

BICSI Professional Development Catalog



Training, Publications and Credentialing from the Global Leader
in Information and Communications Technology Education

Bicsi[®]
July 2018

Don't Stop Learning. We Won't Stop Teaching.

Information and communications technology (ICT) stands still for no one.

In fact, ICT applications, concepts and methods advance at such a rapid speed, it can be difficult to keep up. That's where professional development with BICSI® comes in. We give you the tools you need to stay in the know.

Whether you are new to the ICT community, or have been in the field for many years, your learning should never stop. BICSI offers training, technical publications, credentialing programs and conferences to help you grow professionally. Our courses, manuals and credentials are built by subject matter experts and highly qualified industry leaders who understand the fast-paced evolution of ICT and make it a priority to keep on top of the latest developments and innovations. Let us share this knowledge with you, and guide you along an educational path that will strengthen your career.

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BICSI Vision Statement

BICSI is the worldwide preeminent source of information, education and knowledge assessment for the constantly evolving information and communications technology industry.

BICSI Mission Statement

BICSI's Mission is to:

- + Lead the information and communications technology industry with excellence in publications, education and knowledge assessment.
- + Advance our members' ability to deliver the highest quality products and services.
- + Provide our members with opportunities for continual improvement and enhanced professional stature.

NEWLY REVISED! BICSI OUTSIDE PLANT DESIGNER PROGRAM

Underground, Direct-Buried and Aerial Cable Plant Design and Installation

New Courses, New Manual and New Exam. See pages 40-45.

BICSI ICT Industry Career Paths

Choose Your Direction

There are many specialized areas within the ICT industry, each one requiring a unique knowledge base and skillset. BICSI provides a variety of programs to guide you along your chosen career.

Cabling Installation Program: The goal of BICSI's Cabling Installation Program is to produce highly competent cabling installers. The program offers core skills training at varied levels of increased knowledge and experience. Certification and credentialing examinations are available for each level. Skills taught include conducting site surveys, pulling wire/cable and terminating and testing copper & optical fiber to the highest level of specification.

Cabling Installation

INSTALLER 1 PROGRAM

The Installer 1 Program provides the fundamentals of cabling installation, including introductory knowledge and basic skills. An exam is offered to those who wish to earn the Installer 1 certificate.

Individuals who commonly take part in the Installer 1 Program include:

- + Those looking for a career in cabling installation
- + Individuals with little or no cabling experience who want to know more about cabling installation
- + Candidates preparing for the Installer 1 exam

Suggested Training & Study Materials:

- + IN101: Installer 1 Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*

bicsi.org/installer1

Pages 12-14, 24-26

Cabling Installation

INSTALLER 2, COPPER PROGRAM

The Installer 2, Copper Program provides an overview of transmission principles related to copper, professionalism, safety and industry best practices. Those who hold this credential have shown that they can effectively perform all installation tasks, specific to copper.

Individuals who commonly take part in the Installer 2, Copper Program include:

- + Installers seeking to expand their knowledge and learn new copper installation skills
- + Level 1 Installers seeking the Installer 2, Copper credential
- + Candidates preparing for the Installer 2, Copper exam

Suggested Training & Study Materials:

- + IN101: Installer 1 Training
- + IN225: Installer 2, Copper Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*

bicsi.org/in2copper

Pages 12, 15-17, 24-26

“As a small business owner, I find that BICSI credentials bring a lot of credibility.”

Jose G. Martinez, TECH, A Plus Datacom, Portage, Indiana, USA

Cabling Installation

INSTALLER 2, OPTICAL FIBER PROGRAM

The Installer 2, Optical Fiber Program provides an overview of transmission principles related to optical fiber, professionalism, safety and industry best practices. Those who hold this credential have shown that they can effectively perform all installation tasks, specific to optical fiber.

Individuals who commonly take part in the Installer 2, Optical Fiber Program include:

- + Installers seeking to expand their knowledge and learn new optical fiber installation skills
- + Level 1 Installers or Level 2, Copper Installers seeking the Installer 2, Optical Fiber credential
- + Candidates preparing for the Installer 2, Optical Fiber exam

Suggested Training & Study Materials:

- + IN101: Installer 1 Training
- + IN250: Installer 2, Optical Fiber Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*

bicsi.org/in2fiber

Pages 12, 18-20, 24-26

Cabling Installation

TECHNICIAN PROGRAM

The Technician Program prepares individuals to become team leaders in the field. Technicians demonstrate effective project management skills, which include adapting and adjusting to overcome issues that arise during installation. BICSI Technicians are well prepared to move into design or continue to advance in ICT project management.

Individuals who commonly take part in the Technician Program include:

- + Highly experienced cabling installers who oversee the planning and management of installation projects
- + Installers seeking to expand their knowledge and learn advanced copper and optical fiber installation skills
- + Candidates preparing for the Technician exam

Suggested Training & Study Materials:

- + IN101: Installer 1, Training
- + IN225: Installer 2, Copper Training
- + IN250: Installer 2, Optical Fiber Training
- + TE350: Technician Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*

bicsi.org/technician

Pages 12, 21-26

"I honestly don't know where I would be today had I never discovered BICSI or taken advantage of all the training classes and certifications, especially the RCDD. Thanks to BICSI, my family and I can relax and enjoy my retirement and financial security."

Terry Colegrove, RCDD, NTS, OSP, WD, Retired,
Communication Infrastructure Designs, Inc., St. Charles, Illinois, USA

Communications Distribution Design

RCDD PROGRAM

The Registered Communications Distribution Designer (RCDD®) is the most prestigious of all BICSI credentials. RCDDs have demonstrated the ability to design, integrate and implement ICT and related infrastructure components and apply their knowledge to any industry or application.

RCDDs can be found at the highest levels of the ICT industry and include:

- + Planners, designers and operators
- + ICT designers and integrators
- + IT campus and facility managers
- + Technical and executive management
- + ICT field and sales engineers

Suggested Training & Study Materials:

- + DD101: Foundations of Telecommunications Distribution Design (online)
- + DD102: Designing Telecommunications Distribution Systems
- + RCDD Test Preparation Course (online)
- + TDMM Flash Cards (online)
- + *Telecommunications Distribution Methods Manual (TDMM)*

[bicsi.org/rcdd](https://www.bicsi.org/rcdd)

Pages 27-33

Data Center Design

DCDC PROGRAM

Data centers are at the heart of the digital age and can be quite complicated. The BICSI Data Center Design Consultant (DCDC) is awarded to those individuals who demonstrate knowledge across all facets of data center design, including mechanical, electrical and ICT systems.

DCDCs can be found at all levels of the ICT industry and include:

- + Data center planners and designers
- + Construction managers
- + Operations managers
- + Systems and equipment integrators

Suggested Training & Study Materials:

- + DC101: Introduction to Data Center Design (online)
- + DC102: Applied Data Center Design and Best Practices
- + DCDC Test Preparation Course (online)
- + ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices*

[bicsi.org/dcdc](https://www.bicsi.org/dcdc)

Pages 34-39

“The BICSI classes I have taken in both the design and installation of ICT systems have made me a more knowledgeable, valuable and respected participant in our industry. BICSI training is an invaluable resource.”

David Levine, RCDD, HellermannTyton, Milwaukee, Wisconsin, USA

NEWLY REVISED!
Outside Plant Designer Program

OSP DESIGNER PROGRAM

Outside plant (OSP) makes up a huge part of our global telecommunications infrastructure. **OSP Designers** demonstrate knowledge in OSP technology and the ability to design aerial, underground and direct-buried infrastructures that connect buildings to ICT systems.

OSP Designers can be found at all levels of the ICT industry and include:

- + ICT designers and integrators
- + Data center planners, designers and operators
- + IT campus and facility managers
- + OSP field and sales engineers

Suggested Training & Study Materials:

- + **NEW!** OSP101: Introduction to Outside Plant Design
- + **NEW!** OSP102: Applied Outside Plant Design
- + **NEWLY REVISED!** *Outside Plant Design Reference Manual (OSPDRM)*

bicsi.org/osp

Pages 40-45

Telecommunications Project Management

RTPM PROGRAM

Within ICT, every additional system using the network requires another level of coordination—this includes installation and system testing phases, as well as overall commissioning. The **Registered Telecommunications Project Manager (RTPM)** demonstrates knowledge in project management concepts and tools in the ICT industry, critical to the outcome of any successful project.

RTPMs can be found at all levels of the ICT industry and include:

- + Project managers and coordinators involved with ICT systems
- + Installation lead technicians and crew supervisors
- + ICT systems integrators and commissioning agents
- + Site and facility construction personnel

Suggested Training & Study Materials:

- + PM102: Applied Telecommunications Project Management
- + *Telecommunications Project Management Manual (TPMM)*

bicsi.org/rtpm

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BICSI Learning Academy

So Many Ways To Learn



BICSI
LEARNING ACADEMY

BICSI Learning Academy is the ICT industry's premier source for learning and development. BICSI Learning Academy provides high-quality, in-depth training through a variety of delivery channels: BICSI World Headquarters, BICSI Local and BICSI CONNECT, as well as BICSI webinars and BICSI Virtual Instructor-Led Training. By offering multiple training options, individuals can acquire relevant and timely knowledge and skills, and also earn continuing education credits (CECs) to maintain certifications, from all over the world.

BICSI World Headquarters

Open Enrollment Courses

BICSI offers courses on site at our World Headquarters location in Tampa, Florida. Three spacious classrooms include state-of-the-art, hands-on training labs, continuously updated to reflect a real-life setting. BICSI open enrollment courses take place throughout the year, all of which are open to the general public. Courses offered include design, installation and project management.

bicsi.org/academy

BICSI Local

Learning Close to Home

Because it may not always be convenient to attend an instructor-led class at BICSI World Headquarters, we also provide our entire training suite at various locations around the world so you can receive training locally.

- + Open Enrollment Courses
- + Corporate Training Solutions
- + Authorized Design Training Providers (ADTPs)
- + Authorized Training Facilities (ATFs)

bicsi.org/academy

BICSI CONNECT

Online Training

BICSI CONNECT accommodates your schedule by being available to you whenever you need, wherever you are located, and it is a great way to earn CECs. Featuring a continuously expanding list of offerings, BICSI CONNECT has a variety of technical and professional courses to further your current knowledge or provide additional skills in a relaxed learning environment. Always check online for the most current course offerings.

bicsi.org/connect

"Through my mentors and the BICSI courses I have completed, I have been able to cultivate my knowledge of telecommunications to levels I didn't think possible."

– Fernando Chavez, RCDD, JBA Consulting Engineers, Las Vegas, Nevada, USA

BICSI Local

- + **Open Enrollment Courses:** BICSI routinely schedules classes in areas where our members are located or can easily access, such as major metropolitan areas and conference sites. We choose facilities that can accommodate our mobile and technical equipment to provide an educational experience comparable to that at our BICSI World Headquarters. These open enrollment courses are open to the general public. bicsi.org/academy
- + **Corporate Training Solutions:** Companies needing to train multiple staff members will benefit by having the BICSI learning experience brought to their facility. Holding an on-site course offers you the flexibility to choose the course(s) you want at the time you need, with minimal disruption to staff and daily operations. BICSI provides one of our ICT Training Delivery Specialists and all necessary class materials, ensuring you receive a first-rate learning experience. Any instructor-led BICSI course is eligible for on-site training, as well as the administration of any installation credentialing exams. bicsi.org/academy
- + **Authorized Design Training Provider (ADTP):** An ADTP conducts instructor-led design and project management training at locations throughout the world, using BICSI course materials and training delivery techniques. Instructors of ADTPs are BICSI-certified, and like BICSI ICT Training Delivery Specialists, can bring the BICSI learning experience to life, with the added ability to include knowledge and insight specific to their location and the markets they serve. bicsi.org/adtp
- + **Authorized Training Facility (ATF):** A BICSI ATF is an organization approved to offer BICSI's Cabling Installation Program, which includes teaching BICSI installation courses and administering the testing and exams to become a BICSI Installer or Technician. BICSI ATFs provide all training using BICSI course materials and training delivery techniques within a facility that has been specified and approved by BICSI. Additionally, all ATF instructors have been BICSI-certified. bicsi.org/atf

Visit the BICSI website to learn more about BICSI Authorized Training Providers and see a current listing of BICSI ADTPs and ATFs. bicsi.org/academy

“My instructor was a great presenter of information and full of industry-related stories that kept me involved.”

