural ventilation (no heat recovery)
 - Hybrid ventilation with heat recovery



Design phase in simplification



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Designing thermal indoor environment

- Heat loads
 - Occupants
 - Equipment (Computer, Monitors etc.)
 - Lighting



Operation phase in simplification



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Operating the thermal indoor environment

- Façade
 - Operating internal/external solar shading
- Ventilation
 - Mechanical ventilation with heat recovery
 - Difference between inlet temperature in the room and at the ventilation unit
 - People's own adjustments of inlets
 - Natural ventilation (no heat recovery)
- Heat loads
 - Occupants
 - Equipment (Computer, Monitors etc.)



The technical solutions in simplification



- Simple technical solutions
 - Manual/operated section control (i.e. orientation based)
 - No cooling
 - Mechanical or natural ventilation
 - Manual solar shading
 - Manual radiator thermostats



The technical solutions in simplification



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- Moderate technical solutions
 - Operating on a section level
 - Central cooling coil
 - Mechanical ventilation
 - Manual/operated solar shading
 - Manual/operated radiator thermostats



The technical solutions in simplification



- Advanced technical solutions
 - Operating on room level
 - Individual cooling coil
 - Mechanical ventilation
 - Operated solar shading
 - Operated radiator thermostats

