2009 ISO/TC205/WG3
Japan National Report for Kyoto Meeting

Activities since Delft Meeting, Some current topics on BACS in Japan, and Discussions on WG3 framework

ISO/TC205/WG3 Japan

Contents

- Activities on WG3 Part 1-4, 7 and related subjects (Nakahara)
- Part 5, 6 and some current topics on BACS in Japan (Toyoda)
- Discussions on framework of TC and WG3 (Honda)

Part-1: Project specification and implementation

Activity

- Discussions were made between Japan and CEN committee on several issues, i.e., on commissioning, terminology for completion process and design process. Mr. Hans Kranz mediated controversial points.
- Voting for DIS was made in July with comments.
- Comments include;
  - general comments from A/E BACS designer's point of view,
  - harmonize definition of commissioning between part 1 and part 2 for commissioning, commissioning process, vendor commissioning, commissioning (1) or commissioning (2),
  - still some comments on terminologies for completion phase,
  - add operative instruction to recognize BACS contribution for energy conservation and comfort environment as pre-requisite.

Part-2:Hardware, Part-3:Function, Part-4: Application and Part-7:Impact on Energy?

- **No activity since Cairo meeting**
  - **No progress has been informed from CEN on Part-4. No response was sent back for or against our fill-in clauses in the last version: 'NN Part-4 applications NN&KE-HAK 20070801.doc'.**
- **Part-4 and Part-7 in relation to Part-4**
  - **Part 4 'Applications for Room Control and Optimization' has close relations with proposed new WI Part 7 'Impact on Energy Performance of buildings'. Part 7 should be coordinated with Part 4.**
  - **Quality of the HVAC simulation programs and inputs such as yearly schedule of occupancy and internal heat generation, excellence of system design and control logics to be described in Part-4 and climate condition dominate the effect of energy saving by controls, which means a same control logic can produce different energy saving effect.**

Part-5: Data communication protocol
Part-6: Conformance testing

Activities

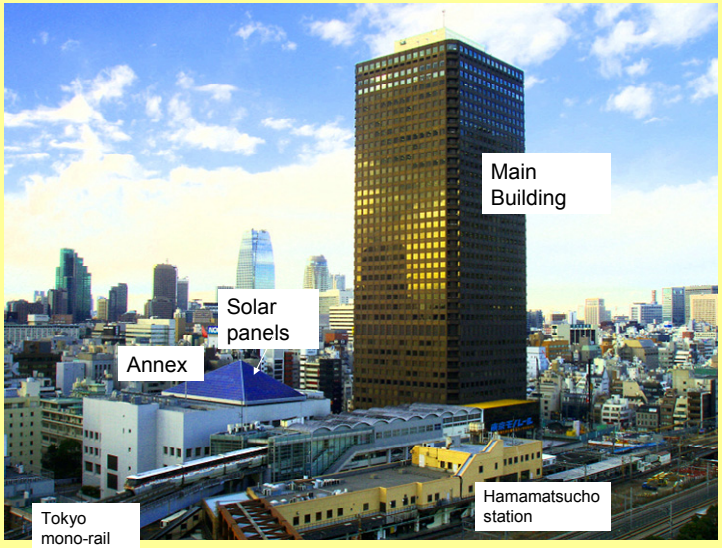
- **Three Japanese delegates of the IEIEJ attended the SSPC135 Chicago Meeting on January 24-26, and the SSPC135 Louisville Meeting on June 20-22, 2009. They reported on the activities of the IEIEJ about BACnet and discussed on talking items of each Agenda of the SSPC135.**

- **We sent the letter to ISO Technical Management Board that we completely supported the statement on "Appeal of Publication Decisions taken by ISO/IEC JTC1 (N8703, N8704, N8705, N8706)" by Mr. Stephen Turner on February 4, 2009.**

IEIEJ Activities relating BACS

- The IEEJ has issued the technical report on the structural technology of ICT-oriented on BACS based BACnet technology, such as network structure and network reliability, open communication protocol, remote data management and etc, collaborated with the members of IEIEJ at the end of January, 2009.
- The IEIEJ held 1-day seminar about new BACnet2008 on July 7, 2009 in Tokyo. About 60 BACS engineers attended this seminar to learn the outline of BACnet2008, added new objects, modified objects, ANNEX N (BACnet/WS), revised BIBB and so on. The IEIEJ has decided to translate BACnet interoperability guideline of the IEIEJ into English by the end of December, 2009 to present our actual how to use of BACnet in Japan to the SSPC135.
- Only 1 BACS manufacture in Japan has issued vendor ID since 2008 Delft meeting, and total number of vendor IDs of Japan has reached 41 as third number, next to 42 of Germany, The largest number is 157 of United States. The IEIEJ expects that more than two BACS manufactures will issue vender IDs by next 2010 meeting in Sydney.

