

# *Good Design Leads To Good Maintenance & The Knowledge Transfer Process*

13 October 2010  
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# *Designing with Maintenance in Mind*

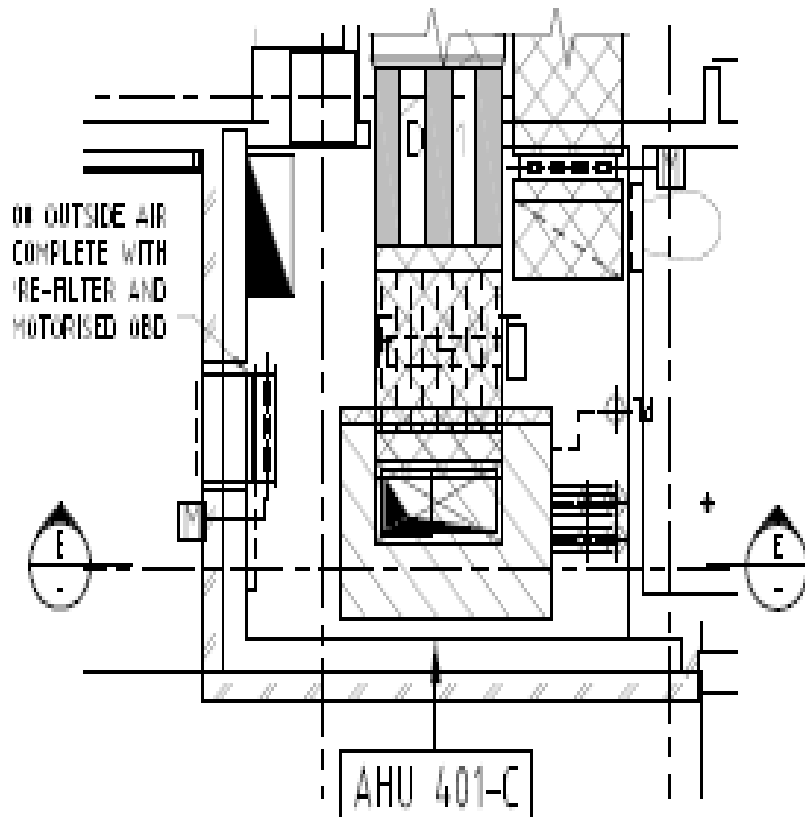
- Design Concept
- Detailed Design
- Construction and Installation
- Commissioning
- Maintenance and Building Tuning

# *Design Concept*

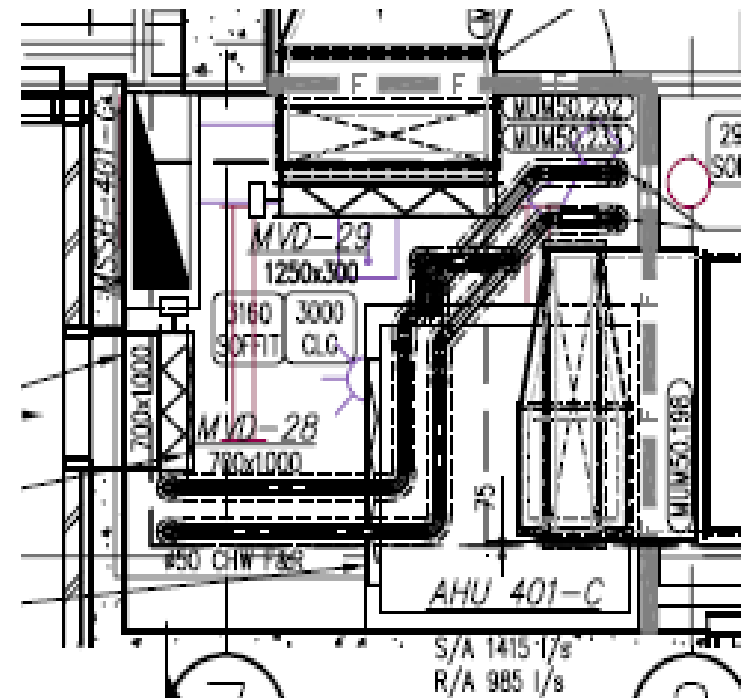
- Plantroom locations
- Adequate plantroom space
- Access for replacement parts and equipment
- Safe maintenance practices start with safe and effective designs
- Code requirements – BCA Sections J and I, Australian Standards

