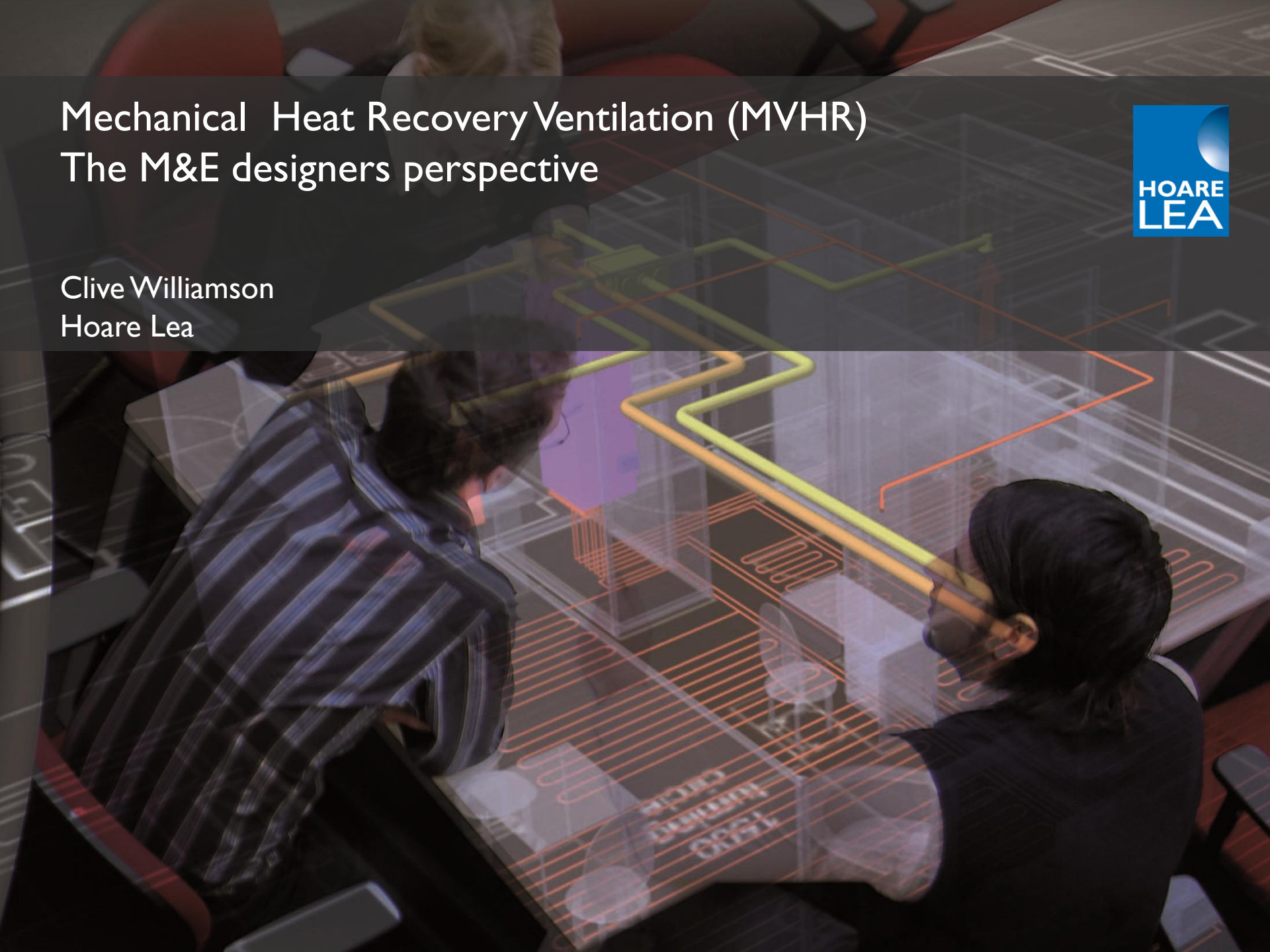


Mechanical Heat Recovery Ventilation (MVHR)

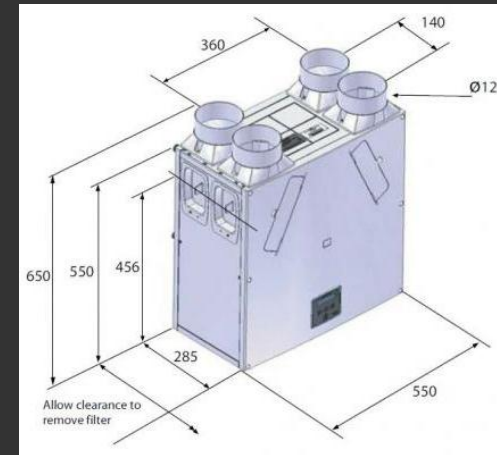
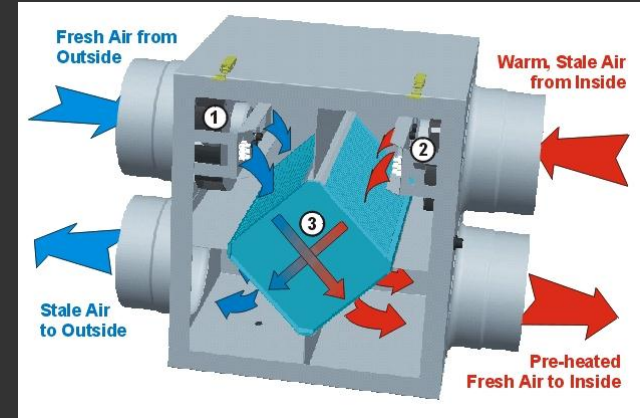
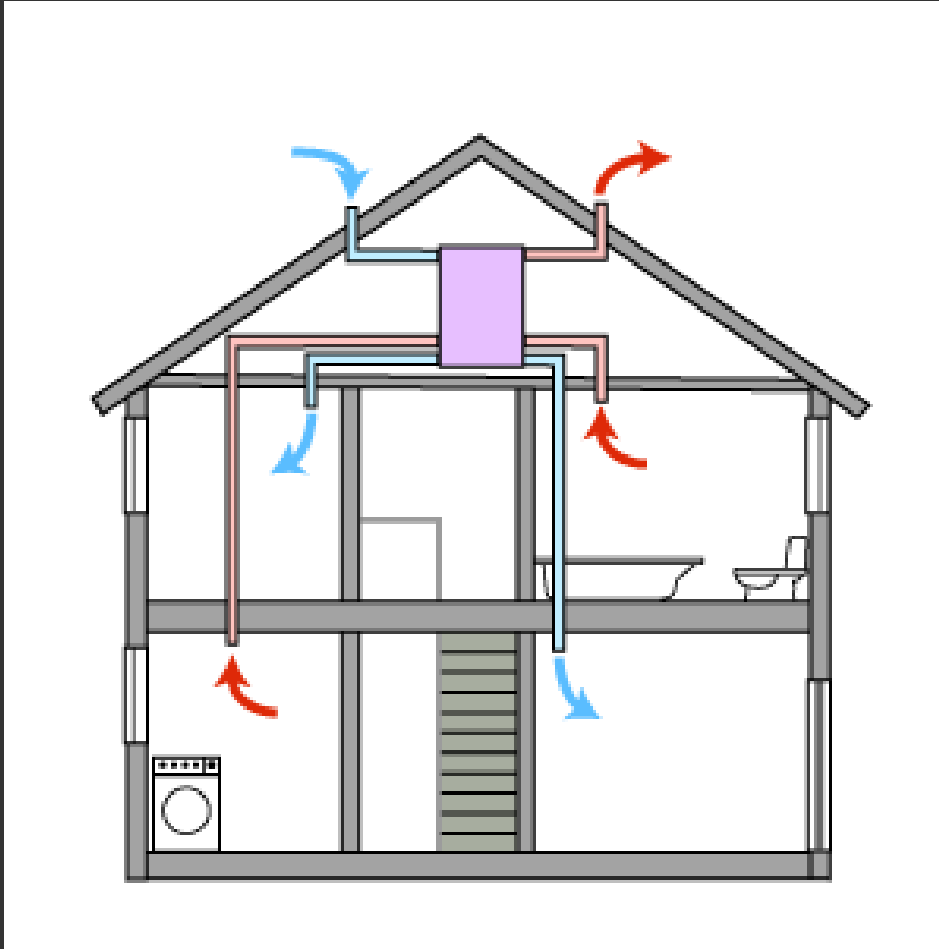
The M&E designers perspective