– Robert Mann, RCDD,
University of Delaware,
Newark, Delaware, USA

BICSI Live Webinars

BICSI Live Webinars are an easy way to gain critical information on topics and issues affecting the ICT industry now. Prepared and delivered by industry experts in real time, and typically lasting only 60 minutes, you can obtain key, relevant information to put to immediate use. BICSI webinars are available to the general public. bicsi.org/webinars

BICSI CONNECT Online Learning

Learning Without Limitations

BICSI CONNECT offers unlimited access to a variety of online courses, featuring both technical ICT knowledge and professional development training.

Available 24 hours, all year round, BICSI CONNECT is an ideal way to further your education and earn continuing education credits (CECs), and a convenient way to increase your value in the workplace. All you need is access to the internet.

So Many Topics

We realize that to be successful in your career, you need to balance your technical skillset with important business and leadership skills. So we offer ICT professionals a variety of courses to support a well-rounded, successful career. **Topics include:**

- + BICSI ICT Design Fundamentals
- + Bonding and grounding
- + Cabling media
- + Codes and standards
- + Confined spaces
- + Data center
- + Design
- + Firestopping
- + Installation
- + **NEW!** Internet of Things (IoT)
- + Network design
- + **NEW!** Networking fundamentals
- + Project management
- + Safety/Injury prevention

BICSI CONNECT course offerings are constantly updated! Visit bicsi.org/connect for the most up-to-date list.

¡Cursos disponibles en español también!

Nuestros estudiantes pueden escoger algunos cursos en español latinoamericano.** La selección incluye:

- + Programa de Fundamentos de diseño de TIC (cursos y examen)
- + Introducción a los sistemas de seguridad y protección electrónica

Visite bicsi.org/español. O visite bicsi.org/connect bajo la sección En Español para revisar la lista más actualizada.

** Aunque los usuarios pueden navegar por el sistema de BICSI CONNECT en español, solamente algunos cursos están disponibles en este momento.

"I have taken a number of BICSI CONNECT courses over the years, and they are not only full of great content, but easy to log in to, and very cost effective."

– Trevor Kleinert, RCDD, DCDC, NTS, CCTT, Warren and Brown Technologies, New South Wales, Australia

BICSI CONNECT Project Management and Workplace Safety Series Suites

Project Management and Workplace Safety should never be overlooked. Find courses of similar topics grouped together into convenient suites, each offering multiple courses and CECs. Suite topics include:

- + Negotiation essentials
- + Risk management
- + Purchasing and vendor management
- + Controlling electrical hazards
- + Working in extreme conditions
- + And more!

Note: All BICSI CONNECT courses require an internet-capable device and internet connection. In addition, all BICSI CONNECT courses are nonrefundable and nontransferable.

Minimum System Requirements:

Windows 7 or 8; Mac OSx10.6+; Android 4.1 or later; Apple iOS 6.x, 7.x; IE 11 or later; Firefox 21 or later; Chrome 29 or later; Safari 5.1.8 or later; sound card with speakers/headphones for audio (audio not available for all courses); pop-up blockers disabled.

BICSI CONNECT Functionality

- + View and manage your courses, including accessing course evaluations, personalized training recommendations and other course content.
- + Navigate system pages in English or Spanish.*
- + Build your own profile page, complete with details and photo.

* Although users can navigate the BICSI CONNECT system in Spanish, only select courses are available in Spanish at this time.

NEW! Virtual Instructor-Led Training

bicsi.org/vilt

The need for engaging, virtual and flexible learning is growing exponentially and BICSI has expanded its educational offerings to meet this demand!

Our new ICT Workshop Series offers live, virtual, instructor-led programs that allow for two-way communication between subject matter experts and learners. These programs cover industry hot topics such as power over Ethernet (PoE), intelligent buildings, distributed antenna systems (DAS) and more! Each workshop is held over a two- or three-week period. CECs are rewarded.

Learn from the experts without leaving home. Visit bicsi.org/vilt often for a schedule of workshops.

Collaborative and Application-Based Teaching Tools

- + Whiteboard and video conferencing
- + Breakout sessions
- + Interactive polls
- + On-screen presentation
- + Real-time discussion with instructors and students

BICSI Cabling Installation Program

Increasing Levels of Cabling Installation Knowledge

bicsi.org/installation

The goal of BICSI's Cabling Installation Program is to produce highly competent cabling installers. Completely revamped, this program provides a career path consisting of four progressive courses and exams, allowing students to begin with basic fundamentals and build upon that knowledge. Upon completion of training, program participants should be able to conduct site surveys and install, terminate, and test copper and optical fiber cable to the highest level of specification.

BICSI Installation Designations

- + **BICSI Installer 1®**
Little or no industry experience required.
- + **BICSI Installer 2, Copper®**
At least one year of verifiable ICT industry installation experience within the last five years.
- + **BICSI Installer 2, Optical Fiber®**
At least two years of verifiable ICT industry installation experience within the last five years.
- + **BICSI Technician**
At least three years of verifiable ICT industry installation experience within the last five years.

For complete exam experience requirements, see the Exam Information pages for each installer/technician level.

Areas of Knowledge

- + Professionalism
- + Codes, standards and regulations
- + Principles of transmission
- + Cabling media and connectors
- + Structured cabling systems (SCS)
- + Telecommunications spaces and pathways
- + General safety practices
- + Space preparation and cabling support systems
- + Pulling cable
- + Cable terminations
- + Cable splicing
- + Testing and troubleshooting
- + Firestopping practices
- + Bonding and grounding (earthing) and electrical protection
- + Specialty systems installation
- + Project management
- + Retrofits and upgrades

All BICSI cabling installation credentials are achieved by passing a comprehensive exam based on BICSI's *Information Technology Systems Installation Methods Manual (ITSIMM)*, as well as key codes and standards from the National Fire Protection Association® (NFPA) and Telecommunications Industry Association (TIA).

bicsi.org/installation

IN101: BICSI Installer 1[®] Training

This course is designed to provide entry-level installers with the background, knowledge and basic skills needed to function safely and effectively as part of a cabling installation team. The BICSI Installer 1 Training course is the introductory course of the Installation Program series.

Course Highlights

This course provides foundational knowledge for entry-level installers, including:

- + Professionalism at the work site
- + Transmission fundamentals
- + Safety practices and procedures

This course offers multiple opportunities for hands-on practice. Learn to:

- + Pull cable
- + Perform multiple IDC terminations (66, 110, LSA and BIX)
- + Terminate coaxial cable
- + Perform basic testing of copper cabling installations

Knowledge & Skill Requirements

Participants must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Stand for extended periods of time (e.g., 30 minutes)
- + Climb ladders
- + Lift and carry items weighing ≈22.7 kg (50 lb)

Note: The BICSI Installer 1 exam is not included in the course fee. You must register for the exam separately. Download an exam application at bicsi.org/installer1 or contact BICSI.

Prerequisites & Preparation

Little or no experience is needed to sit for this class. However, BICSI strongly recommends reading the *ITSIMM* before coming to class and/or taking the exam. In addition, some students may benefit from completing the online ICT Fundamentals series through BICSI CONNECT prior to attending. For students who plan to take the exam, BICSI recommends that examinees spend at least 50 hours studying the *ITSIMM*. Order the *ITSIMM* online at bicsi.org/itsimm.

About This Course

- + 4.5-day course; 5.5 days for students planning to take the exam to earn the Installer 1 certificate
- + 35 CECs

Who Should Attend?

- + Individuals with little or no cabling experience
- + Anyone wishing to pursue a career in ICT cabling distribution
- + Individuals needing basic knowledge of and skills in cabling installation
- + Anyone planning to take the BICSI Installer 1 exam

What's Great About This Course?

IN101 provides an active learning experience with multiple hands-on activities, providing learners with marketable, real-world skills.

bicsi.org/installer1

Course Materials

- + *Information Technology Systems Installation Methods Manual (ITSIMM)*, hard copy and/or electric*
- + Internet-capable device
- + Personal or prescription safety glasses recommended

*Not included in course fee; order at bicsi.org/itsimm



BICSI Installer 1[®] Exam Information

Experience

There is no prior ICT industry installation experience requirement for individuals preparing to sit for the Installer 1 exam.

Knowledge & Skill Requirements

Exam candidates must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Have a general understanding of key U.S. codes and standards from the National Fire Protection Association[®] (NFPA) and Telecommunications Industry Association (TIA)

Suggested Study

- + IN101: Installer 1 Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*
- + A minimum of 50 hours of independent study

The Examination

Applicants must pass the written and all portions of the hands-on performance exams.

- + Hands-on Exam
 - Must complete six assigned tasks to industry standards
 - 20-minute-per-task time limit
 - Proctors will give pass/fail results on site*

*If an applicant fails to successfully complete one of the hands-on exam tasks, one same-day retake of the failed task will be allowed at no additional cost. If the applicant fails the same task twice or, after completing a task on a second attempt, the candidate fails a subsequent task, the hands-on exam must be rescheduled.

- + Written Exam
 - 75 knowledge- and application-based questions drawn from BICSI's *ITSIMM*
 - Closed-book, multiple choice
 - Two-hour timed exam

Non-Renewable

The Installer 1 certificate is valid for three years.

The BICSI Installer 1 certificate is not renewable. As a next step, BICSI suggests pursuing the BICSI Installer 2, Copper and/or BICSI Installer 2, Optical Fiber credentials.

Exam Application

Before taking the exam, you must be approved by BICSI. You may download an exam application at **bicsi.org/installer1**. The exam fee is not included in the course fee.

bicsi.org/installer1

"I thought I knew a lot going into the BICSI Installer 1 class, but after completing the course, I could see a real difference in my skillset. My employer noticed too!"

— James R. Bowles, State of West Virginia/OOT,
INST1, INSTC, INSTF, TECH, Charleston, West Virginia, USA

IN225: BICSI Installer 2, Copper[®] Training

This course sets the foundation of a copper-based structured cabling system installation. The course begins with an overview of professionalism, copper transmission principles and general safety practices associated with working with copper cabling. A significant amount of course time will then be spent on BICSI best practices for the installation, termination and testing of copper cable.

Course Highlights

This course offers multiple opportunities for hands-on practice.

Activities include learning to:

- + Perform advanced IDC terminations (210 and GigaBIX)
- + Terminate STP cable to patch panels and wall outlets
- + Terminate coaxial cable using a BNC connector
- + Test copper cabling installations

Note: The BICSI Installer 2, Copper exam is not included in the course fee. You must register for the exam separately. Download an exam application at bicsi.org/in2copper or contact BICSI.

Knowledge & Skill Requirements

Participants must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Stand for extended periods of time (e.g., 30 minutes)
- + Climb ladders
- + Lift and carry items weighing ~22.7 kg (50 lb)

See prerequisites and preparation on page 16.

About This Course

- + 4.5-day course; 5.5 days for students planning to take the exam to earn the Installer 2, Copper credential
- + 35 CECs

Who Should Attend?

- + ICT installers with at least one year of verifiable cabling experience
- + Anyone who wishes to expand their knowledge of the industry, learn new (copper installation) skills and continue to advance professionally
- + Level 1 Installers seeking the Installer 2, Copper credential
- + Individuals planning to sit for the BICSI Installer 2, Copper exam

bicsi.org/in2copper

Course Materials

- + *Information Technology Systems Installation Methods Manual (ITSIMM)*, hard copy and/or electric*
- + Internet-capable device
- + Personal or prescription safety glasses recommended

*Not included in course fee; order at bicsi.org/itsimm

IN225: BICSI Installer 2, Copper[®] Training

Continued from page 15.