# Adequate Plantroom Space

## Concept Design



## Final Design



## *Detailed Design*

- Actual manufactures maintenance clearances allowed for
- Safe access to get to all plant, both height and reach
- Sufficient access panels
- Associated trades do not hinder plant access, plan and coordinate
- Common access point for multiple maintenance items

## *Detailed Design Cont.*

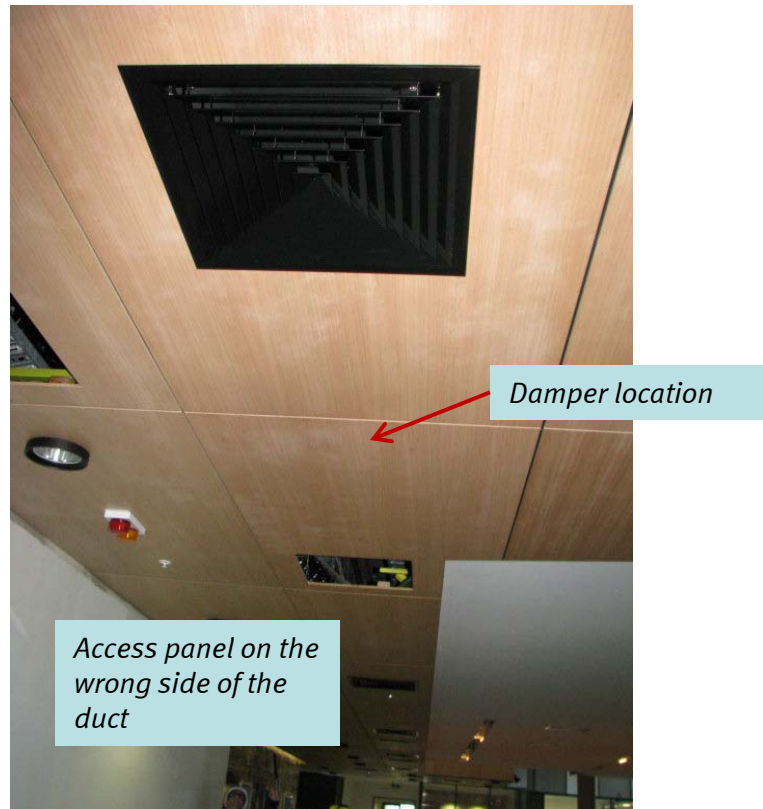
- Compilation of a detailed system operation / performance document
- Lack of information is costly and can lead to shortcuts and inappropriate maintenance activities

# *Construction and Installation*

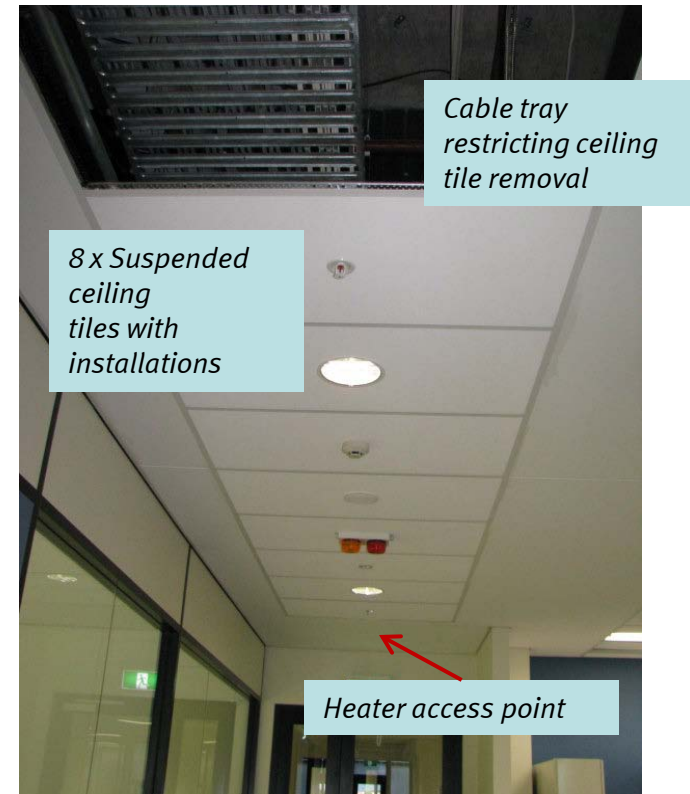
- Coordination of access panels with actual site requirements
- Progressive inspections to ensure safe and adequate access
- Education of sub contractors on the importance of trade coordination
- Changes on site need to be evaluated by relevant engineer and forwarded for site coordination