Clive Williamson
Hoare Lea



What is Mechanical Heat Recovery Ventilation ?



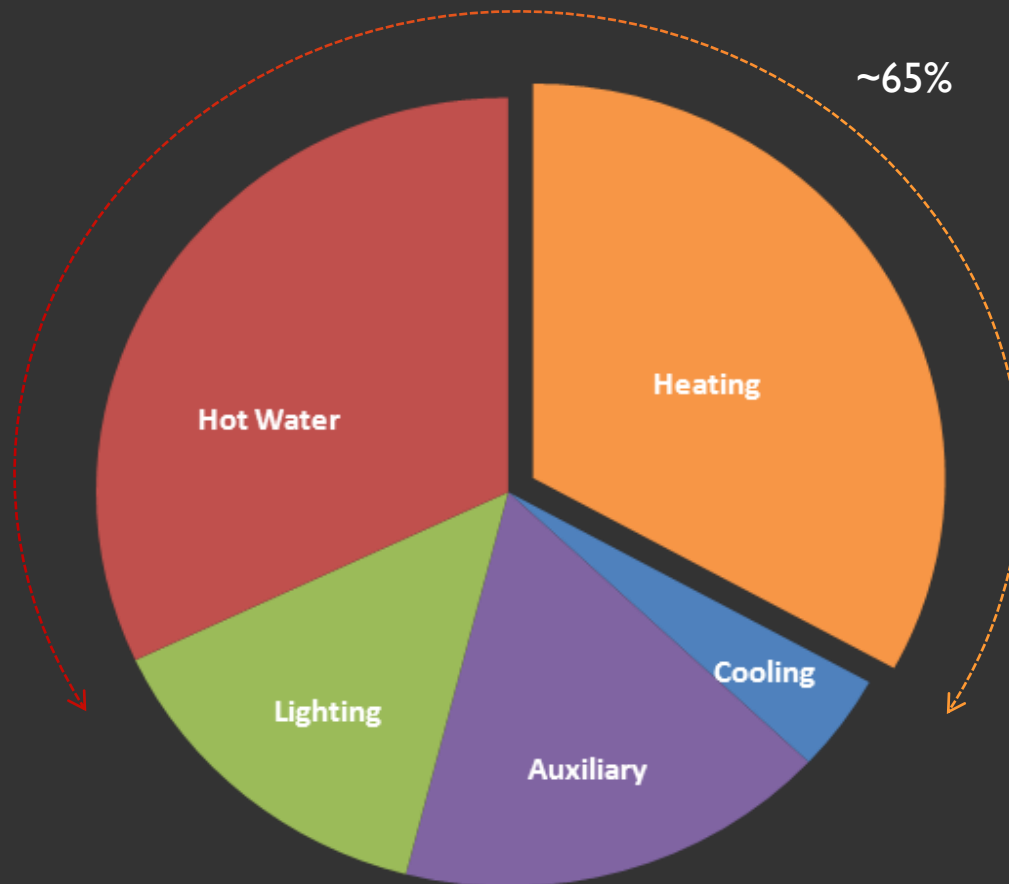
Why are we using MVHR ?

1. To offer assurance of good indoor air quality (build tight ventilate right!)
2. To help reduce dwelling carbon emission rates
3. Contribute to the prevention of summertime overheating where background noise levels preclude the use of opening windows
4. Achieve CFSH level 4 or higher

or

1. Comply with Building Regulation F
2. To achieve the regulatory target emission rates and maximise glazing ratios for marketing purposes.
3. Quick fix for prevention of summertime overheating
4. Achieve the CFSH target established by the planning authority.

