Concept, basic and detail design for HVAC system, layout and component engineering

Maintaining a stable temperature and appropriate humidity levels, HVAC plays an important role in ensuring the safety and smooth operation of nuclear plants.

Relying on more than 40 years of experience, AREVA provides you with the entire field of HVAC, ranging from system and layout engineering to HVAC component delivery (state-of-the-art design or special qualified) up to qualified refrigerating machines. We offer both, complete HVAC concepts as well as single component deliveries matching your individual operational or nuclear requirements.

Expert Knowledge in HVAC Engineering
Various designs of HVAC system solutions and detailed component solutions have been created and constructed for both new built and operating power plants. The technologies have been applied in different reactor types (such as EPR™, PWR, BWR, etc.) in all of Europe as well as in Asia and America.

Benefit from our special know-how in chiller modifications to help you meet the current requirements on safety I&C and the use of refrigerants according to international laws and requirements for exchanging them in order to protect the environment.

HVAC Purposes
- Maintain ambient conditions within acceptable limits (temperature, humidity, contamination)
- Protect the staff and equipment against specific risks from inside the buildings (anoxia, explosion, fire) and outside
- Monitor the release of air from the controlled areas in normal operation
- Contain the radioactivity released during a DBC or DEC event

System design, example of flow diagram
Three Pillars of HVAC Engineering

HVAC System Engineering
• System studies and design of all kind of HVAC systems
• Chilled water / ventilation - air conditioning / heating systems
• All design steps from conceptual design to basic design to detail design
• Elaboration of licensing documents
• Issuing of P & IDs, system description, manuals, and the commissioning, maintenance and operational manual
• Issuing of component data sheets
• Creating various reports, e.g. room condition report
• I&C and electrical engineering
• Component selection
• As-built documentation in existing NPP
• Development of tools for HVAC design (thermal dynamic calculation)
• Assistance in erection and commissioning activities as required

HVAC Layout Engineering, 3D / 2D Design
• Duct routing concepts with 2D tools, layout studies
• HVAC Layout design in the PDMS model including anchorage and support design
• Issuing of 2D duct arrangement drawings for the detail designer and/or fabrication
• Issuing of installation drawings if required
• Development of the PDMS HVAC catalogue
• Development of the PDMS tool for HVAC

HVAC Component Engineering
• Elaboration of HVAC project specifications
• Elaboration of requisition files
• Qualification of component suppliers / manufacturers
• Technical support for sub-suppliers during elaboration of standard / customized construction plans
• Clarification of interfaces (e.g. system / layout engineering, I&C and electrical topics, …)
• Checking / issuing of construction plans
• Technical clarification, discussion with customer and authority
• Functional tests at the workshop
• Component qualification with manufacturers
• Development and functional tests: temperature, pressure, radiation, aging, switching cycle
• Assistance in erection and commissioning

Your benefits at a glance:
• Overall competence in all HVAC and chilled water system engineering design steps, 2D/3D layout planning and HVAC component design including specifications for HVAC products and refrigerating machines
• One single supplier ensuring an integrated concept
• Comprehensive, long-term worldwide experience with various codes / standards
• Numerous references from the integration in already existing plants

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