STANDARDS

an American National Standard

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Data Center Design and Implementation Best Practices

BICSI®

ANSI/BICSI 002-2014

Data Center Design and Implementation Best Practices

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PREFACE

Revision History

June 18, 2010 First publication of this standard, titled BICSI 002-2010, *Data Center Design and Implementation Best Practices*

March 15, 2011 Revision of BICSI 002-2010 published as ANSI/BICSI 002-2011, *Data Center Design and Implementation Best Practices*

Major revisions include:

- Addition of Section 9, *Electrical*
- Addition of Section 14, *Telecommunications*

Minor revisions include: definitions, updating of graphics for printing and readability, other editorial corrections

December 9, 2014 Revision of ANSI/BICSI 002-2011 published as ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices*

Major revisions include:

- Revision of Class F0 – F4 electrical infrastructure, including the removal of the requirement for a second power utility connection in Section 9, *Electrical*.
- Revised telecommunications Availability Classes C3 and C4 concerning the redundancy of main and horizontal distributors in Section 14, *Telecommunications*.
- Added, expanded and revised Availability Class structure to mechanical, telecommunications and network infrastructure (see Sections 9, 14, and 15 respectively).
- Addition of Appendix C, *Alignment of Data Center Services Reliability with Application and System Architecture*.
- Addition and revision of content for modular and containerized data centers in Section 6, *Space Planning* and Section 9, *Electrical*.
- Introduced content on DCIM and renamed Section 13 to *Data Center Management and Building Systems.*
- Expanded content regarding DC power and safety in Section 9, *Electrical.*
- Addition of hot and cold aisle containment in Section 6, *Space Planning* and Section 11, *Fire Protection*.
- Added and expanded content regarding designing for energy efficiency in multiple sections and added Appendix G, *Design for Energy Efficiency*.
- Addition of Appendix D, Data Center Services Outsourcing Models.
- Addition of Appendix E, Multi-Data Center Architecture.
- Updated cabinet door air flow and cable capacity calculations in Section 14, *Telecommunications.*

Minor revisions include:

- Moved former Section 5, *Space Planning* to directly after former Section 6, *Site Planning.*
- Restructuring of Section 5, *Site Planning*, Section 14, *Telecommunications*, and Section 16, *Commissioning.*
- Expansion of content to reflect both new and international design practices.
- Revisions to Appendix B, *Reliability and Availability*, to accommodate extension of availability classes.
- Update Section 8, *Structural*, to align with revisions to the *IBC* and related standards.

<*List continues on next page*>

- Updated Section 10, *Mechanical*, to reflect expanded ASHRAE guidelines for temperature and humidity.
- Updated Section 11, *Fire Protection* section to reflect changes in NFPA 75 and NFPA 76.
- Updated Section 14, *Telecommunications*, to reflect updates to ISO, TIA, and CENELEC data center cabling standards including cable types (removed OM1 and OM2, recommend OM4, added Category 8) and addition of intermediate distributor.
- Revised content regarding zinc whiskers and moved to Section 7, *Architectural*.
- Added content on testing equipment, system testing, acceptance testing, equipment operations and maintenance manuals, and system training to Section 16, *Commissioning*.
- Revised and moved system availability information to Appendix B, *Reliability and Availability*. (content formerly in Section 17, *Maintenance*).
- Added new content on maintenance plans and service contracts in Section 17, *Maintenance.*
- General content relocation and editorial corrections to improve readability and reduce ambiguity.

Document Format (Usability Features)

This standard has the following usability features as aids to the user:

- Additions and changes, other than those for editorial purposes, are indicated with a vertical rule within the left page margin.
- Deletion of one or more paragraphs is indicated with a bullet (•) between the content that remains

NOTE: The relocation of content, within or between sections (e.g., Section 5, *Site Selection* and Section 6, *Space Planning*), due to structure, readability, or content alignment is not indicated.

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