

NORMAN DISNEY & YOUNG

Consulting Engineers

BUILDING SERVICES ENGINEERING

AIRAH NSW

*Building Management & Control
Systems*

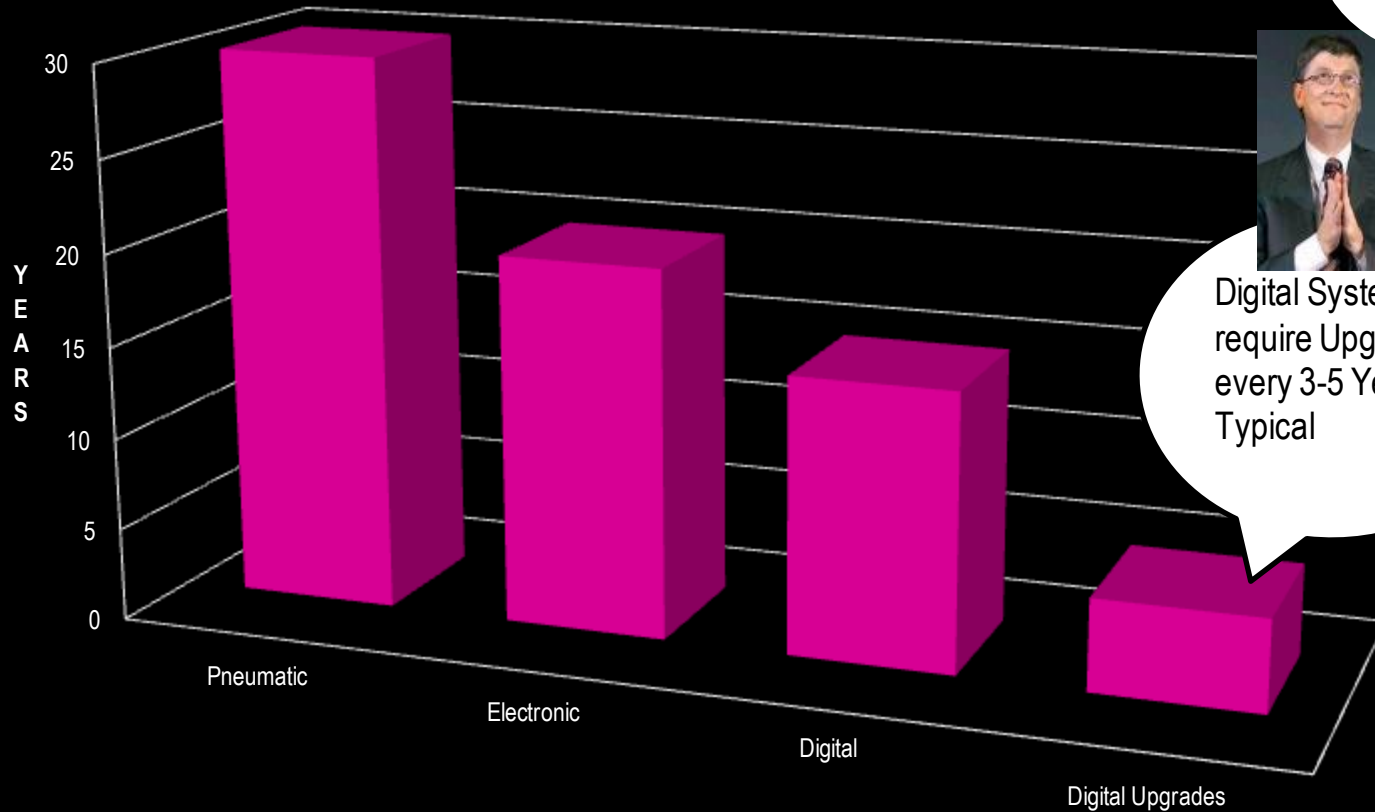
Sydney, April 2013

BMCS - Milestones

- ❑ 1970's Pneumatics
- ❑ 1980's Electronic Analogue Controls
- ❑ 1990's Digital (DDC) Controls
- ❑ 2000's Digital "Open" Systems
- ❑ 2010's What's next ?

BMS - Lifecycle

Control Systems Lifecycle



Digital Systems
require Upgrades
every 3-5 Years
Typical

Thank
You !