# Poor Access Examples

## Damper Access



## Heater Access





# *Commissioning*

- Commissioning staff need to audit the system being commissioned with the view point of maintenance access.
- Office fitouts can cause access issues (furniture located under access points)
- If a maintainable item does not have adequate access, it may never be maintained.

# *The Impact of Office Furniture*

*Furniture positioned  
below required  
access point*

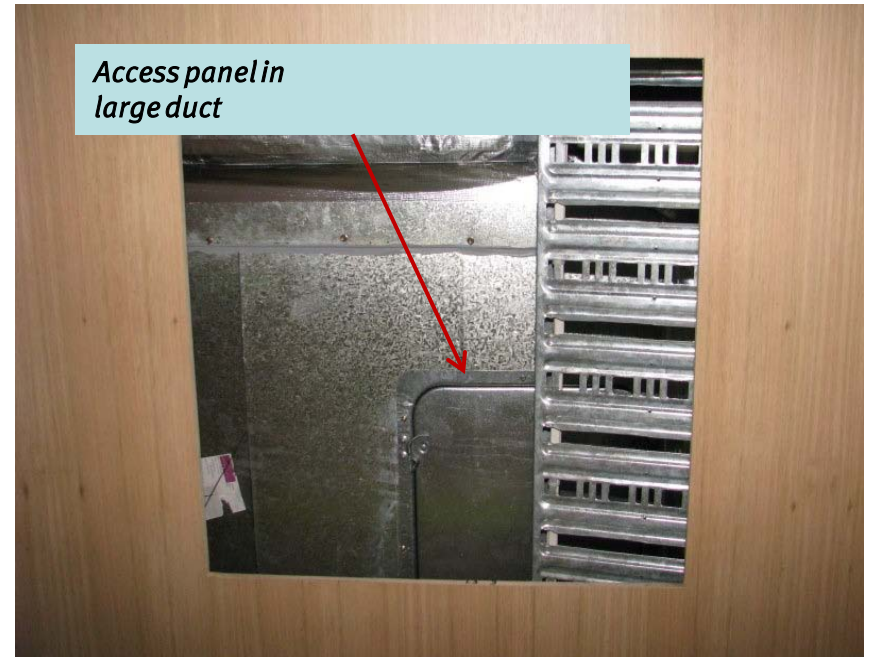


# Poor Access Examples for Commissioning

## VAV / Heater Access



## Access Panel



# *Maintenance and Building Tuning*

- Systems and fittings that were once considered once only items need continual access, i.e. water balancing valves
- Maintenance and building tuning activities need to be tracked and recorded to assist with future works, this includes changes to control strategies
- Maintenance contracts need to include a “passing of the baton” clause to reduce the risk of repeating old mistakes.

# *Information & Knowledge Transfer Process*

- Information transfer and feedback are critical steps from the design phase through to the building tuning phase
- Continual upgrade of O & M Manuals should be carried out for the life of the building, this should include a Building Tuning section.
- Green building modeling requirements need to be feed to every party involved in the operation of the building, including tenancy fitouts

# *Summary*

- Communication and coordination is critical to the successful delivery of a maintainable building.
- Adequate access is not a luxury it is a legal requirement.
- Plantrooms need to have sufficient space for the actual equipment sizes and clearances.
- Design / system performance documents are required to ensure the building operates as intended
- Facility maintenance contracts need to contain “handover and documentation” clauses.

*THANK YOU  
& Question Time*

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