Typical Energy Demands- Part L 2010 compliant



Opportunity to further reduce heating demand via heat recovery

Hot water dominant

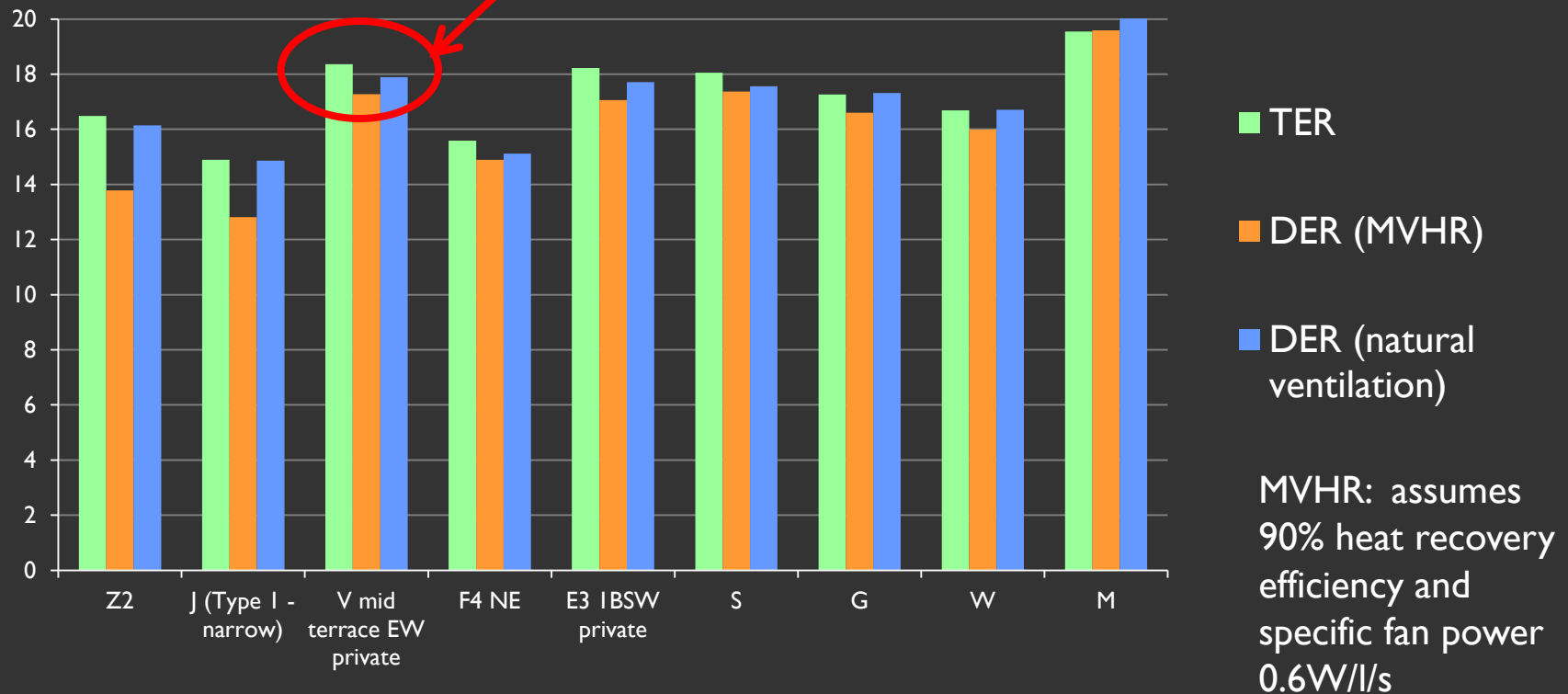
Thermally dominant

Why MVHR?

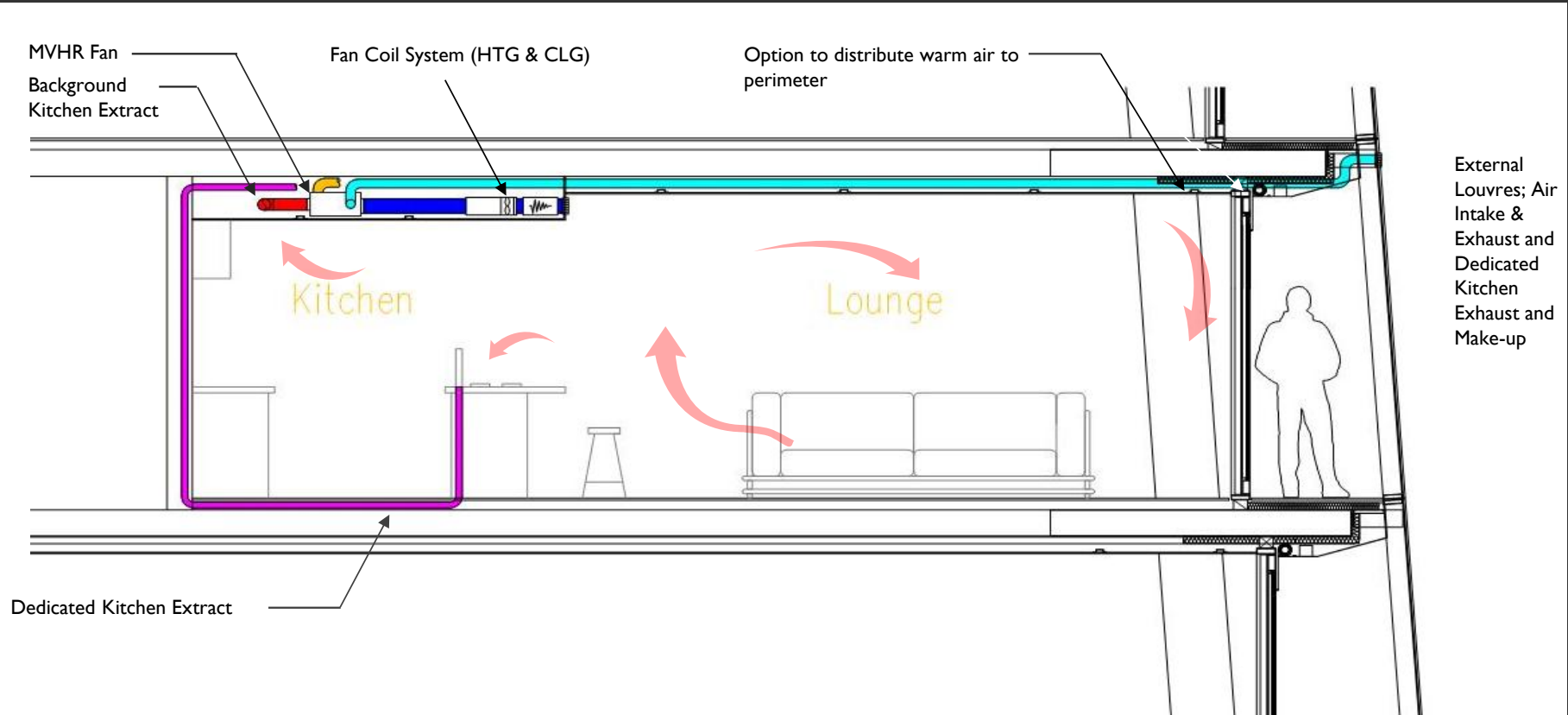
Comparison with Natural Ventilation

Comparison of Target Emission Rating (TER) with Dwelling Emission Rating (DER) using either natural ventilation or mechanical ventilation with heat recovery, for a sample of dwellings