- **The Industry Application Society of the IEEJ decided to have an industrial forum on the contribution of BACS and BACnet to energy efficiency and CO2 emission reduction of building on November 30, 2009 supported by the IEIEJ in Tokyo.**
- **Mr. Heinz Junkes of Fritz-Haber Institut visited WTCB (World Trade Center Building) on December 19, 2008 when he stayed in Japan. Mr. Takeji Toyoda and Mr. Toshiyuki Ishikawa , directors of the facilities management department of WTCB showed him the BACS renewed with the latest BACnet technology, and electrical and mechanical facilities controlled and supervised by the BACS.**



Panoramic view of WTCB

General Trends of the current BACS in Japan

- **ICT-oriented BACS has become important infrastructure as nucleus in the building over 5,000 m^2 of total floor space in Japan.**
- **Japanese government strongly supports buildings' owners who install BACS in their buildings by helping about one third of BACS installing expenses, because BACS as BEMS (Building Energy Management System) contributes realizing energy conservation and CO2 emission reduction of building and achieving the COP3 goal.**
- **Japanese government and Tokyo metropolitan government have the intention to adopt small-size BACS to small buildings which are over 2,000 m2 of total area in the near future.**
- **It has become the mainstream in BACS technology in Japan which adopts open communication technology, standardization method and multiple-vender system to share resources such as hardware, software, memory storages, functions, etc. to save development expenses and BACS price, and improve end-user merits.**

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The trends of Japanese BACS are as follows:

- Open communication protocols such as BACnet/IP, Lontalk and PLC protocol are widely adapted to BA to support multiple-vender system. BACnet/IP is chiefly used for back bone LAN of BA . Meanwhile, Lontalk is mainly used for field network of HBAC and PLC protocol such as FL-net or MODBUS used for PLC application at field level.（See sheet 10 of WG3-N245 of 2008 Delft meeting.)
- BACS is required to keep high reliability and availability in multiple-vender and general purpose computer system. To fit these requirements, many BACSs have installed the techniques realizing these high reliability and availability such as autonomous decentralized control, redundancy configuration, distributed processing and data filing, prevention against human wrong operation, and etc..
- The measure points of BACS concerned with energy consumption management have recently remarkably increased. Visualizing energy consumption data on BACS makes it clear where the problem exists and how to solve it.