Prerequisites & Preparation

Students of this class may wish to first attend IN101 or gain equivalent experience and knowledge through on-the-job-training. BICSI recommends that all students who take this class have at least one year of verifiable ICT industry installation experience within the last five years. For all individuals who plan to take the exam after the class, this one year of experience is a requirement for the exam, not a recommendation.

The skills in this course build on the basic skills and knowledge that an installer is likely to acquire during the first year on the job. For this reason, students will be expected to have basic knowledge of copper cabling media and know how to perform the following skills prior to attending class:

- + Install a pull string
- + Pull horizontal cable through a continuous conduit run
- + Perform IDC terminations on a 66 block, 110 block, LSA block and a BIX block
- + Terminate coaxial cable using an F connector
- + Test 4-pair cable with a pair scanner

If you do not know how to perform any of these tasks or feel that you may not be fully prepared for this course, BICSI recommends that you complete the IN101 course first. IN101 covers these skills, as well as other foundational knowledge that will help you to succeed in IN225.

In addition, BICSI strongly recommends reading the *ITSIMM* before coming to class and/or taking the exam. For students who plan to take the exam, BICSI recommends that examinees spend at least 50 hours studying the *ITSIMM*. Order the *ITSIMM* online at bicsi.org/itsimm.

What's Great About This Course?

IN225 prepares the learner to be an expert in structured copper cabling systems by building knowledge and skills that align to industry codes and standards through practical application.

bicsi.org/in2copper

BICSI Installer 2, Copper[®] Exam Information

Experience

To apply for the Installer 2, Copper exam, a minimum of one year of approved and verifiable ICT industry installation experience within the last five years is required. It is recommended that the individual have the Installer 1 credential or an equal understanding of cabling installation practices.

Knowledge & Skill Requirements

Exam candidates must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Have a general understanding of key U.S. codes and standards from the National Fire Protection Association[®] (NFPA) and Telecommunications Industry Association (TIA)

Suggested Study

- + IN101: Installer 1 Training
- + IN225: Installer 2, Copper Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*
- + A minimum of 50 hours of independent study

The Examination

Applicants must pass the written and all portions of the hands-on performance exams.

- + Hands-on Exam
 - Must complete six assigned tasks to industry standards
 - 20-minute-per-task time limit
 - Proctors will give pass/fail results on site*

*If an applicant fails to successfully complete one of the hands-on exam tasks, one same-day retake of the failed task will be allowed at no additional cost. If the applicant fails the same task twice or, after completing a task on a second attempt, the candidate fails a subsequent task, the hands-on exam must be rescheduled.

- + Written Exam
 - 100 knowledge- and application-based questions drawn from BICSI's *ITSIMM*
 - Closed-book, multiple choice
 - Two-hour timed exam

Recertification Requirements

The Installer 2, Copper credential is valid for three years.

Individuals wishing to recertify this credential have three years (after the exam is passed) to:

- + Earn a minimum of 15 BICSI-recognized CECs
- + Submit proof of CECs, recertification application and recertification fee by expiration date

Exam Application

Before taking the exam, you must be approved by BICSI. You may download an exam application at bicsi.org/in2copper. The exam fee is not included in the course fee.

bicsi.org/in2copper

U.S. Military and Reservists: BICSI certification exams are eligible for GI Bill reimbursement (bicsi.org/gibill) and may also be eligible for Credentialing Opportunities On-Line (COOL) Program (bicsi.org/cool).

IN250: BICSI Installer 2, Optical Fiber® Training

This course sets the groundwork for optical fiber-based structured cabling system installation. The course will open with an overview of professionalism, fiber transmission principles and the general safety practices related to optical fiber cabling. A significant amount of course time will then be spent on installation, splicing, termination and testing of optical fiber cable.

Course Highlights

This course offers multiple opportunities for hands-on practice. Activities include learning to:

- + Install a cleave-and-crimp-style optical fiber connector
- + Install a scribe-and-polish-style optical fiber connector
- + Terminate STP cable to patch panels and wall outlets
- + Perform a fusion splice
- + Perform a mechanical splice
- + Test an optical fiber link
- + Evaluate an optical time domain reflectometer (OTDR) trace

Note: The BICSI Installer 2, Optical Fiber exam is not included in the course fee. You must register for the exam separately. Download an exam application at bicsi.org/in2fiber or contact BICSI.

Knowledge & Skill Requirements

Participants must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Stand for extended periods of time (e.g., 30 minutes)
- + Climb ladders
- + Lift and carry items weighing ≈22.7 kg (50 lb)

See prerequisites and preparation on page 19.

About This Course

- + 4.5-day course; 5.5 days for students planning to take the exam to earn the Installer 2, Optical Fiber credential
- + 35 CECs

Who Should Attend?

- + ICT installers with at least two years of verifiable cabling experience
- + Anyone who wishes to expand their knowledge of the industry, learn new (optical fiber) skills and continue to advance professionally
- + Level 2, Copper Installers seeking the Installer 2, Optical Fiber credential
- + Individuals planning to sit for the BICSI Installer 2, Optical Fiber exam

bicsi.org/in2fiber

Course Materials

- + *Information Technology Systems Installation Methods Manual (ITSIMM)*, hard copy and/or electric*
- + Internet-capable device
- + Personal or prescription safety glasses recommended

*Not included in course fee; order at bicsi.org/itsimm

IN250: BICSI Installer 2, Optical Fiber® Training

Continued from page 18.

Prerequisites & Preparation

BICSI recommends that all students who take this class have at least two years of current ICT industry installation experience within the last five years. For all individuals who plan to take the exam after the class, this two years of experience is a requirement for the exam, not a recommendation.

Because the skills in this course build on the basic skills and knowledge that an installer is likely to acquire during the first two years on the job, students will be expected to have basic knowledge of optical fiber cabling media and to know how to perform entry-level cable installation tasks prior to enrolling in this class.

If you feel that you may not be fully prepared for this course, BICSI recommends that you complete the IN101 and/or IN225 courses prior to attending this class. IN101 covers the basic cable installation concepts and skills that will help you to succeed in IN250.

In addition, BICSI strongly recommends reading the *ITSIMM* before coming to class and/or taking the exam. For students who plan to take the exam, BICSI recommends that examinees spend at least 50 hours studying the *ITSIMM*. Order the *ITSIMM* online at bicsi.org/itsimm.

What's Great About This Course?

This course provides the learner with more advanced installation skills and a deeper knowledge of structured cabling systems and optical fiber cabling.

bicsi.org/in2fiber

"The [IN250] instructor (who traveled to Uganda) was well prepared, knowledgeable and practical. He was social and interactive and he fit in well with a new environment."

– Allan Sabiiti, United Nations (UNAMID), Entebbe, Uganda

BICSI Installer 2, Optical Fiber[®] Exam Information

Experience

To apply for the Installer 2, Optical Fiber exam, a minimum of two years of approved and verifiable ICT industry installation experience within the last five years is required. It is recommended that the individual have the Installer 1 credential or an equal understanding of cabling installation practices.

Knowledge & Skill Requirements

Exam candidates must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Have a general understanding of key U.S. codes and standards from the National Fire Protection Association[®] (NFPA) and Telecommunications Industry Association (TIA)

Suggested Study

- + IN101: Installer 1 Training
- + IN250: Installer 2, Optical Fiber Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*
- + A minimum of 50 hours of independent study

The Examination

Applicants must pass the written and all portions of the hands-on performance exams.

- + Hands-on Exam
 - Must complete six assigned tasks to industry standards
 - 20-minute-per-task time limit
 - Proctors will give pass/fail results on site*

*If an applicant fails to successfully complete one of the hands-on exam tasks, one same-day retake of the failed task will be allowed at no additional cost. If the applicant fails the same task twice or, after completing a task on a second attempt, the candidate fails a subsequent task, the hands-on exam must be rescheduled.

- + Written Exam
 - 100 knowledge- and application-based questions drawn from BICSI's *ITSIMM*
 - Closed-book, multiple choice
 - Two-hour timed exam

Recertification Requirements

The Installer 2, Optical Fiber credential is valid for three years.

Individuals wishing to recertify this credential have three years (after the exam is passed) to:

- + Earn a minimum of 15 BICSI-recognized CECs
- + Submit proof of CECs, recertification application and recertification fee by expiration date

Exam Application

Before taking the exam, you must be approved by BICSI. You may download an exam application at bicsi.org/in2fiber. The exam fee is not included in the course fee.

bicsi.org/in2fiber

U.S. Military and Reservists: BICSI certification exams are eligible for GI Bill reimbursement (bicsi.org/gibill) and may also be eligible for Credentialing Opportunities On-Line (COOL) Program (bicsi.org/cool).

TE350: BICSI Technician Training

This course provides the necessary skillset of a structured cabling systems technician. A significant amount of course time will be spent on troubleshooting copper and optical fiber cable installations. In addition, this course will cover project planning and implementation at the technician level. Additional topics will include site safety, site surveys, blueprint reading, bonding and grounding (earthing) and firestopping practices.

Course Highlights

This course offers multiple opportunities for hands-on practice. Activities include learning to:

- + Interpret blueprints
- + Apply a standards-compliant labeling scheme (e.g., ANSI/TIA-606)
- + Troubleshoot a UTP link/channel with a certification test set
- + Troubleshoot an optical fiber channel with an optical time domain reflectometer (OTDR)

Note: The BICSI Technician exam is not included in the course fee. You must register for the exam separately. Download an exam application at bicsi.org/technician or contact BICSI.

Knowledge & Skill Requirements

Participants must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Stand for extended periods of time (e.g., 30 minutes)
- + Climb ladders
- + Lift and carry items weighing ≈ 22.7 kg (50 lb)

See prerequisites and preparation on page 22.

About This Course

- + 4.5-day course; 5.5 days for students planning to take the exam to earn the Technician credential
- + 35 CECs

Who Should Attend?

- + Highly experienced ICT installers with at least three years of verifiable cabling experience
- + Anyone who wishes to expand their knowledge of the industry, learn new skills and continue to advance professionally
- + Individuals planning to sit for the BICSI Technician exam

bicsi.org/technician

Course Materials

- + *Information Technology Systems Installation Methods Manual (ITSIMM)*, hard copy and/or electric*
- + Internet-capable device
- + Personal or prescription safety glasses recommended

*Not included in course fee; order at bicsi.org/itsimm



TE350: BICSI Technician Training

Continued from page 21.

Prerequisites & Preparation

BICSI recommends that all students who take this class have at least three years of current ICT industry installation experience within the last five years. For all individuals who plan to take the exam after the class, this is a requirement, not a recommendation.

This course builds on the skills and knowledge covered in the Installer 2, Copper and Installer 2, Optical Fiber training courses. Although completing these courses prior to attending is not a requirement, BICSI highly recommends that students complete these courses and/or obtain the Installer 2, Copper and Installer 2, Optical Fiber credentials prior to attending this class.

If an individual does not currently hold both the Copper and Optical Fiber Installer 2 credentials, or the Installer Level 2 credential, that individual will receive four additional hands-on tasks and 30 additional written exam questions focused on copper and optical fiber topics to complete as part of the process.

If you feel that you may not be fully prepared for this course, BICSI recommends that you complete IN225 (recommended for learners with one year of experience) and IN250 (recommended for learners with two years of experience) prior to attending this class, and complete the exams to earn the credentials prior to class.

In addition, BICSI strongly recommends reading the *ITSIMM* before coming to class and/or taking the exam. For students who plan to take the exam, BICSI recommends that examinees spend at least 50 hours studying the *ITSIMM*. Order the *ITSIMM* online at bicsi.org/itsimm.

What's Great About This Course?

This course will help students successfully lead an installation group or team using project management skills.

bicsi.org/technician

"I'm happy to find out about what I've been doing wrong. Completing cabling installations correctly would make life much better for everyone I work with, consumers, fellow technicians and others. It's refreshing when a fellow tech can walk into your place of work and immediately make sense of what you do without much struggle."

– Isaac Oyolo, U.S. Embassy in Nairobi, Gigiri, Nairobi

BICSI Technician Exam Information

Experience

To apply for the Technician exam, a minimum of three years of approved and verifiable ICT industry installation experience within the last five years is required. It is recommended that the individual have both the Installer 2, Copper and Installer 2, Optical Fiber credentials.