The SAP method typically shows a 2%-10% saving in carbon emissions, with MVHR

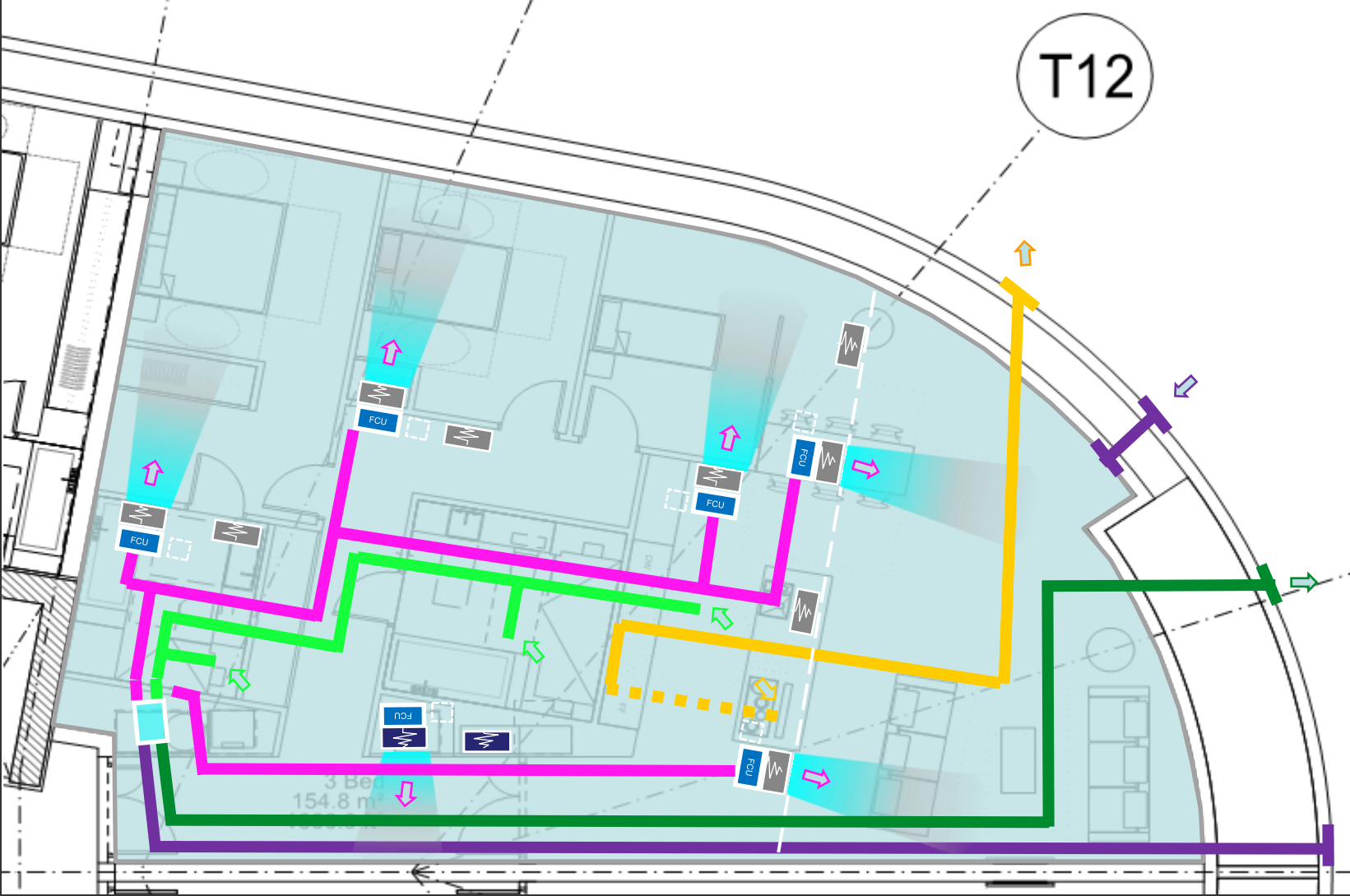


MVHR – Concept stage design