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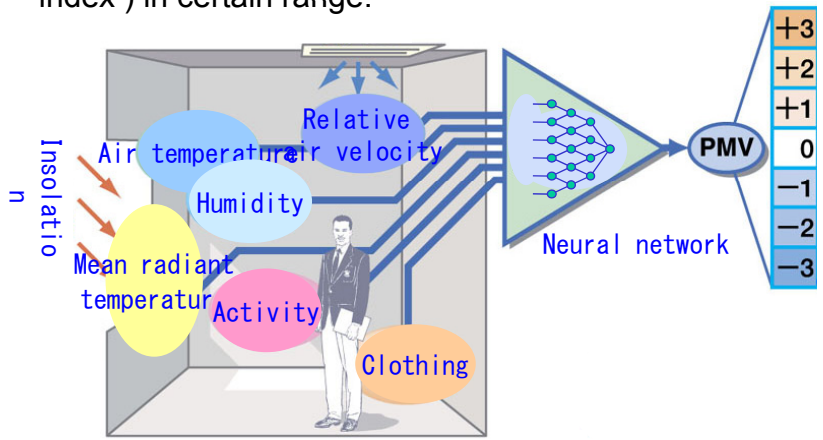
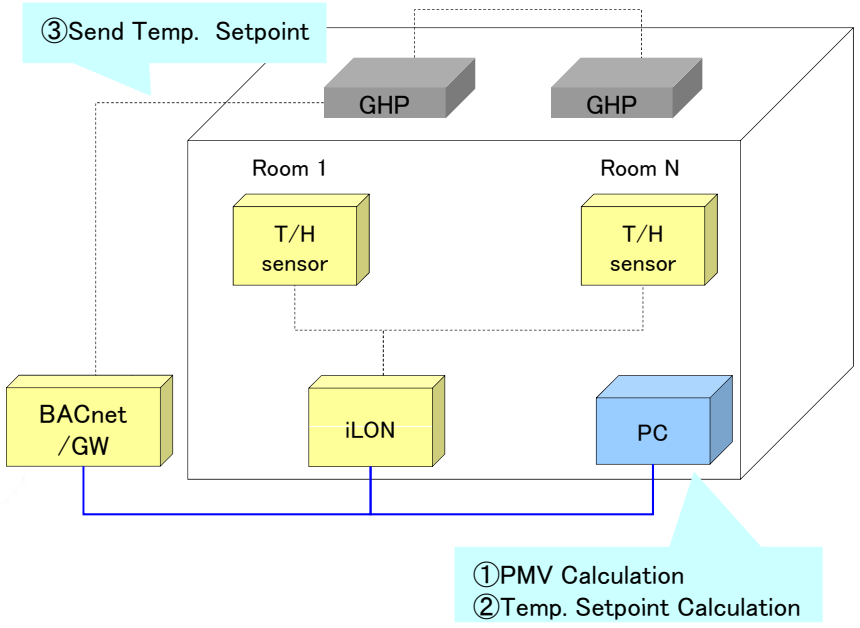
- **Advanced control theories such as PMV control combined with neural network technology are being introduced into HVAC DDC control system for total energy saving.**
- **The service to offer energy consumption data to users with web server of BACS using BACnet/WS is effective in establishing a critical mind for their energy use.**

PMV Control is used to manage a change of indoor temp. Setpoint to keep a value of PMV (the comfort index) in certain range.





Discussion on Acceptance of EN 15232 as Part 7

- **Background :**
  - EC gave Mandate to CEN for Standards to support the EPBD.
  - EN 15232 [Impact on performance of buildings] is one of 28 documents focused on energy in buildings (EPBD) .
  - EN 15232 is developed by TC247/WG which has no liaison to TC205/WG3. WG3 has had no chance to comment and discuss yet.
- **Evaluation of EN 15232 :**
  - EPBD is set to promote the improvement of EP with requirements: Calculation Framework on EP / Application of minimum EP requirements / EP certification / Inspection of Technical Systems.
  - EPBD is the driving force for BACS to be implemented for energy saving as the typical application of TC205 [Building Environment Design].
  - Performance based description led by EN 15232 will be futuristic.
- **Findings :**
  - Hard to accept EN 15232 as it is as ISO without any change in WG3. Prospective review of WG3' scope affected by AFNOR proposal [new structure] will give us a chance to evaluate EN 15232 in detail.
    - ✓ preferable: EN 13779 [Performance requirements for ventilation]

Proposal on revision of WG3 structure (rf.AFNOR)

- **New SCs and WGs based chiefly on existing Parts**
  - SC1: General design methods
  - SC2: Design methods for enhancing indoor environment
  - SC3: Design methods for enhancing energy performance
  - SC4: Design methods of building control systems
    - **WG1 Engineering Process**
      - ✓ Pt-1:Implementation and Integration
    - **WG2 Hardware、Functions and Service of BACS**
      - ✓ Pt-2:Hardware
      - ✓ Pt-3:Functions (Data-Dictionary based on device-oriented language)
      - ✓ Pt-4:Applications (D-D based on application-oriented language)
    - **WG3 Network Protocol & Interface**
      - ✓ Pt-5:Data communication - Protocol
      - ✓ Pt-6:Data communication - Conformance testing
      - ✓ Pt-X:Interface Protocol ? (Application-oriented language with DSS)
- **Objectives of restructuring**
  - Besides control based functions, Performance based requirement caused by EPBD should be clearly defined and added as rules, which support easy engineering for DSSs or decentralized Sub-Systems on energy application.