Knowledge & Skill Requirements

Exam candidates must be able to:

- + Distinguish between different colors
- + Possess manual dexterity to complete fine motor tasks
- + Have a general understanding of key U.S. codes and standards from the National Fire Protection Association® (NFPA) and Telecommunications Industry Association (TIA)

The Examination

Applicants must pass the written and all portions of the hands-on performance exams.

- + Hands-on Exam
 - Must complete six assigned tasks to industry standards
 - 20-minute-per-task time limit
 - Proctors will give pass/fail results on site*

*If an applicant fails to successfully complete one of the hands-on exam tasks, one same-day retake of the failed task will be allowed at no additional cost. If the applicant fails the same task twice or, after completing a task on a second attempt, the candidate fails a subsequent task, the hands-on exam must be rescheduled.

- + Written Exam
 - 140 knowledge- and application-based questions drawn from BICSI's *ITSIMM*
 - Closed-book, multiple choice
 - 2½-hour timed exam
 - If an individual does not hold both the Copper and Optical Fiber Installer 2 credentials, or the Installer Level 2 credential, the written exam will have an additional 30 questions focused on copper and optical fiber topics (170 questions total). Current Installer Level 2 credential holders in good standing will be exempt from the additional 30 questions.

U.S. Military and Reservists: BICSI certification exams are eligible for GI Bill reimbursement ([bicsi.org/gibill](https://www.bicsi.org/gibill)) and may also be eligible for Credentialing Opportunities On-Line (COOL) Program ([bicsi.org/cool](https://www.bicsi.org/cool)).

Recertification Requirements

The Technician credential is valid for three years.

Individuals wishing to recertify this credential have three years (after the exam is passed) to:

- + Earn a minimum of 18 BICSI-recognized CECs
- + Submit proof of CECs, recertification application and recertification fee by expiration date

Suggested Study

- + IN101: Installer 1 Training
- + IN225: Installer 2, Copper Training
- + IN250: Installer 2, Optical Fiber Training
- + TE350: Technician Training
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*
- + A minimum of 50 hours of independent study

[bicsi.org/technician](https://www.bicsi.org/technician)

Exam Application

Before taking the exam, you must be approved by BICSI. You may download an exam application at [bicsi.org/technician](https://www.bicsi.org/technician). The exam fee is not included in the course fee.



ITSIMM, 7th Edition *Information Technology Systems Installation Methods Manual*

Building on the solid foundations of its internationally recognized predecessor, the 7th edition of BICSI's *Information Technology Systems Installation Methods Manual (ITSIMM)* continues to be the go-to guide for the knowledge and specifics on performing the wide range of installation tasks safely and effectively.

The 7th edition *ITSIMM* reflects recent trends and advancements within ICT cabling and applications, such as Category 8/Class I/II cabling, adoption of data center/mission-critical facility methods within common installations, and the increasing commonality of support required by systems that sustain building functions.

At the core of the manual are the specifics of performing installation, from laying out communications spaces and installation requisite pathways, to pulling, terminating and testing cabling. Important topics of firestopping and bonding cabling infrastructure to the grounding system are also present, continuing to focus on providing safe systems after installation is complete.

The *ITSIMM, 7th edition*, concludes with a revised and updated section on specialty systems, such as building automation, ESS and wireless, as well as chapters on project management and retrofits.

The *ITSIMM*, in conjunction with the Installer/Technician series courses, serves as a detailed reference for all BICSI Cabling Installation Program exams.

Contents

The *ITSIMM, 7th edition*, is comprised of 11 chapters, three appendices, a detailed and comprehensive glossary and chapter-specific bibliography. Topics include:

- + Principles of Transmission
- + Structured Cabling Systems
- + General Safety Practices
- + Space Preparation and Cabling Support Systems
- + Cable Installation
- + Testing Cable and Troubleshooting
- + Firestopping Practices
- + Bonding and Grounding (Earthing) and Electrical Protection
- + Specialty Systems Installation
- + Project Management
- + Retrofits and Upgrades
- + Codes, Standards, Regulations and Organizations
- + Legal Considerations
- + Project Documentation Examples

Who Should Purchase?

- + Cabling installers
- + Students of BICSI installation courses* + Those working to achieve any of the BICSI Installer or Technician credentials

*The *ITSIMM* must be purchased for IN101, IN225, IN250 and TE350 courses.

ISBNs:

- 1-928886-70-1 (print)
- 1-928886-71-X (electronic)

bicsi.org/itsimm

ANSI/BICSI N2-17

Practices for the Installation of Telecommunications and ICT Cabling Intended to Support Remote Power Applications

ANSI/BICSI N2-17, *Practices for the Installation of Telecommunications and ICT Cabling Intended to Support Remote Power Applications*, focuses on the installation practices specific to ICT cabling for powering devices by specifications such as PoE, PoH and HDBaseT. As changes in systems, technologies and safe implementation requirements are occurring on a frequent basis, ANSI/BICSI N2-17 is under continuous maintenance to provide the current and relevant information for remote powering.

Contents

- + Introduction
- + Scope
- + Required Standards and Documents
- + Definitions, Acronyms, Abbreviations and Units of Measurement
- + Bundle Sizes
- + Recommended Practices
- + Appendix A: Related Documents (Informative)



Free electronic download!

Who Will Benefit?

- + All individuals who need knowledge of primary installation requirements for ICT and IP-enabled systems
- + ICT installers and technicians
- + Installers of IP-enabled systems, such as AV, ESS and building automation
- + Project managers
- + System inspectors

bicsi.org/n2

ANSI/NECA/BICSI 607-2011 *Standard for Telecommunications Bonding and Grounding Planning and Installation Methods for Commercial Buildings*

An effective telecommunications bonding and grounding system can prevent injury and equipment damage. With the complexity of today's infrastructure allowing little margin for outages, any system, including the grounding and bonding network, can be the weakest link.

NECA/BICSI 607 specifies aspects of planning and installation of telecommunications bonding and grounding systems. While this standard aligns with related standards, such as the *National Electrical Code® (NEC®)* and ANSI/TIA 607-A, *Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications*, additional requirements and information for components and connectors of these systems are also included. And because the best design can be undone by poor implementation, a majority of NECA/BICSI 607 details installation methods and practices to minimize potential grounding system failure.

¡En Español También! bicsi.org/español

ANSI/NECA/BICSI 568-2006 *Standard for Installing Commercial Building Telecommunications Cabling*

ANSI/NECA/BICSI 568-2006 was a joint effort between BICSI and the National Electrical Contractors Association (NECA) prompted by concern over the lack of a standard for the installation of telecommunications premises cabling systems. This standard describes minimum requirements and procedures for installing the infrastructure for telecommunications, including balanced twisted-pair copper cabling and optical fiber cabling that transport telecommunications, voice, data and video signals. All work described in this standard is in accordance with NFPA 70E, *Standard for Electrical Safety in the Workplace*, and is also written to describe a "neat and workmanlike manner" as referenced by the *National Electrical Code® (NEC®)*.



Who Should Purchase?

- + All individuals who need knowledge of primary installation requirements for ICT and IP-enabled systems + ICT installers and technicians + Installers of IP-enabled systems, such as AV, ESS and building automation
- + Project managers
- + System inspectors

bicsi.org/607



Who Should Purchase?

- + All individuals who need knowledge of primary installation requirements for ICT and IP-enabled systems + ICT installers and technicians + Installers of IP-enabled systems, such as AV, ESS and building automation + Project managers
- + System inspectors

bicsi.org/568

Registered Communications Distribution Designer

Smarter, Stronger Building Design

Since 1984, the BICSI Registered Communications Distribution Designer (RCDD®) credential has remained one of the most coveted designations available in the area of telecommunications and ICT distribution design.

Recognized around the world, RCDDs have been instrumental in designing and overseeing the implementation of telecommunications projects of all sizes, from home and small business installations to airports, transportation hubs and arenas. Their work is on display at some of the most famous buildings in the world, including the White House and the U.S. Capitol Building and Visitor Center.

An RCDD understands the importance of achieving a flexible, cost-effective, future-ready system during every stage of the project. They have demonstrated expertise in the design, integration and implementation of telecommunications and ICT systems, and the ability to initiate and manage a project from the original request to the final closeout.

Because of the skill, expertise and dedication to their craft, RCDDs are required by many private and government organizations as part of the bidding criteria all over the world, including the U.S. Department of Defense,* Camp Humphreys—a U.S. military base in Korea, the U.S. Department of Veteran Affairs and the Julius Nyerere International Airport in Tanzania, Africa.

The RCDD credential is achieved by passing a comprehensive exam rooted in the *Telecommunications Distribution Methods Manual (TDMM)*.

*UFC 3-580-01 requires an RCDD to sign off on design and test plans from contractors.

Areas of Knowledge

- + Principles of transmission and electromagnetic compatibility
- + Structured cabling systems and components
- + Firestop systems
- + Bonding and grounding (earthing) of ICT infrastructure
- + Power distribution
- + Testing and administration of structured cabling
- + Wireless LAN and distributed antenna system (DAS) networks
- + Outside plant and campus cabling
- + IP-enabled building systems
 - Audiovisual systems
 - Building automation systems
 - Electronic safety and security
- + Applied ICT facility design
 - Data centers
 - Health care
 - Residential cabling
- + Project management

“My RCDD credential and the BICSI organization have given me not only a job, but a career. I have growth and plans that I never thought possible.”

— Fernando Chavez, RCDD, JBA Consulting Engineers, Las Vegas, Nevada, USA

DD101: Foundations of Telecommunications Distribution Design

ICT systems have been integrated into most facets of society. As such, professionals across numerous industries and trades outside of ICT find benefit in understanding the requirements and needs of these systems. Because the reliance on ICT systems affects safety, security, business and living functions to such a large extent, improperly designed, implemented or operated systems are unacceptable.

This course provides an introduction to the key concepts, components and elements of an ICT infrastructure.

After completing this course, you will be able to:

- + Identify the components of structured cabling systems
- + Identify the types of media used in the telecommunications industry
- + Explain why bonding and grounding is a critical component for ICT systems and infrastructure
- + Recognize the need for, and types of, firestopping systems
- + Identify codes and standards relative to the ICT industry
- + Describe the role project management plays in the ICT industry

Course Highlights

- + Principles of transmission
- + Structured cabling systems
- + Codes, standards and regulations
- + Media
- + Firestopping
- + Cabling system development
- + Project management
- + ICT cables and connecting hardware
- + Bonding and grounding

End of Course Assessment

To earn CECs for this course, you must pass a 50-question timed, online end of course assessment (included in course fee). Once you have registered, you have 90 days to access the course and pass the assessment. You must receive a grade of 75 percent or higher on the final assessment to receive your certificate and to satisfy the prerequisite for more advanced courses.

About This Course

- + BICSI CONNECT online course*
- + 90 days to complete course
- + 14 CECs

Who Should Attend?

- + Individuals new to the ICT industry
- + Individuals who interact with ICT designers and installers
- + Individuals looking to earn the RCDD credential
- + Those in professions and trades who interact with ICT systems
 - Architects
 - Building facility managers
 - Electrical inspectors
 - General contractors
 - Network administrators
 - Building system (e.g., security, AV, HVAC) integrators and installers

bicsi.org/dd101

Required Materials

- + *Telecommunications Distribution Methods Manual (TDMM)*, to complete reading assignments for every module**

**Not included in course fee; order at bicsi.org/tdmm

Recommended System Requirements

See page 11.

*All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

DD102: Designing Telecommunications Distribution Systems

DD102 is an intensive, hands-on course focused on the design of structured cabling systems. Offering hands-on skill building activities from day one, this knowledge-intensive course instructs you in real-world tasks, preparing you for design roles outside of the classroom. Assignments from the award-winning *Telecommunications Distribution Methods Manual (TDMM)* augment your learning, allowing you to prepare questions for the classroom.

Through the use of case studies, schematic and construction drawings, and real-life scenarios, you will learn to design codes and standards-compliant telecommunications infrastructure, beginning where the cabling enters the building to any telecommunications environment within the building. In addition to structured cabling, all facets of design for the support infrastructure, including telecommunications spaces, pathways, bonding and grounding, and firestopping are included in the course.