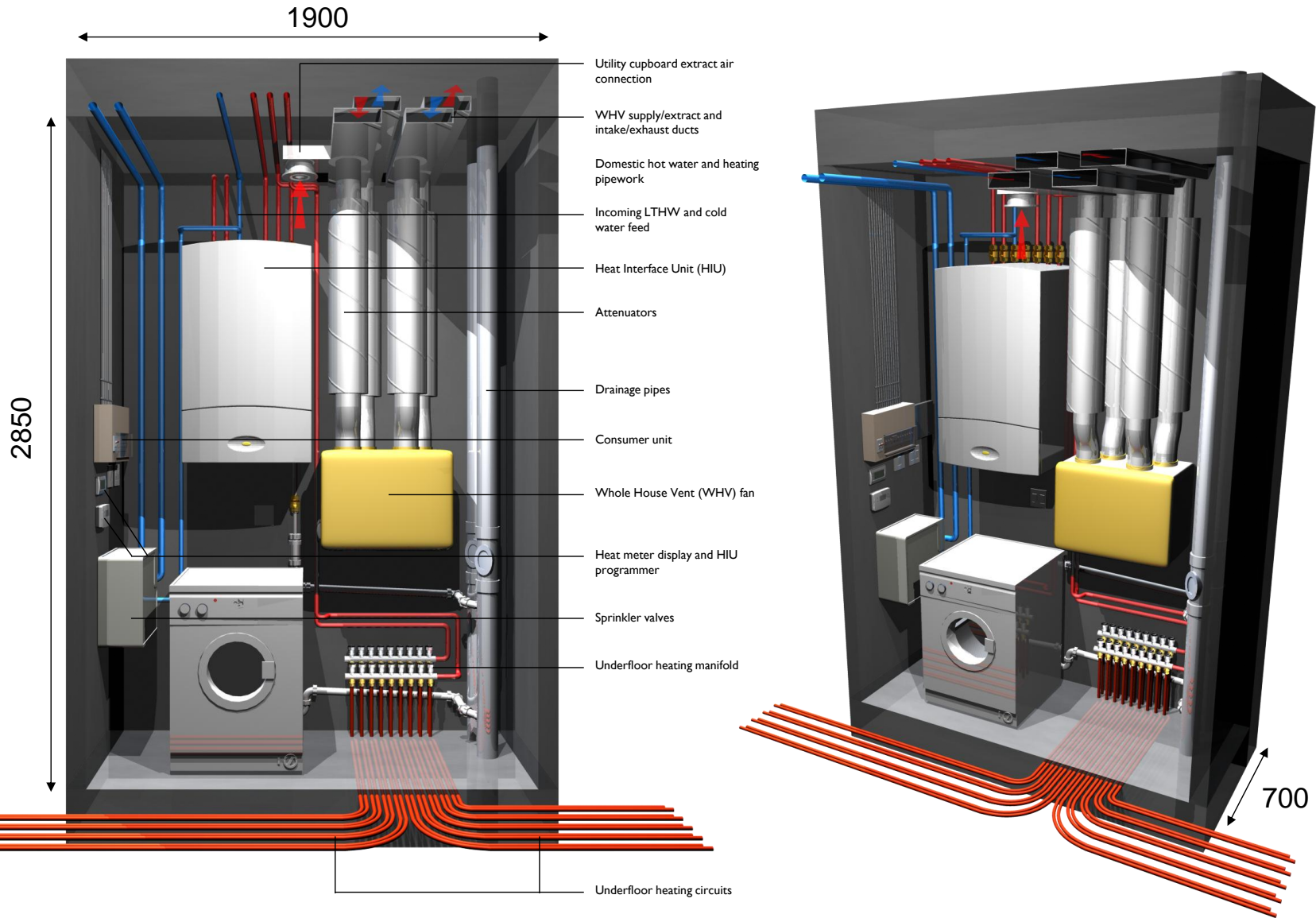


SECTION OF APARTMENT SHOWING VENTILATION PRINCIPLES

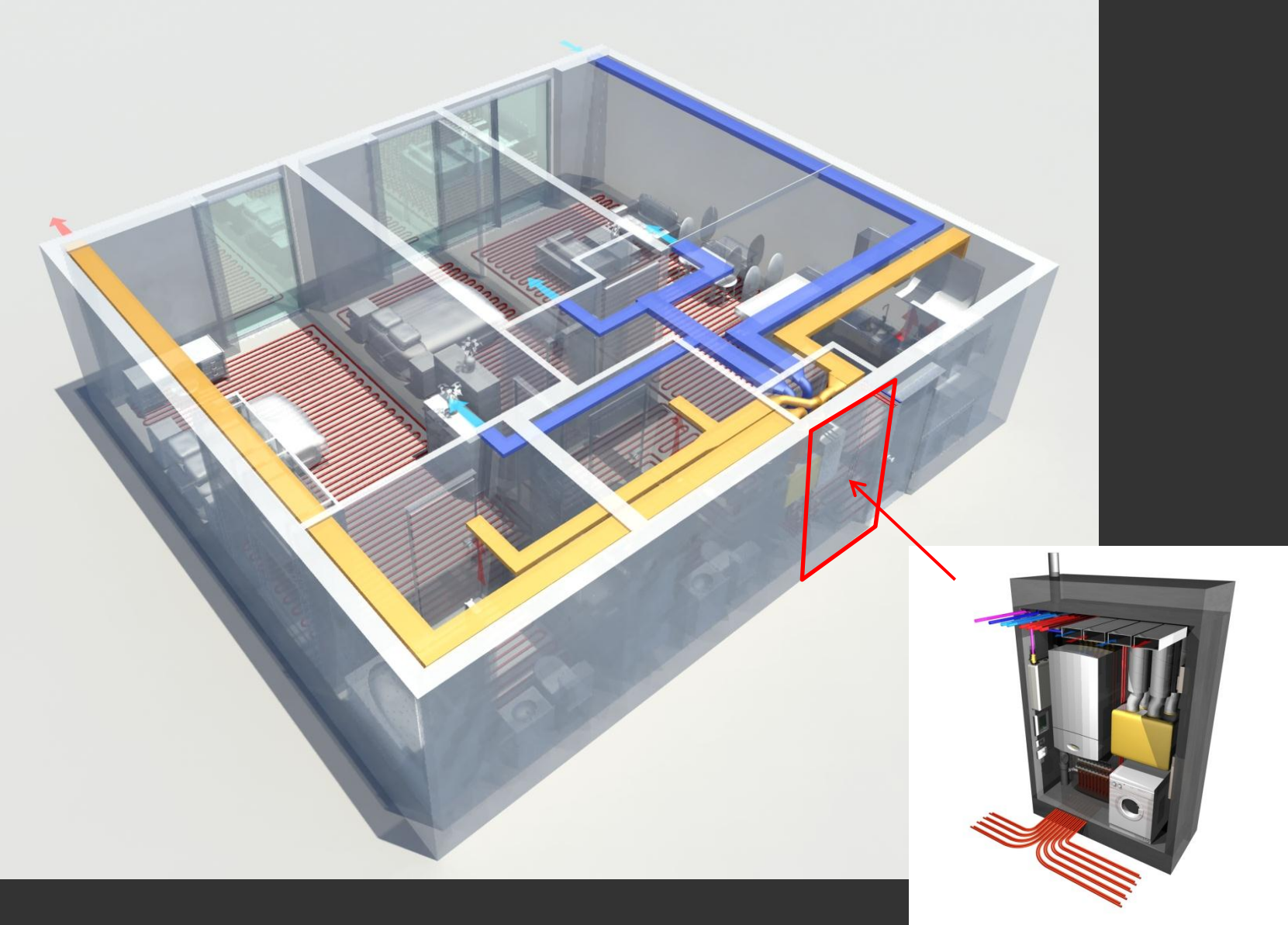
MVHR – Concept stage design



