Telecommunications Distribution Methods Manual

Fourteenth Edition
VOLUMES I & II

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Telecommunications Distribution Methods

M A N U A L

14th Edition

Volume 1

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The contents of this manual are subject to revision without notice due to continued progress in information and communications technology (ICT) methodology, design, and manufacturing.

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Thank you for ordering the *Telecommunications Distribution Methods Manual*, 14th edition. Please place the chapter tabs and appendix tabs in front of the title page for each chapter and appendix.

The section tabs should be inserted in front of the following pages:

Chapter 5: Horizontal Distribution Systems

Chapter 21: Project Administration and Execution

Chapter 22: Special Design Considerations

This publication is not a single source document but a compendium of many sources of information and communications technology (ICT)-related practices, processes, and procedures.

The information contained in this publication includes, but is not limited to, national and international codes, de jure and de facto standards, and industry-accepted best practices terminology. All source information can be found in Appendix A: Codes, Standards, Regulations, and Organizations and the Bibliography section of this manual.

BICSI® recommended best practices are industry established best practices and not specifically developed by BICSI. When necessary, BICSI will select and recommend widely used and acceptable methods for the performance of a particular task or process based on numerous factors, including, but not limited to, widespread field acceptance, manufacturer's recommended methods, and safety.

WARNING

It is the responsibility of the user of this manual to determine the use of the applicable safety and health practices (e.g., in the United States, Occupational Safety and Health Administration [OSHA], *National Electrical Code*® [*NEC*®], *National Electrical Safety Code* [*NESC*®]) associated with ICT installation and design practices. BICSI shall not be liable to the purchaser or any other entity with respect to any liability, loss, or damage caused directly or indirectly by application or use of this manual. No project is so important nor any completion deadline so critical to justify nonconformance to ICT industry standards. This publication does not address safety issues associated with its use. It is the ICT industry professional's responsibility to use established and appropriate safety and health practices and to determine the applicability of all regulatory issues.

New *TDMM* is the Blueprint for the Modern ICT Industry

Greetings and welcome to the brand new 14th edition of BICSI's flagship manual, the *Telecommunications Distribution Methods Manual* (*TDMM*)—the blueprint for the modern ICT industry! I have relied on the *TDMM* over many years in my day-to-day duties as a senior-level Telecommunications Engineer and even participated in the review cycle for the 13th edition, but this new edition has special meaning as I was tasked with being the Publication Subject Matter Expert Team Leader responsible for overseeing its creation.

Given the rapidly changing world of ICT, creating a thorough, current reference manual can be a challenge. Fortunately, the volunteer review team was nothing short of outstanding. Representing all facets of the ICT industry from around the world, and collectively having more than 500 years of experience, the team worked diligently and consistently to review the current material. The result is a reference manual that is accurate, current, and compliant with applicable codes and standards.

This edition also is notable for several firsts as it concerns BICSI reference manuals.

One, this is the first publication to have its content "modularized." While it has not changed the physical presentation of the technical material within the manual, this initiative has resulted in several improvements to the manual review and development process. These include easier editing, streamlined adding/updating of material, better version control, and the ability to have material readily available to use in other related BICSI publications.

Two, this edition of the *TDMM* has been fully mapped to the requirements contained within the RCDD Job Tasks Analysis (JTA) document. The JTA forms the basis for determining the qualifications to hold the RCDD credential. The JTA is used not only to provide the roadmap for the required content within the *TDMM*, but also determines the RCDD credential exam scope and the various BICSI training programs that support the RCDD credential. From the beginning of the review cycle through to the final Editorial Review, the team ensured that all the requirements within the JTA were identified and satisfactorily addressed within the manual content.

Some of the updates in this 14th edition include:

1. Additions to reflect the latest applicable codes, standards and regulations.
2. A revised chapter to more clearly outline the ICT designer's role in project design and execution as part of overall project management.
3. A new section covering Disaster Recovery and Risk Management incorporated with Project Administration and Execution.
4. A new chapter on Special Design Considerations to address premises other than typical commercial types.
5. Expanded Power over Ethernet content (e.g., power source, link layer discovery protocol) with new figures and tables.
6. A new section on Circuit and Pathway Designations that covers Classes (e.g., Class A, B, C) and Levels (e.g., Level 0, 1, 2) with additional figures.

7. Added information on Category 8 copper and OM5 multimode optical fiber cables per the applicable TIA standards, and specifications that OM1 and OM2 multimode fiber are now to be used to expand existing installations only.
8. Updated information in chapters related to Health Care, Wireless Networks, Electronic Safety and Security, Data Centers, Building Automation Systems, Outside Plant, and Audiovisual Systems to reflect latest technologies and methods.

Development of the 14th edition of the *TDMM* was truly a TEAM effort. There are two groups that were instrumental in this regard, and I cannot thank them enough for their time, dedication, effort, help, and guidance in the production of this edition of the *TDMM*.

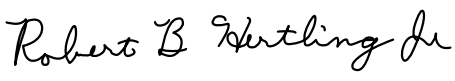
The first is the dedicated volunteer Chapter/Section Subject Matter Expert Team Leaders and their respective Subject Matter Expert team members, many of whom are members of the BICSI Technical Information and Methods Committee, and the volunteer members from the BICSI Registration and Credentials Supervision Committee who assisted with the review of the manual material for compliance with the RCDD JTA document.

The second is the BICSI staff members from the Professional Development, Publications, Standards, Credentialing, and Administrative departments and groups within the BICSI organization. These individuals were indispensable in supporting and guiding the volunteers with logistics, oversight, and the necessary work to create a professional, user-friendly, and valuable publication for the ICT industry. Much of this work is invisible to many within the BICSI membership, but the dedication of the staff members to BICSI and its members is beyond phenomenal and is truly a labor of love on their part.

Whether you are just beginning your career in the ICT industry or are a seasoned veteran, I hope you will find this 14th edition of the *TDMM* a useful addition to your reference materials. As always, feedback from you, good and bad, on the scope and content of the *TDMM* is most certainly welcome! If you feel you can be a contributor to the content of this and other BICSI publications, then I urge you to volunteer as a Subject Matter Expert and add your skills, knowledge, and experience to the group that produced this manual.

Lastly, I would like to thank my grandfather and father, who were career members of the telephone industry, starting with the old Bell System and ending with Verizon. Their interest in sharing, teaching, and mentoring me in the various facets of the industry over the years has provided me with a roadmap in all facets of my ICT career from Lineman, Installer, Crew Chief, Trainer, and Senior Design Engineer. Their legacy is the reason for my enthusiasm and success within both BICSI and the ICT industry over the years.

All the Best,



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Vice-Chair, BICSI Technical Information and Methods Committee

Acknowledgments

BICSI's Technical Information and Methods (TI&M) Committee serves to coordinate the information within all of BICSI's technical publications. BICSI officers, membership, and Publications staff wish to thank the TI&M Committee and its many volunteer contributors who helped in the development of the fourteenth edition of BICSI's *Telecommunications Distribution Methods Manual* (*TDMM*).

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