DD102 has been structured to maximize your take-away from the class. Students work together to complete a final group project, allowing immediate use of new knowledge and skills learned in the classroom.

Course Highlights

- + Codes, standards and regulations
- + Telecommunications pathways and spaces
- + Backbone and horizontal distribution systems
- + Bonding and grounding (earthing)
- + Firestopping
- + Telecommunications administration
- + Outside Plant (OSP) and campus cabling

Prerequisites & Preparation

DD102 is designed for those who have a minimum of two years of experience in the design and specifications of cabling infrastructure systems. If you do not meet the requirements, BICSI strongly recommends that you complete DD101 prior to enrolling in DD102.

About This Course

- + 5-day course
- + 37 CECs

Who Should Attend?

- + ICT designers with at least two years of on-the-job experience in low-voltage cabling systems
- + Professionals responsible for designing IP-enabled building systems (e.g., security, AV, HVAC)
- + Individuals preparing to take the RCDD exam
- + Individuals looking for a review of telecommunications distribution systems

bicsi.org/dd102

Required Materials

- + *Telecommunications Distribution Methods Manual (TDMM)*, print or electronic.*
- + Internet-capable device

*Not included in course fee; order at bicsi.org/tdmm

RCDD Online Test Preparation

Studies suggest that test prep courses can help raise a test score by up to 25 percent. BICSI designed the Registered Communications Distribution Designer (RCDD) Online Test Preparation course to give you access to the highest quality training materials available—from flash cards, videos and email access to successful RCDDs in the business. The RCDD Online Test Preparation course provides everything you need to help you be successful on the RCDD exam.

The RCDD Online Test Preparation course is the only BICSI-approved RCDD exam preparation class.

Course Highlights

- + **Downloadable Strategy Guide Booklet:** Gain an overview of the exam, including the test format and applicable chapters; Learn key formulas needed to help you pass the exam; Receive study tips.
- + **Electronic Exercises and Review Games:** Take part in interactive games and strategies to help you memorize key concepts.
- + **Practice Exams:** Take two 90-minute practice exams; Feedback will be given highlighting areas that need improvement.
- + **Professionally Recorded Videos:** Download lessons from experienced RCDDs; Lessons target: horizontal distribution, backbone distribution and telecommunications spaces.

What's Great About This Course?

Only the RCDD Online Test Preparation course offers you a combination of gaming practice, recorded lessons, online flash cards, a downloadable strategy booklet and practice questions.

About This Course

- + BICSI CONNECT online course*
- + 48 CECs
- + Access to course for lifetime of the 13th edition *TDMM* exam

Who Will Benefit?

- + Individuals preparing to take the RCDD exam
- + Individuals who want a review of telecommunications distribution systems

Prerequisites & Preparation

DD101 and DD102 are strongly recommended prior to taking the RCDD Online Test Preparation course.

Purchase the *TDMM* and the RCDD Online Test Preparation course at the same time and receive a

15% DISCOUNT!

bicsi.org/rcdd

Required Materials

- + *Telecommunications Distribution Methods Manual (TDMM)*. **

**Not included in course fee; order at bicsi.org/tdmm

Recommended System Requirements

See page 11.

*All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

RCDD Exam Information

Experience

You must have five years of information and communications technology (ICT) industry design experience within the last 10 years OR two years of verifiable ICT design experience within the last 10 years and three years of additional ICT equivalents chosen from combinations of experience, approved education and approved ICT license/certification (e.g. DCDC, NTS, OSP, WD, CCNA).*

* BICSI reserves the right to determine what is approved curriculum and approved ICT license/certification.

Suggested Study

- + DD101: Foundations of Telecommunications Distribution Design (optional)
- + DD102: Designing Telecommunications Distribution Systems (optional)
- + RCDD Online Test Preparation Course (optional)
- + *TDMM* Flash Cards (online)
- + *Telecommunications Distribution Methods Manual (TDMM)*
- + 125 to 150-plus hours of independent study

The Examination

- + Computer-based**
- + 100 questions drawn from BICSI's *TDMM*
- + Closed-book and multiple-choice
- + 2½-hour timed exam

** Visit pearsonvue.com/bicsi for a testing location near you.

U.S. Military and Reservists: BICSI certification exams are eligible for GI Bill reimbursement (bicsi.org/gibill) and may also be eligible for Credentialing Opportunities

Exam Application

Before taking the exam, you must be approved by BICSI. Applications can be accessed online at bicsi.org/rcdd.

Recertification Requirements

On-Line (COOL) Program (bicsi.org/cool).

The RCDD certification is valid for three years.

RCDDs are required to continue their education in order to recertify their RCDD credential. Within a three-year period (after the exam is passed), RCDDs must:

- + Earn a minimum of 45 BICSI-recognized CECs
- + Attend at least one BICSI-recognized conference**
- + Submit proof of CECs, recertification application and recertification fee by the expiration date

**A BICSI-recognized conference that will satisfy the mandatory conference attendance credit as outlined in the CEC Policy.

bicsi.org/rcdd

"It is widely accepted that the RCDD is one of the most prestigious credentials in the industry. Possessing it enhances my credibility in leadership roles, and allows me to pass on valuable information related to the ever-changing and expanding ICT industry."

– Richard Tovo, RCDD, INSTF, Iron Arch Technology, La Crescenta, California, USA



Who Should Purchase?

- + Anyone in the ICT industry
 - + Beginner and experienced designers
- + Consultants + End users
- + Engineers + Students taking BICSI courses*
- + RCDD exam candidates

*The *TDMM* must be purchased for DD101, DD102 and RCDD Online Test Preparation Course.

ISBNs:

1-928886-64-7 (print)
1-928886-66-3 (electronic)

bicsi.org/tdmm

TDMM, 13th Edition *Telecommunications Distribution Methods Manual*

The *Telecommunications Distribution Methods Manual (TDMM)* is BICSI's flagship manual, a true world resource in global best practices, as well as the basis for the Registered Communications Distribution Designer (RCDD) exam. The *TDMM* provides deep reference information on the standards and codes that impact our readership, providing readers with the guidelines to execute future-ready projects with reduced costs. The *TDMM* provides critical design information and practices for today's and tomorrow's networks.

In addition to updated technology practices for data networks, the 13th edition *TDMM* incorporates new information to address the issues and solutions emerging for tomorrow's networks, including distributed antenna systems (DAS), passive optical networks (PON) and IP Infrastructure for AV systems.

Emphasis has been placed on ensuring content is applicable to the designer's needs of today. In addition, the 13th edition has added a section on business development.

Whether a newcomer or seasoned veteran to ICT system design, the *TDMM* is an indispensable reference that completes any ICT library, available as a two-volume printed manual or via electronic download.

"Understanding the TDMM has enabled me to identify parts of cabling design that are unique to Japan. As an RCDD, I can now respond to overseas customers recognizing the differences between my clients' expectations and Japanese norms."

– Rui Takei, RCDD, DCDC, AT TOKYO Corp., Koto-ku, Japan

Contents

The *TDMM*, 13th edition, consists of 2,100-plus pages in two volumes, with 21 chapters and five appendices, as well as a comprehensive glossary.

- + Principles of Transmission
- + Electromagnetic Compatibility
- + Telecommunications Spaces
- + Backbone Distribution Systems
- + Horizontal Distribution Systems
- + ITS Cables and Connecting Hardware
- + Firestop Systems
- + Bonding and Grounding (Earthing)
- + Power Distribution
- + Telecommunications Administration
- + Field Testing of Structured Cabling
- + Outside Plant
- + Audiovisual Systems
- + Building Automation Systems
- + Data Networks
- + Wireless Networks
- + Electronic Safety and Security
- + Data Centers
- + Health Care
- + Residential Cabling
- + Business Development and Project Management
- + Appendix A: Codes, Standards, Regulations and Organizations
- + Appendix B: Network Interfaces and Demarcation Points in the United States
- + Appendix C: Regulations and Standards for Emissions and Immunity
- + Appendix D: Mechanical, Ingress, Climatic/Chemical and Electromagnetic Considerations
- + Appendix E: Legal Considerations for the ITS Distribution Designer



BICSI's *TDMM*, 13th edition, received the prestigious Award of Distinction and was named "Best of Show" by the Society for Technical Communication (STC). The *TDMM* was also recognized internationally with the STC Award of Merit.

bicsi.org/tdmm

Online *TDMM* Flash Cards

Test your knowledge of the *TDMM* and study for the RCDD exam with online *TDMM* flash cards, exclusively from BICSI. With 1,800 questions, the cards are divided by chapter and include answers and page references for each card.



bicsi.org/dcdc

Data Center Design Consultant

Complex, Critical Data Center Design and Implementation

Due to the push for greater capacity, increased efficiency and higher levels of utilization, data centers have become more complex to design and bring online. Today's data center designers are required to possess knowledge of mechanical, electrical and telecommunications systems, as well as a familiarity with the other needs of a data center, such as reliability, security and building requirements. This added knowledge provides potential clients the confidence needed to hire you.

The BICSI Data Center Design Consultant (DCDC) recognizes those individuals who have demonstrated the knowledge and the ability to apply that knowledge over multiple facets within data center design and construction. Candidates for this designation are individuals involved in the planning, implementing and making of critical decisions regarding data centers.

The DCDC credential is achieved by passing a comprehensive exam based on content found in ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices*.

Areas of Knowledge

- + Design process
- + Risk analysis
- + Architectural and space planning
- + Site selection
- + Information technology
- + Electrical systems
- + Mechanical systems
- + Ancillary systems
- + Commissioning
- + Data center operations and maintenance
- + Sustainable data centers

“Earning the BICSI Data Center Design Consultant credential helped me understand the mechanical and electrical system requirements. The course instructor and materials helped me understand each component of these systems and how they function in the data center.”

– Doug Terry, RCDD, RTPM, DCDC, NTS, TPMA, Premiere Communications & Consulting, Inc., USA

DC101: Introduction to Data Center Design

BICSI's DC101: Introduction to Data Center Design is an online, self-paced course intended to act as the first step in the **Data Center Design Consultant (DCDC) career path**. Based on ANSI/BICSI 002-2014, this course covers foundational knowledge of data center design, including an overview of the data center design process, design criteria, systems, components, sustainability, commissioning and maintenance. DC101 consists of 11 modules filled with engaging interactions, knowledge checks and gaming activities designed to help you retain basic knowledge of data center design-based practices.

Course Objectives

By the end of this course you will be able to:

- + Select the appropriate availability class based on the site requirements
- + Locate a suitable site to construct a data center
- + Identify best practices used when building a new data center or updating an existing data center
- + Apply sustainability concepts to a data center design
- + Identify the systems housed in a data center
- + Examine the phases in a commissioning process

End of Course Assessment

The DC101 course includes a comprehensive end of course assessment with 50 questions. You will be given one hour to complete and submit your answers. You will be able to take the assessment as many times as you need to master the content within 90 days. A score of 75 percent or higher must be achieved to satisfy course completion and earn CECs.

About This Course

- + BICSI CONNECT online course*
- + 90 days to complete course
- + 14 CECs

Who Will Benefit?

- + Anyone entering a career involving the planning, implementing, operating and making of critical data center decisions
- + Architects
- + Consultants
- + Designers
- + Engineers
- + Facility professionals
- + IT professionals
- + New data center professionals
- + Project managers
- + Telecommunications professionals

bicsi.org/dc101

Course Materials

- + Access to the ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices* standard is strongly suggested for reference during class**

**Not included in course fee; order at bicsi.org/002

Recommended System Requirements

See page 11.

*All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

DC102: Applied Data Center Design and Best Practices

BICSI's DC102: Applied Data Center Design and Best Practices course is a five-day course that provides an in-depth review of best practices for designing data centers. In this course you will be introduced to various data center infrastructure systems. In addition, you will have an opportunity to apply what you have learned by engaging in case studies, discussions and real-world scenarios, as well as gain practical application in ICT data center design best practices. After completing this course, you should be able to design a data center based on a set of given requirements; this will include both new and retrofit designs.