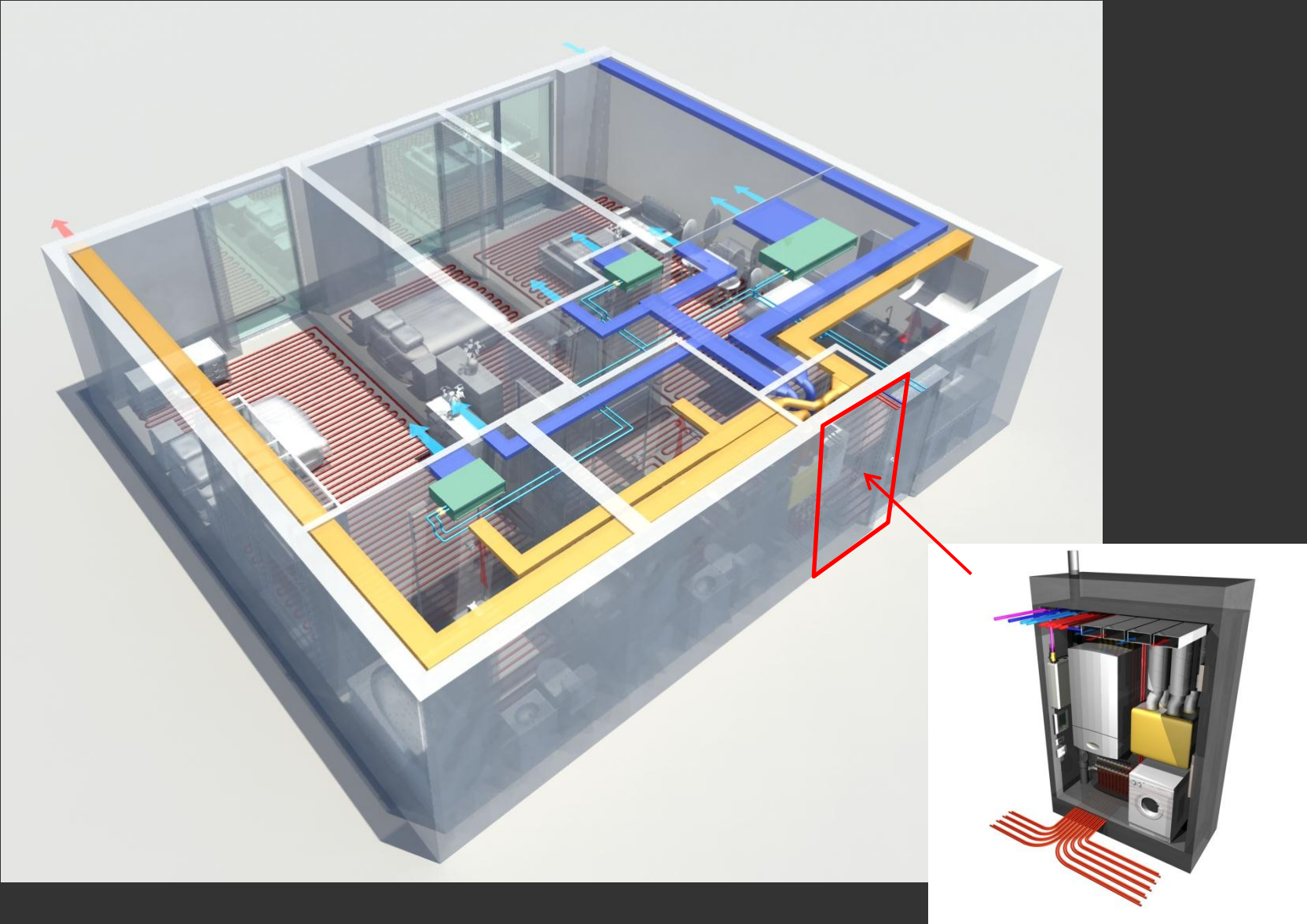
MVHR – Integration to Utility Cupboards



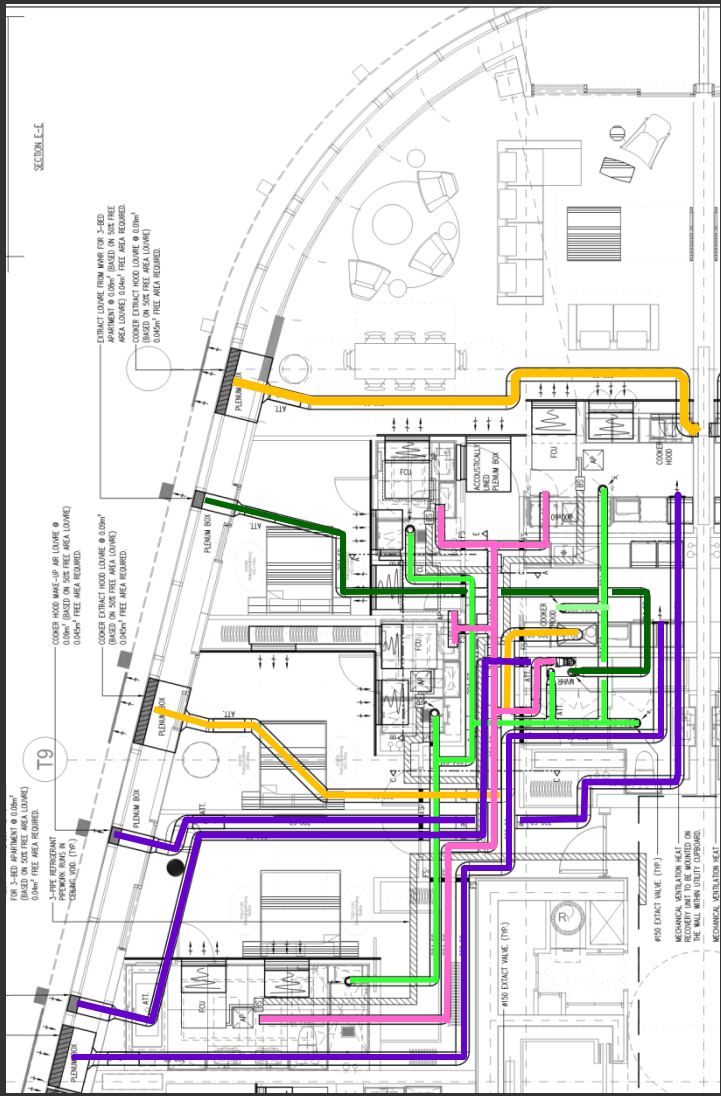
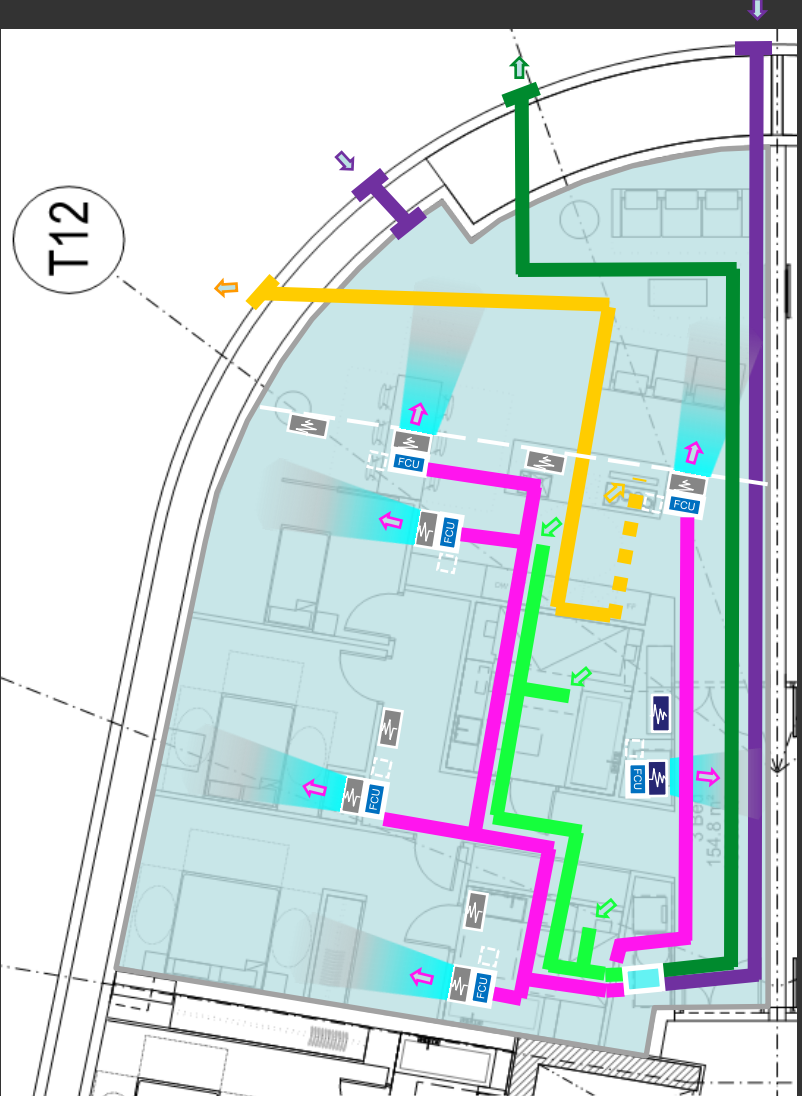
MVHR – Scheme Design