BMCS- Perception

AI	Analogue input	DO	Digital Output
Algorithm	A logical procedure	DEP	Digital Field Panel
AO	Analogue Output	Event	Any alarm
Binary	Digital value either 0 or 1.	Gateway	A device that translates data
BI	Binary Input.	LAN	Local Area Network.
BO	Binary Output.	LC	Local Controllers
Bridge	A device that routes messages	LON	LonWorks® Echelon communication platform
BMS	Building Management System.	Bacnet	Building Automation Control Networks
bps	Baud Rate in Bits Per Second.	PICS	Protocol Implementation Conformance Statements required for BACnet systems.
CC	Communications Controller.	Router	Device which controls message traffic based on node address and priority.
CD	Compact Disk.	SLC	System Level Controller
CI	Communications Interface.	SNVTs	Standard Network Variable Types as required for LonWorks® systems.
Cycle	One complete execution of a repeatable process.	TUC	Terminal Unit Controller.
Cycle Time	The time to execute one complete cycle	WAN	Wide Area Network.
DI	Digital Input Signal, off/on, 0 or 1.	Workstation	A networked PC with current MS Windows type operating system.
Distributed -Control	Independent of a central computer.		

BMCS- What's the issue ?



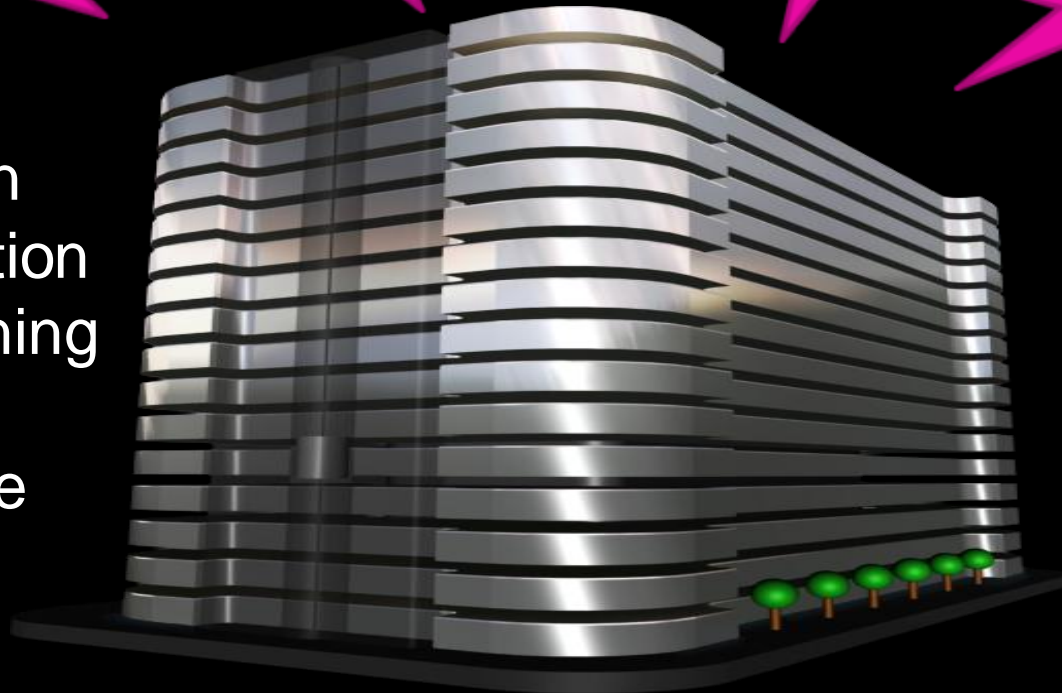
Too Hot !

Bit Warm !

Too Cold !

Too Stuffy !

- ✓ Specification
- ✓ Documentation
- ✓ Commissioning
- ✓ Training
- ✓ Maintenance