In addition to data center design, the course will also include life safety practices such as grounding and bonding to ensure that you can account for these issues when designing a data center. On the last day of the course, you will be able to evaluate your learning through a final project and a comprehensive course assessment.

Course Highlights

The DC102 course will address the following areas:

- + Data center design process
- + Site location
- + Building and support spaces
- + Computer room layout
- + Electrical systems
- + Bonding and grounding (earthing)
- + Mechanical systems
- + Telecommunications and IT
- + Ancillary systems
 - Security systems
 - Fire protection systems
 - Building automation systems (BAS)
 - Lighting
- + Security planning
- + Commissioning

Prerequisites & Preparation

DC102 is designed for those who have a minimum of two years of experience in data center design and/or construction. If you do not meet the experience requirements, BICSI strongly recommends that you complete DC101 prior to enrolling in DC102.

Required Materials

- + ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices**
- + Internet-capable device

*Not included in course fee; order at [bicsi.org/002](https://www.bicsi.org/002)

About This Course

- + 5-day course
- + 33 CECs

Who Should Attend?

- + Anyone involved in planning, implementing, operating and making critical data center decisions
- + Architects
- + Data center professionals
- + Designers
- + Engineers
- + Facility managers
- + IT professionals
- + Project managers
- + Telecommunications professionals

What's Great About This Course?

A variety of hands-on exercises, including a final group project, will help reinforce material and prepare students for real-world scenarios.

[bicsi.org/dc102](https://www.bicsi.org/dc102)

DCDC Online Test Preparation

The Data Center Design Consultant (DCDC) Online Test Preparation course is a self-study course designed to help you prepare for the DCDC exam.

Because it is a self-study course, you can complete each module on your own time and practice as often as you need in order to master each concept. The DCDC Online Test Preparation course is aligned with the ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices* standard. After completing this course, you will be better prepared to take the DCDC exam.

Course Highlights

The course will cover all core chapters identified within the scope of the DCDC exam. Course topics include:

- + Architectural and space planning
- + Site selection
- + Electrical systems
- + Mechanical systems
- + Ancillary systems
- + Information technology
- + Commissioning
- + Data center operations and maintenance
- + Sustainability of data centers
- + Design process
- + Risk analysis

Prerequisites & Preparation

DC101 and DC102 are strongly recommended prior to taking the DCDC Online Test Preparation course.

What's Great About This Course?

The DCDC Online Test Preparation course offers you a combination of gaming practice, video tutorials, online flash cards and practice questions.

About This Course

- + BICSI CONNECT online course*
- + 23 CECs
- + Access to course for lifetime of DCDC exam based on ANSI/BICSI 002-2014

Who Will Benefit?

- + Individuals preparing to take the DCDC exam
- + Individuals who want a review of data center designs

bicsi.org/dcdc

Required Materials

- + ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices* standard**

**Not included in course fee; order at bicsi.org/002

Recommended System Requirements

See page 11.

*All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

DCDC Exam Information

Experience

You must have a minimum of two years of approved and verifiable experience in the field of data center design and/or construction. Experience must be within the last six years.

Suggested Study

- + DC101: Introduction to Data Center Design (optional)
- + DC102: Applied Data Center Design and Best Practices (optional)
- + DCDC Online Test Preparation Course (optional)
- + ANSI/BICSI 002-2014, *Data Center Design and Implementation Best Practices*
- + A minimum of 125 hours of independent study

The Examination

- + Computer-based*
- + 100 questions drawn from BICSI's ANSI/BICSI 002-2014 standard
- + Closed-book and multiple-choice
- + Two-hour timed exam

* Visit pearsonvue.com/bicsi for a testing location near you.

U.S. Military and Reservists: BICSI certification exams are eligible for GI Bill reimbursement (bicsi.org/gibill) and may also be eligible for Credentialing Opportunities On-Line (COOL) Program (bicsi.org/cool).

Exam Application

Before taking the exam, you must be approved by BICSI. Applications can be accessed online at bicsi.org/dcdc.

Recertification Requirements

The DCDC credential is valid for three years.

DCDC credential holders are required to continue their education in order to recertify their credential. Within a three-year period (after the exam is passed), these credential holders must:

- + Earn a minimum of 24 BICSI-recognized CECs
- + Submit proof of CECs, recertification application and recertification fee by the expiration date

bicsi.org/dcdc

ANSI/BICSI 002-2014

Data Center Design and Implementation Best Practices

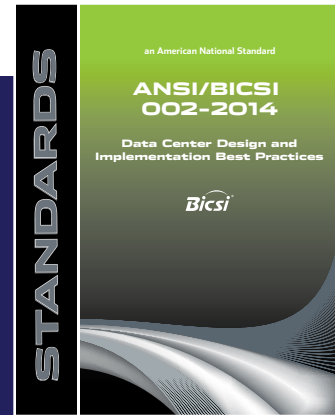
Data center construction and expansion is predicted to continue steadily worldwide. With the increasing focus on reliability and efficiency, the initial design is more important than ever. Thus, professionals within data center design are required to have knowledge of mechanical, electrical and telecommunications systems and how they support the network and network equipment in the data center's core.

ANSI/BICSI 002-2014, BICSI's international best-seller, covers all major systems found within a data center. Written by industry professionals from all major disciplines, this standard not only lists what a data center requires, but provides ample recommendations on the best methods of implementing a design to fulfill your needs.

Highlights

As the foundation standard for data center design, BICSI's 002 covers the following and more:

- + Design methodology
- + Site selection and space planning
- + Building structural and architectural requirements
- + Electrical systems
- + Mechanical systems
- + Security and fire
- + DCIM and building systems
- + Telecommunications infrastructure
- + Network infrastructure
- + Data center commissioning & maintenance
- + Energy efficiency
- + Multi-site data center architecture



¡En Español También!
bicsi.org/español

Also available in Japanese

Who Should Purchase?

- + A&E and construction firms involved with data centers
- + DCDC exam applicants
- + Data center owners and operators
- + Professionals within facilities and physical security management
- + Project managers and installers
- + Telecommunications and information technology (IT) consultants
- + Students taking BICSI courses*

*ANSI/BICSI-002-2014 must be purchased for DC102 and the DCDC Online Test Preparation Course.

bicsi.org/002

OSP

Outside Plant Designer

Trusted OSP Technology and Design

bicsi.org/osp

Since the advent of electrical telegraphy in the early 19th century, outside plant (OSP) has been the foundation of connecting the world. As with all foundations, OSP systems are only as good as the people behind their design, construction and verification.

BICSI OSP Designers are found in all facets of OSP design and construction, utilizing their proven knowledge and skills on projects of all sizes and applications. These include multi-building campuses, airports and railroad terminals—and connecting smart city systems and people everywhere to cellular networks, cloud services, and edge computing systems near and far.

Recognized globally, those who have earned the title of OSP Designer have shown both their experience within the creation, planning, integration, execution, or detail-oriented management of OSP projects, as well as the breadth and depth of knowledge applicable to the position as identified by the peers in the field.

Areas of Knowledge

- + Project development
 - Defining parameters
 - Route planning
 - Site surveying
 - Bid development
- + Pathways and infrastructure
 - Underground structures
 - Direct buried cabling
 - Aerial platform and spaces
 - Grounding (earthing) systems
 - Utility clearances and separations
 - Selection of cabling media
- + Design preparation
 - Preliminary design review
 - Construction package creation
 - Defining rough order of magnitude
 - Project timeline and milestones
- + Project implementation
 - Quality control
 - Change management
 - Testing and reporting
 - Final verification and approval

“Earning the OSP credential was a really big step forward in my career. BICSI laid out great study material and everyday useful information that I use each week—from codes and standards, to very helpful management ideas for OSP infrastructure.”

— Jon Lowell, OSP, RTPM, Complete Network Solutions, Inc., Gainesville, Florida, USA

OSP101: Introduction to Outside Plant Design

Participate in interactive scenario-based online learning in this six-hour introductory course. Get an overview of outside plant (OSP) design consideration for route selection, underground and direct-buried pathways and aerial support structures for an identified aerial pathway. In addition, the course explores industry-recognized cables for cabling systems, using codes and standards, and right-of-way requirements.

Course Objectives

- + List basic types of OSP pathways and spaces
- + List types of cable based on media construction for an application
- + Describe various cabling topologies
- + Identify general requirements of bonding and grounding (earthing) and electrical protection for outside plant
- + Determine specifications for underground pathways and spaces
- + Explain types of trenching methods
- + Identify considerations for aerial support structures
- + Identify requirements for acquiring public or private right-of-way

End of Course Assessment

The OSP101 course includes a timed comprehensive assessment, consisting of 30 questions to be completed within 45 minutes. Students may take the assessment as many times as needed to master the content. A score of 75 percent or higher must be achieved to satisfy course completion and earn 6 CECs.

About This Course

- + BICSI CONNECT online course*
- + 90 days to complete course
- + 6 CECs

Who Should Attend?

- + Individuals needing introductory knowledge of OSP design
- + ICT professionals with interest in OSP design

bicsi.org/osp101

Recommended System Requirements

See page 11.

All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

OSP102: Applied Outside Plant Design

Gain application-based knowledge of all aspects of the outside plant (OSP) design process. This five-day course covers elements common to all OSP projects, along with design techniques for underground, direct-buried and aerial cable plant applications. Students will have the opportunity to apply what they have learned through a series of design scenarios such as route design, media selection, planning and cost estimation.

Course Objectives

- + Identify the components of an OSP infrastructure
- + Identify OSP pathways and spaces
- + Describe effective route designs for outside plants
- + Describe media solutions
- + Describe planning requirements for initial OSP design
- + Identify the primary codes and standards associated with outside plant cable installation
- + Identify bonding and grounding requirements associated with OSP installation
- + Locate requirements in project documentation, including an RFQ, scope of work and other information typically established during a site and/or field survey
- + Identify underground, direct-buried and aerial pathways of a route
- + Describe the three primary cabling topologies and hybrid topologies
- + Identify special design considerations
- + Identify the minimum components of a maintenance plan
- + Identify the information that is needed to provide a cost estimate

End of Course Assessment

Students work together throughout the course to complete a group project, allowing immediate use of new knowledge and skills learned in the classroom.

Prerequisites & Preparation

OSP101 and completion of the ICT Design Fundamentals Program is recommended prior to attending this class. BICSI also strongly recommends that students read the *OSPDRM*, 6th edition, and any errata.

About This Course

- + 5-day course
- + 35 CECs

Who Should Attend?

- + Individuals who want to make OSP engineering or design their profession
- + Individuals charged with the maintenance of OSP facilities
- + OSP designers looking for a refresher or wanting to learn new techniques
- + Individuals involved in the construction of an OSP system
- + Individuals planning to sit for the OSP Designer exam

What's Great About This Course?

OSP102 is a hands-on course, providing an engaging and active learning experience by using real-world scenarios to design underground, direct-buried and aerial plants.

bicsi.org/osp102

"One of the best classes I have attended!"

— Thomas Kirkpatrick, RCDD, TECH, CT, Fleming Network Services, Inc.

Required Materials

- + *Outside Plant Design Reference Manual (OSPDRM)*, 6th edition, electronic or hardcopy**
- + Internet-capable device

**Not included in course fee; order at bicsi.org/ospdrm

OSP Designer Exam Information

Experience

(Option 1) You must hold a current RCDD credential OR (Option 2) have two years of verifiable full-time equivalent field experience in OSP design and/or installation AND a minimum of 32 hours of documented continuing education in OSP design and/or installation which may include training provided by BICSI, manufacturer training, college courses, industry training and/or vendor training.

Suggested Study

- + OSP101: Introduction to Outside Plant Design (optional)
- + OSP102: Applied Outside Plant Design (optional)
- + *Outside Plant Design Reference Manual (OSPDRM)*
- + A minimum of 100 hours of independent study

The Examination

- + Computer-based*
- + 100 questions drawn from BICSI's *OSPDRM*
- + Closed-book and multiple-choice
- + Two-hour timed exam

* Visit pearsonvue.com/bicsi for a testing location near you.

