

USING NATSPEC TO SPECIFY BMS AND AUTOMATIC CONTROLS

INTRODUCTION

This TECHnote suggests some ways to use NATSPEC worksections to specify Building Management Systems (BMS) and automatic controls.

THE NATSPEC STRATEGY

Traditional approaches to specifying intelligent building systems have tended to produce isolated systems, for example, one to control mechanical services another to control lighting, and yet another for fire detection. The availability of open protocols means that it is now possible to combine these into a common, interoperable system in which the hardware and systems from different vendors can communicate with each other.

NATSPEC worksections are based on the use of BACnet, a non-proprietary open communications protocol. To facilitate its use in a range of services, NATSPEC uses a modular approach so that central monitoring (BMS), information technology (IT), hardware (computers, printers, etc) and cabling are dealt with in dedicated worksections that can be combined in various ways to meet project requirements while still achieving interoperability, if required.

Although NATSPEC is based on BACnet, non-BACnet systems can be accommodated by modifying individual worksections where indicated in the *Guidance* text to suit proprietary systems such as Echelon's LonWorks.

Designers must also add project-specific functional descriptions and/or control diagrams.

SUGGESTED SPECIFICATION APPROACHES

The following are suggested approaches to some common situations. They should be adapted to suit the requirements of individual projects.

Large mechanical system with central monitoring

To produce a specification for a comprehensive centralised BACnet-based direct digital control (DDC) type system, the following worksections could be used together:

0771 Automatic controls

0773 Building management systems

0961 Information and communications technology (ICT) systems

Small to medium sized mechanical system with no central monitoring

If there is no requirement for central control and monitoring, *0771 Automatic controls* will provide a comprehensive specification for hardware with the option of an easily deleted BACnet digital system controller interface clause. Since this worksection covers a wide range of systems and component types, it should, like all worksections, be edited to suit the project by deleting redundant material.

Very small or simple systems with no central monitoring

For very simple systems, *0772 Automatic controls – minor* may be suitable. Typical applications include a simple packaged air conditioning plant, simple ventilation controls or connection of a fan coil unit to an existing chilled water system.

Note: More guidance is given on building IT systems in TECHreport *TR 05 Selection and design of Building IT systems*.

Abbreviations

BMS: Building management system.

IT: Information technology.

Worksection descriptions

0771 Automatic controls

A comprehensive mechanical automatic control worksection containing hardware, software and cabling material.

0772 Automatic controls – minor

Applicable to small stand-alone automatic control systems for mechanical services.

0773 Building management systems

This includes centralised monitoring, and control and management of building services systems.

0961 Information and communications technology (ICT) systems

This includes cables and accessories, distribution frames, and earthing systems.

It should be used in conjunction with all listed relevant worksections whenever integrated block cabling and facility wiring of networks is involved.

Relevant standards

ANSI/ASHRAE 135 BACnet – A data communication protocol for building automation and control networks.

Relevant websites



www.bacnet.org

Relevant worksections

0771 Automatic controls

0772 Automatic controls – minor

0773 Building management systems

0961 Information and communications technology (ICT) systems