MVHR and Comfort Cooling – Scheme design



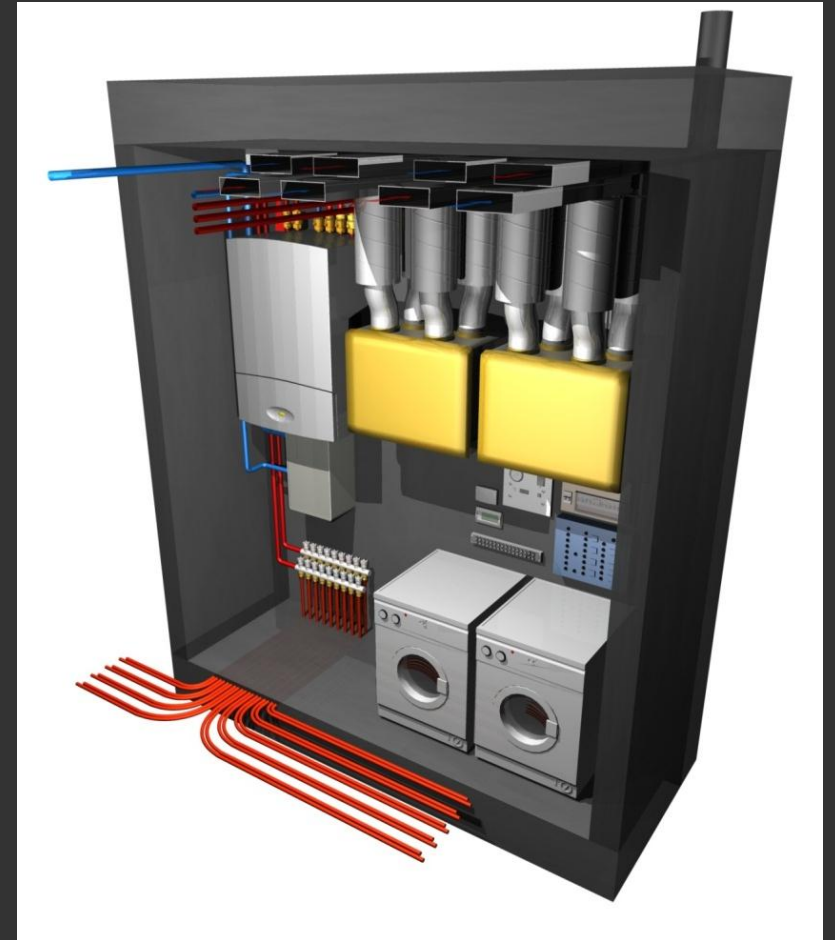
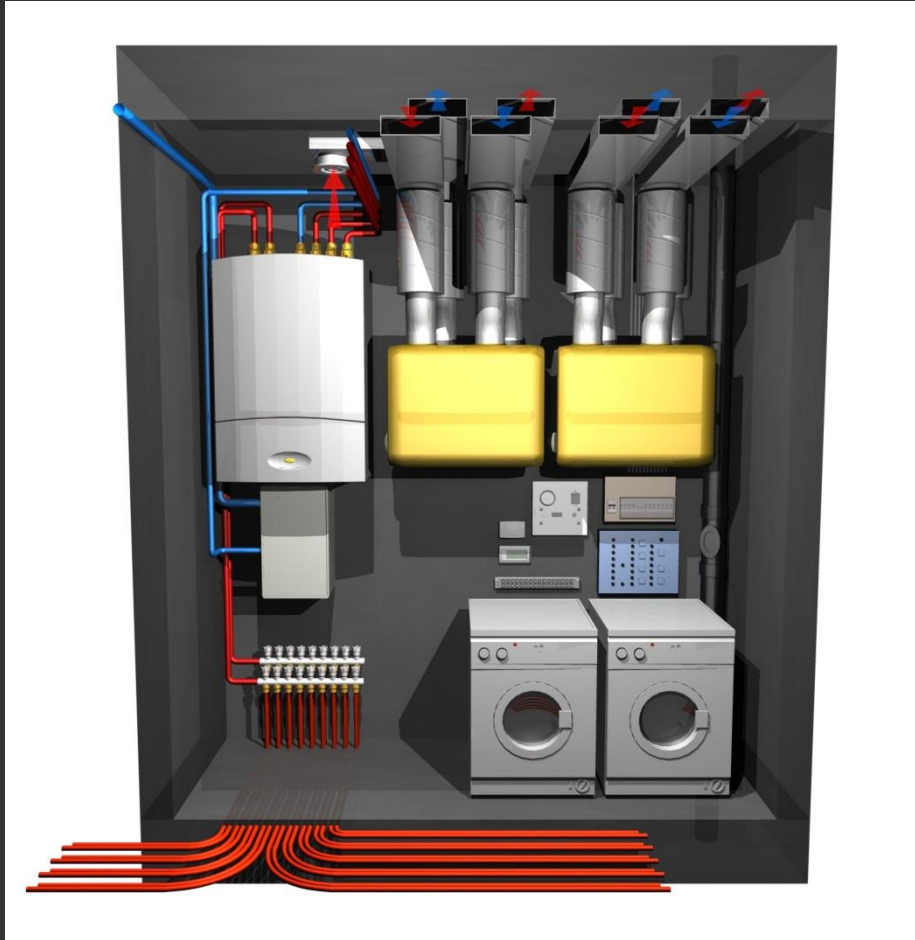
MVHR – From Concept to Detailed design