BMCS- Specification

A Building Somewhere
BMS Specification

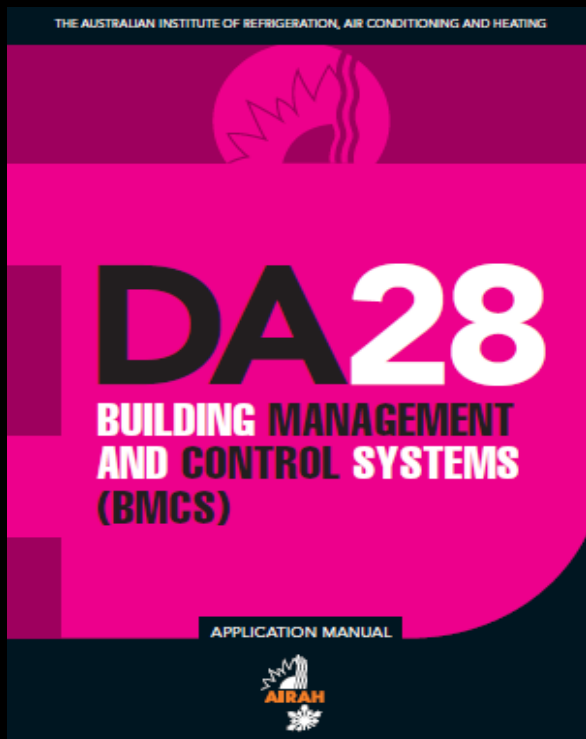
1. Scope - What's Required
2. Quality- Gold Plated or Plastic
3. Functionality – How will it work
4. *Points – Include or Exclude ?*

BMCS- Documentation



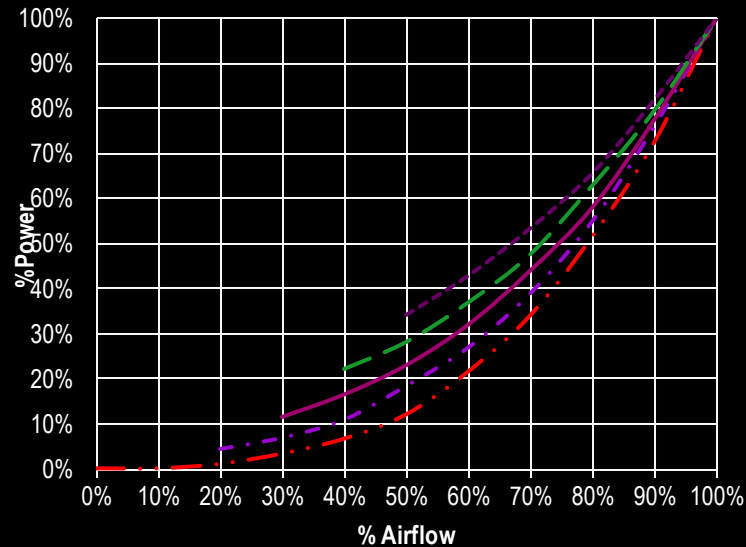
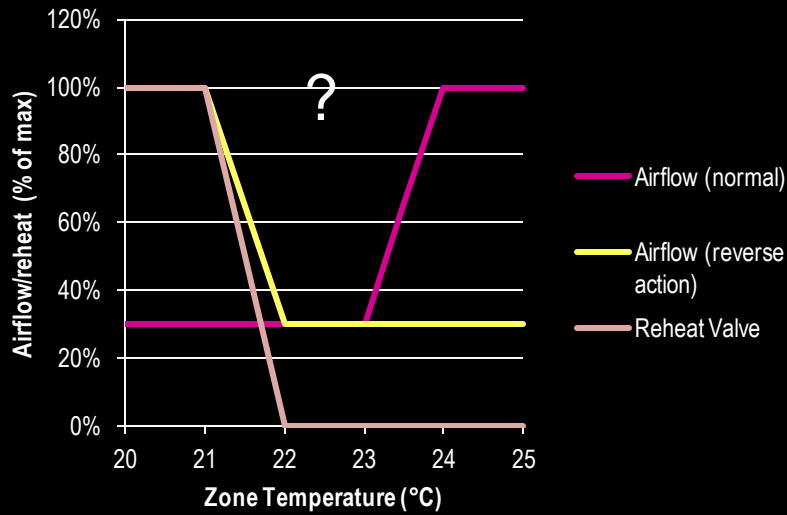
**BMS
Operational
Manual**