U.S. Military and Reservists: BICSI certification exams are eligible for GI Bill reimbursement (bicsi.org/gibill) and may also be eligible for Credentialing Opportunities On-Line (COOL) Program (bicsi.org/cool).

Exam Application

Before taking the exam, you must be approved by BICSI. Applications can be accessed online at bicsi.org/osp.

Recertification Requirements

The OSP Designer credential is valid for three years.

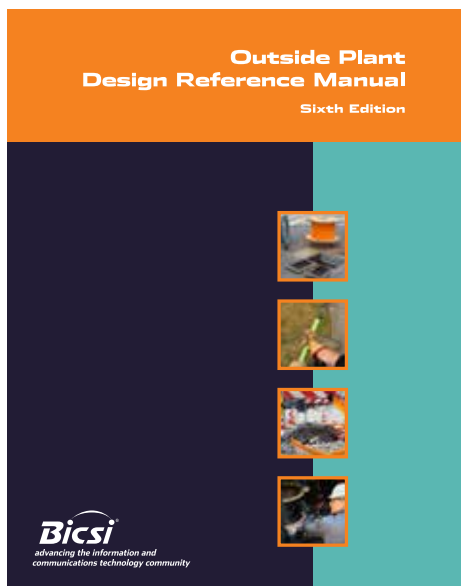
OSP credential holders are required to continue their education in order to recertify their OSP credential. Within a three-year period (after the exam is passed), OSP credential holders must:

- + Earn a minimum of 24 BICSI-recognized CECs.
- + Submit proof of CECs, recertification application and recertification fee by the expiration date.

bicsi.org/osp

“Achieving the OSP credential has been valuable in many aspects of my career. I’m now recognized as a confident and credible authority in OSP. I’ve enhanced my skill set and I am continuously developing my professional status in the ICT industry.”

– Lindon Haigh, RCDD, OSP, Russell-Smith, Hobart, Australia



Who Should Purchase?

- + Beginner and veteran designers
- + Consultants + End users
- + Engineers + OSP Design exam candidates + Students taking BICSI OSP courses

ISBNs:

- 1-978886-76-1 (print)
- 1-978886-75-4 (electronic)

bicsi.org/ospdrm

*Winner of the
2017-2018 Award of Merit
from the Washington, DC –
Baltimore Society for Technical
Communication (STC) Technical
Communications Competition.*

OSPDRM, 6th edition *Outside Plant Design Reference Manual*

Outside plant (OSP) cabling and infrastructure has evolved into the vital element that supports all voice and data communications globally. Even today's wireless networks are supported by a wide array of OSP cabling and infrastructure, empowering individuals to communicate as they need.

Written by industry experts, the *Outside Plant Design Reference Manual (OSPDRM)*, 6th edition, contains new and updated material on topics that include:

- + Passive optical networks (PON) as it relates to OSP
- + OSP aerial installation of all dielectric self-supporting cable (ADSS)
- + New storm loading requirements for aerial OSP design to include the U.S. Warm Islands Zone
- + Maintenance and restoration of outside plant
- + Radio frequency over glass (RFoG) specific to OSP fiber optical installations
- + Excavation methods for direct-buried cable and pathways
- + Project management as it concerns OSP design and geographic information systems (GIS)
- + Updated optical fiber cable types
- + Air-assisted cable installation
- + Joint-use/makeready activities for OSP aerial plant
- + Clearances and grounding/bonding requirements.

The *OSPDRM*, in conjunction with the OSP series courses, serves as a detailed study reference for the BICSI OSP Design exam.

Contents

- + Introduction to Outside Plant
- + Cable and Connector Types
- + Cabling Topologies
- + Pathways and Spaces
- + Splicing Hardware
- + Bonding and Grounding (Earthing) and Electrical Protection
- + Right-of-Way
- + Project Design
- + Maintenance and Restoration
- + Other Technologies
- + Appendix A: Codes, Standards, Regulations and Organizations
- + Appendix B: Legal Considerations
- + Appendix C: Cement and Concrete Applications
- + Appendix D: Balanced Twisted-Pair Cable Transmission Characteristics
- + Glossary
- + Bibliography
- + Index

NEW!

BICSI G1-17, *ICT Outside Plant Construction and Installation: General Practices*

As reliance on stable and efficient ICT networks has become critical for an ever-growing number of applications, the need for effective and efficient performance of outside plant (OSP) construction and installation has also increased. BICSI G1-17, *ICT Outside Plant Construction and Installation: General Practices*, serves as the first standard in a planned series focused on the construction and installation of ICT cabling infrastructure within OSP pathways and applications. BICSI G1 is designed to provide general information relevant to all OSP construction and pathways, with additional standards under development providing in-depth detail on the specific pathways and associated tasks.

Given the nature of development, this standard has been placed under continuous revision, so that as additional material is developed and approved, content within this standard can be modified to expand areas not present or remove conflicts if they arise.

Contents

- + Introduction
- + Scope
- + Required Standards and Documents
- + Definitions, Acronyms, Abbreviations and Units of Measurement
- + General Safety Considerations
- + Tools
- + Aerial OSP Installation
- + Bonding and Grounding
- + Right of Way
- + Drawings and Specifications (Construction Documents)
- + Appendix A: One Call Center Information (Informative)
- + Appendix B: Commonly Encountered AHJ Definitions (Informative)
- + Appendix C: Related Documents (Informative)

OSP



Free electronic download!

Who Will Benefit?

- + OSP linemen and construction personnel
- + OSP designers
- + OSP construction and project managers

bicsi.org/g1

RTPM

bicsi.org/rtpm

Registered Telecommunications Project Manager

Specialized, Successful
ICT Project Management

The successful completion of any ICT project, whether in the office or out in the field, is heavily dependent upon how well the project is organized.

BICSI developed the Registered Telecommunications Project Manager (RTPM) Program as a career path for individuals seeking an advanced understanding of ICT, personnel management and project management. ICT project managers, project coordinators, lead technicians, project team leaders and individuals seeking a profession in this rapidly growing field are encouraged to earn the RTPM credential.

A BICSI RTPM oversees and coordinates the interaction between designers, engineers, installers and technicians when new ICT projects are being developed or are undergoing construction. RTPM exam candidates are tested on their ability to understand and apply a vast collection of telecommunications project management principles, concepts, tools and technology.

The RTPM credential is achieved by passing a comprehensive exam based on content in the *Telecommunications Project Management Manual (TPMM)*.

Areas of Knowledge

- + Specific project information gathering
- + Initial project budget estimate creation
- + Project proposal orchestration
- + Project deliverables
- + Administration
- + Project launch
- + Communication
- + Project closing

“I have found that career 'doors' requiring a [project management] certification previously closed are being opened as PMOs see the value in the RTPM, with the added benefit of ICT knowledge that other credentials don't bring to the table.”

– Eric Helsel, RCDD, RTPM, OSP, Convergent Technology Partners, Flint, Michigan, USA

PM101: Introduction to Project Management

BICSI's PM101: Introduction to Project Management is an online, self-paced course intended to act as the first step for the ICT professional who is looking to transition into project management. This course provides a basic overview of the project management process from project selection to closeout, including information about risk management, quality control, and procurement planning. It offers up-to-date principles and strategies that you can use to make your project teams successful.

Course Objectives

- + Identify the properties of a project, define the role of the project manager and list the project process stages.
- + List the stages of team development, name the four risk responses for threats and specify the four quadrants of a SWOT analysis.
- + Define the scope, schedule and cost baselines in the context of a project plan.
- + List the three classifications of communication methods, name the three triple constraints and specify the steps of reviewing a change request.
- + Apply scheduling tools and techniques to determine project performance.

About This Course

- + BICSI CONNECT online course*
- + 60 days to complete course
- + 6 CECs

Who Will Benefit?

- + Anyone thinking about transitioning into a project management role
- + Architects
- + Consultants
- + Engineers
- + Facility professionals
- + IT professionals
- + Telecommunication professionals

bicsi.org/pm101

Recommended System Requirements

See page 11.

*All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

PM102: Applied Telecommunications Project Management

Project management is the foundation of any successful project. This course provides learners with the tools and templates to successfully manage an ICT project throughout the entire project lifecycle. This course is designed to provide ICT professionals an opportunity to build on their existing project management skills while also exploring the steps and thought processes behind the basic principles and information necessary for managing a successful telecommunications project.

In BICSI's PM102: Applied Telecommunications Project Management course, you will not only learn how to manage projects from start to finish, you will also be better prepared to apply these management concepts and skills in real-world situations.

Course Highlights

- + Designing a project charter
- + Creating a project safety plan
- + Templates for managing project risk
- + Project scheduling
- + Project stakeholder identification
- + Cost management
 - EVM development
- + Develop a procurement plan
- + Change management tools
- + Conduct lessons learned
- + ICT project documentation
- + Build network diagrams
- + Leadership and team management

Prerequisites & Preparation

PM102 is designed for those who have a minimum of two years of experience in ICT and possess basic knowledge of project management concepts. If you do not meet the experience requirement, BICSI strongly recommends that you complete PM101 prior to enrolling in PM102.

About This Course

- + 5-day course
- + 35 CECs

Who Should Attend?

- + Candidates preparing to take the RTPM exam
- + Individuals seeking a career in project management
- + Installers seeking advancement to lead technician
- + Data center professionals managing ICT projects
- + Architects/engineers who manage ICT projects

bicsi.org/pm102

Required Materials

- + *Telecommunications Project Management Manual (TPMM)*, 1st edition*
- + Internet-capable device suggested for class

*Not included in course fee; order at bicsi.org/tpmm

PM103: Advanced Tools for ICT Project Management

Many companies expect their project managers and project leads to be able to use project management software and tools, such as Microsoft Project 2013, with little to no training. This course is designed to teach key project management concepts, such as what a project is and what your role as a project manager will be. Then you will delve into techniques and strategies for managing a project's scope, schedule and budget. With this information in place, you will be ready to discover how Microsoft Project 2013 can be used to set up, manage, track and analyze your projects.

Course Objectives

- + Describe your role as a project manager
- + Define the project's scope and identify project team and stakeholders
- + Master the details of a project's schedule and budget
- + Set up a project in Microsoft 2013
- + Create a task-based schedule in Microsoft 2013
- + Track and analyze projects in Microsoft 2013

About This Course

- + BICSI CONNECT online course*
- + 60 days to complete course
- + 6 CECs

Who Will Benefit?

- + Technicians who want to transition into project management roles
- + Project managers
- + Project schedulers
- + Project leads

bicsi.org/pm103

Recommended System Requirements

See page 11.

*All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

RTPM Exam Information

Experience

You must have a minimum of two years of approved and verifiable experience in project management, such as planning, execution and closing of any project. The PM experience does not have to be directly related to telecommunications, but telecommunications experience is a plus. Experience must be within the last six years.

Suggested Study

- + *Telecommunications Project Management Manual (TPMM)*
- + PM102: Applied Telecommunications Project Management course (optional)
Note: PM102 is NOT a test preparation course. It is recommended to enhance your knowledge of telecommunications project management.
- + Minimum of 125 hours of independent study

The Examination

- + Computer-based*
- + 100 questions that cover the bodies of knowledge for project management in the ICT industry
- + Closed-book and multiple-choice
- + Two-hour timed exam

* Visit pearsonvue.com/bicsi for a testing location near you.

Applications can be accessed online at bicsi.org/rtpm.

U.S. Military and Reservists: BICSI certification exams are eligible for GI Bill reimbursement (bicsi.org/gibill) and may also be eligible for Credentialing Opportunities On-Line (COOL) Program (bicsi.org/cool).

Recertification Requirements

The RTPM credential is valid for three years.

RTPMs are required to continue their education in order to recertify their RTPM credential. Within a three-year period, RTPMs must:

- + Earn a minimum of 36 BICSI-recognized CECs.
- + Submit proof of CECs, recertification application and recertification fee by the expiration date.

bicsi.org/rtpm

“The BICSI RTPM credential is a great way to announce that you understand project management as it relates to the information and communications technology industry. After obtaining my RTPM, I secured a job at one of the nation’s leading multisite, multiservice, multitechnology rollout companies.”