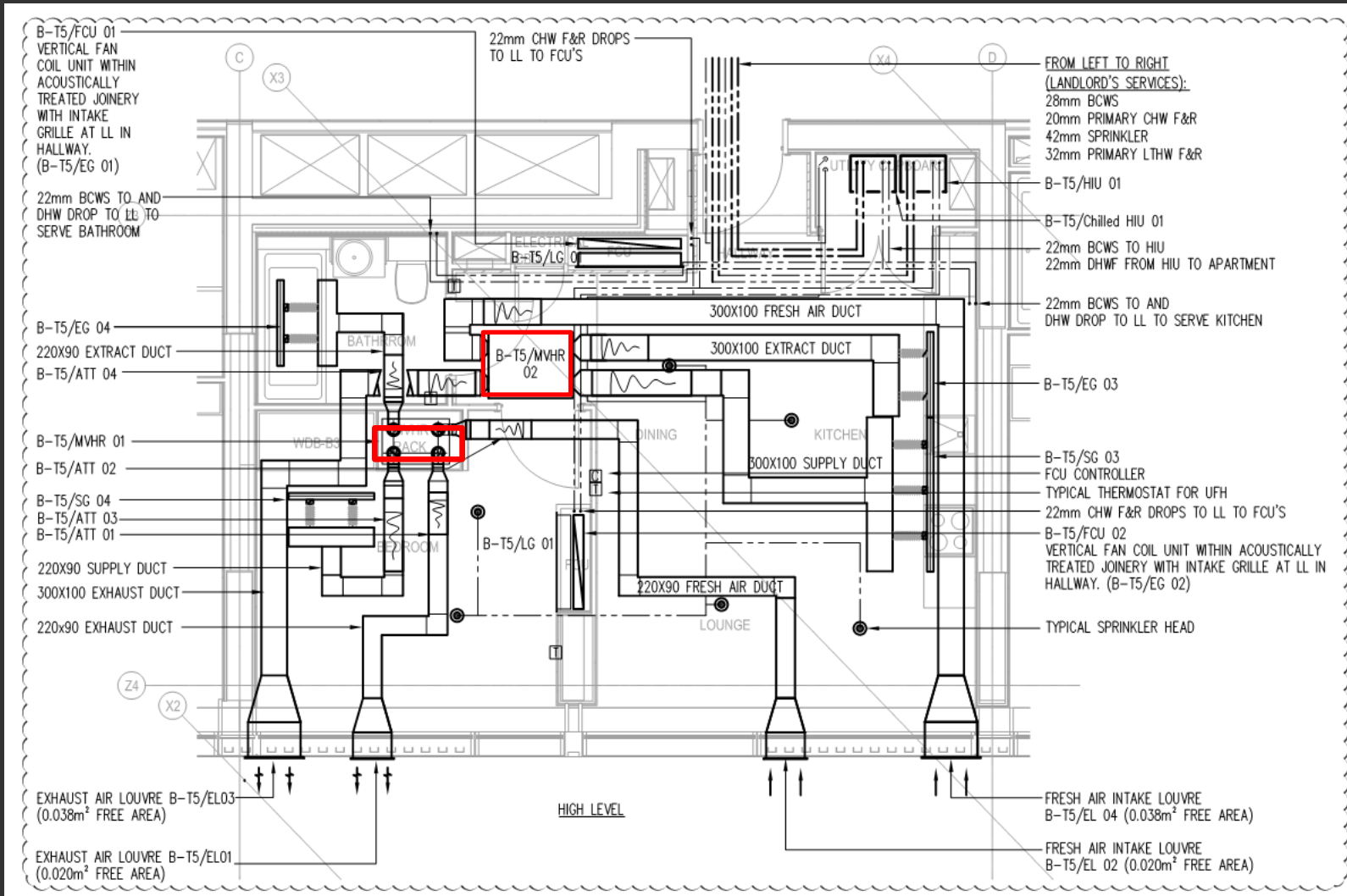
MVHR – From Detailed design to Construction



MVHR – Purge Ventilation



MVHR - Purge Ventilation



Summary

- Is there a tendency to default to MVHR on the basis that it will offer carbon reductions in the SAP calculations?
- Should we perhaps be further optimising the building design before seeking to improve carbon performance using MVHR?
- If MVHR is adopted, simple ductwork distribution is required
 - Minimise bends
 - Good separation between air intake and discharge points
 - Duct sizes will increase where MVHR is used to overcome summertime overheating.
- Positioning of the MVHR within dwellings is a key issue
 - Noise
 - Fan Capability
 - Ductwork routes
 - Ceiling void depths

Thank you
Any questions?

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