BMCS- Design Guide



1. Increase Understanding
2. Best Practice
3. Common Errors

BMCS -Commissioning



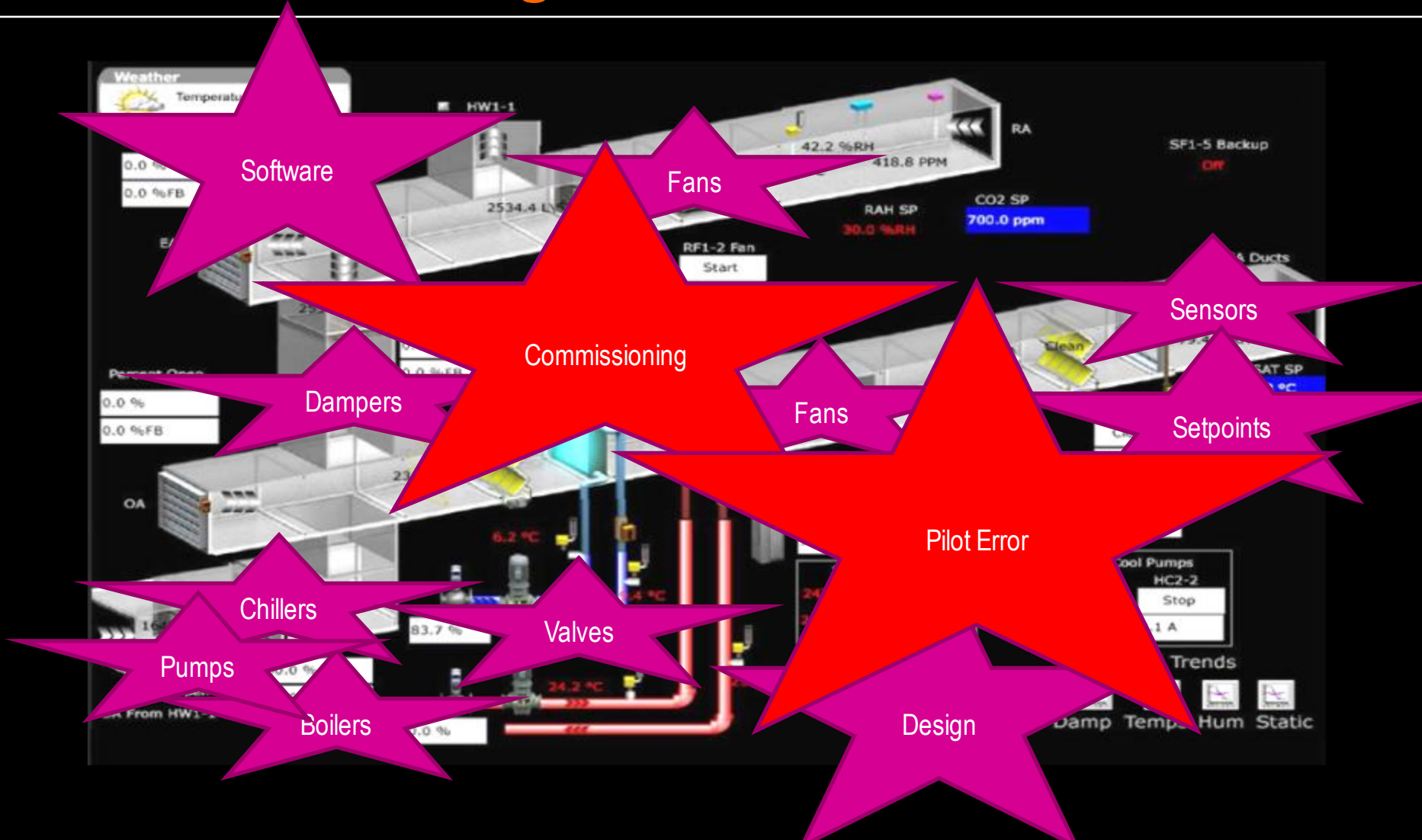
Specification – Workshop- Functional Description – Point to Point – Network – Server Hardware - Graphics – Functional

We have compressed the program.

What can you in a couple of days ?

Demonstration – Training.

BMCS -Training



BMCS - Service

Standard Maintenance Activities

- ❑ Sensor Calibration (max offset of 2) *NOT POLISHING !*
- ❑ Drive all valves, adjust stroke
- ❑ Tune Controls Loops (time consuming and often not done properly)
- ❑ *VAV Box Calibration – What's That ?*
- ❑ System Audit – backup, archive trends / alarms etc
- ❑ PC defrag and Windows tune
- ❑ Antivirus volt check and clean
- ❑ Microsoft updates
- ❑ System Updates
- ❑ Network Ping – health check

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**Thank you
Questions ?**