– Adam Runyan, RTPM, Concert Technologies, Ranson, West Virginia, USA

TPMM, 1st edition

Telecommunications Project Management Manual

In the far-reaching world of project management, the *Telecommunications Project Management Manual (TPMM)*, 1st edition, zeros in on the key information needed to execute successful telecommunications projects. Written by some of the very best telecommunications project managers in the information and communications technology (ICT) industry, the manual provides a unique reference for project management information that is applicable to a telecommunications project. The *TPMM* is designed to not only enhance BICSI's RCDD, OSP, DCDC and technician credential holders' careers, but also others in the ICT industry who wish to successfully manage complex telecommunications projects.

Contents

The *TPMM* consists of 4 chapters and 2 appendices, as well as a glossary complete with definitions, acronyms and industry symbols. Topics include:

- + Design project management
- + Installation project management
- + Project implementation
- + Outside plant project management
- + Project documentation
- + Business development
- + Legal considerations



Who Should Purchase?

- + Telecommunications project managers
- + Project coordinators
- + Lead technicians
- + Project team leaders
- + Students preparing to attend PM102
- + RTPM exam candidates
- + Individuals seeking a new career path in this rapidly growing field

ISBNs:

- 1-928886-67-1 (print)
- 1-928886-68-X (electronic)

bicsi.org/tpmm

BICSI offers additional training and resources valuable throughout the ICT industry.

BG101: Foundations of Telecommunications Bonding and Grounding

BICSI's BG101: Foundations of Telecommunications Bonding and Grounding is an online, self-paced course. The course covers foundational knowledge of telecommunications bonding and grounding (earthing) concepts and methods. BG101 consists of seven modules that include engaging interactions and knowledge checks.

Course Highlights

The objective of BG101 is to verify that the bonding and grounding design solutions for telecommunications infrastructure for a commercial building, campus or data center comply with best practices documented in BICSI publications.

By the end of this course you will be able to:

- + Define basic electrical principles
- + Determine the potential hazards for a given scenario
- + Describe the role of the bonding and grounding components to eliminate hazards
- + Verify the design of telecommunications bonding infrastructure for a facility
- + Determine the specifications for a bonding and grounding infrastructure for a facility
- + Identify the best practices for lightning protection for a telecommunications infrastructure
- + Identify the installation and commissioning methods for bonding and grounding

Prerequisites & Preparation

It is recommended that students in this course have foundational knowledge of cabling media, structured cabling, principles of transmission and telecommunications pathways and spaces.

End of Course Assessment

The BG101 course includes a comprehensive end of course assessment. The assessment contains 25 questions and you will be given one hour to complete and submit your answers. You will be able to take the assessment as many times as you need to master the content. A score of 75 percent or higher must be achieved to satisfy course completion and earn CECs.

About This Course

- + BICSI CONNECT online course*
- + 90 days to complete course
- + 6 CECs

Who Will Benefit?

The course is developed for ICT design professionals including:

- + RCDDs
- + Project managers
- + Installation technicians
- + Engineers
- + Data center designers
- + OSP professionals

bicsi.org/bg101

Recommended System Requirements

See page 11.

*All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

BG102: Best Practices for Telecommunications Bonding and Grounding

BG102 is an intensive three-day course that is designed to provide learners with hands-on best practices for bonding and grounding commercial buildings and campuses as outlined in BICSI publications (*TDMM, OSPDRM, ITSIMM*) and *TIA-607-C*. This course is one component of BICSI's telecommunications bonding and grounding curriculum, which is designed as part of an overall career.

Course Highlights

The main objective of the course is to design the bonding and grounding design solution for a given facility. After completing this course, you will be able to:

- + Determine the types of bonding and grounding systems required for a campus
- + Design the bonding and grounding components for the facility (building/campus), given an infrastructure type
- + Design the bonding and grounding for the telecommunications structure in a building or facility
- + Design the bonding infrastructure for a data center in a building or facility
- + Design the bonding infrastructure for the DAS in a building or facility
- + Identify the steps for testing the bonding and grounding connections

Prerequisites & Preparation

BICSI recommends taking BG101 before taking BG102. Otherwise, student should have equivalent knowledge, including foundational knowledge of cabling media, structured cabling, principles of transmission, and telecommunications pathways and spaces. Registered students of BG102 will be emailed a link to a free knowledge check to evaluate their skills prior to class. This optional tool will help determine if the student should first take BG101 prior to attending BG102.

What's Great About This Course?

Through real-world design challenges and scenarios, students will be able to apply their new skills and knowledge to ICT and telco systems in virtually all building types and functions.

About This Course

- + 3-day course
- + 21 CECs

Who Should Attend?

The course is developed for ICT design professionals including:

- + RCDDs
- + Project managers
- + Installation technicians
- + Engineers
- + Data center designers
- + OSP professionals

Course Assessment

There will be an online self-assessment on the first and last day of the class. The scores will not be used to pass or fail the students. The purpose of the assessments is to provide students with a tool to measure their knowledge at the beginning and end of the class.

bicsi.org/bg102

Course Materials

- + Access to the ANSI/TIA-607-C, *Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises* standard is strongly suggested for reference during class*

*Not included in course fee; order at bicsi.org/bg102

ICT DESIGN FUNDAMENTALS

bicsi.org/fundamentals

ICT Design Fundamentals Program

Learn the basics of information and communications technology (ICT) via five online courses, ideal for those starting out in the industry and those looking for a refresher of the fundamentals. The ICT Design Fundamentals Program will assist students in long-term career advancement and serves as a transition point for installers and technicians who want to explore a design-oriented career.

Fundamental ICT Knowledge Through BICSI CONNECT

A great introduction to or refresher of key ICT concepts.

ICT DESIGN FUNDAMENTALS PROGRAM

ICT Design Fundamentals Program

After completing all five courses, students may sit for the ICT Design Fundamentals exam. Upon passing, students are better prepared to continue their design career.

Courses Include:

Note: Courses are listed in the order of recommended completion. Individually purchased courses must be completed within 60 days of purchase.

+ Structured Cabling Systems

A structured cabling system is a complete collective configuration of cabling and associated hardware at a given site which, once installed, provides a comprehensive infrastructure. This course discusses pathways, spaces, firestopping, codes and standards, all of which are a core focus of the ICT designer.

+ Media Selection

ICT designers must be aware of the various types of media (cable) that are available. Each type and configuration has specific uses and defined installation methods. This course focuses on the types and characteristics of ICT media and their installation procedures, so designers can make the most appropriate media choice for each design.

+ Bonding and Grounding

Bonding and grounding (earthing) are an integral portion of the telecommunications infrastructure for providing a safe electrical operating environment. They are also instrumental in providing a reliable reference for the operation of electronic equipment. This course offers students the opportunity to advance their bonding and grounding (earthing) knowledge by reviewing basic electrical theory, grounding system configurations and components.

+ Network Design

The ICT designer's responsibility doesn't end with structured cabling. In today's highly networked workplace, network integration is a major topic for the ICT designer. This course explores three separate network applications: data, wireless and data centers.

+ Project Management

Project management has become an important part of the ICT industry and a unique career path for the ICT design professional. This course reviews the common tools and techniques used to ensure successful project completion.

Who Will Benefit?

- + Those new to the ICT industry or who want to refresh their knowledge
- + Installers and technicians looking to transition their career into design

What's Great About This Course?

This well-rounded lineup of courses offers both the industry novice and the experienced professional a simple overview of ICT topics!

[bicsi.org/fundamentals](https://www.bicsi.org/fundamentals)

Bundle and Save

Save money by purchasing these courses and exam as a bundle. A bundle purchase will allow one year for completion of all courses and the exam. CECs are not offered for the Fundamentals bundle.

¡En Español También!

¡Todos los cursos de Fundamentos de Diseño de TIC, incluyendo el examen, se ofrecen en español! [bicsi.org/espanol](https://www.bicsi.org/espanol)

Recommended System Requirements

See page 11.

All BICSI CONNECT courses require a computer, and are nonrefundable and nontransferable.

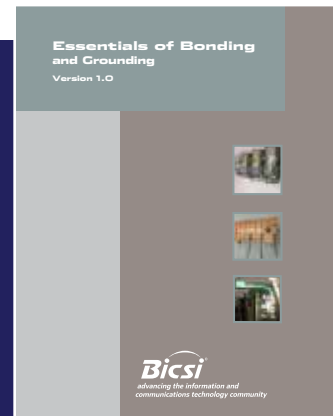
Essentials of Bonding and Grounding

The bonding of the information and communications technology (ICT) infrastructure to a building's grounding system is an important element of safeguarding personnel, property and equipment from unexpected electrical voltages and currents. The *Essentials of Bonding and Grounding* provides the common foundational knowledge needed for all aspects of bonding the ICT infrastructure, paving the way for designers, technicians and installers to design and implement a successful bonding infrastructure. This digital reference offers a compact and easy-to-understand look at basic bonding and grounding techniques.

Who Should Purchase?

Those who require the foundational knowledge for the proper execution of future and more complex bonding and grounding tasks, including:

- + RCDDs + Designers of low-voltage cabling systems
- + Those involved in the basic design of bonding and grounding systems



ISBN: 978-1-928886-72-3
(electronic)

bicsi.org/ebg

BICSI's Special ICT Installation Considerations

BICSI's Special ICT Installation Considerations (SIC) compiles information on many of the less common building systems, such as paging, sound masking and fire detection. Additionally, as the number of racks required for equipment has increased, especially within data centers and other mission-critical facilities, further material on installing equipment cabinets and racks has been provided. This electronic publication is rounded out by the inclusion of additional material for working within health care facilities, as well as extending circuit lengths for some building systems.

Who Should Purchase?

All copper and optical fiber installers and technicians who will inevitably encounter special cabling installations.



ISBN: 978-1-928886-73-0
(electronic)

bicsi.org/sic

BICSI's ICT Terminology Handbook

Free to BICSI members and nonmembers

Following in the footsteps of the classic *BICSI Information Transport Systems Dictionary*, *BICSI's ICT Terminology Handbook* download is an essential tool for all information and communications technology (ICT) professionals.

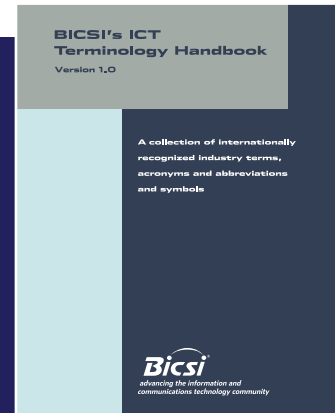
This compendium of terms, definitions, acronyms, symbols and more is relevant for anyone seeking a BICSI credential AND for those needing an on-the-job reference.

BICSI's ICT Terminology Handbook is a global product created by a team of seasoned ICT subject matter experts. Starting from a base of content used in BICSI's technical publications, the team expanded the scope to include material from the entire ICT industry. The end result is more than 300 pages of relevant and useful information sure to increase ICT professionals' skillsets.

To purchase and download your copy today, visit bicsi.org/terminology.

Who Should Purchase?

+ Architects + Consultants + Designers + Engineers + ICT professionals



ISBN: 1-928886-68-X (electronic)

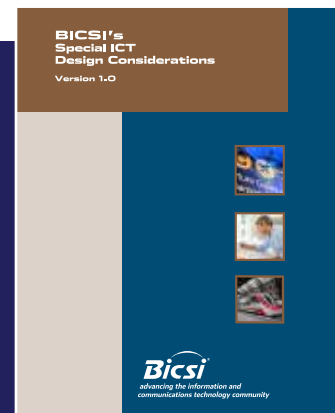
bicsi.org/terminology

BICSI's Special ICT Design Considerations

Many of BICSI's credential holders, from RCDDs to RTPMs, will eventually encounter information and communications technology (ICT) designs that fall outside of the norm. *BICSI's Special ICT Design Considerations* download addresses the special designs that ICT designers are likely to encounter. Taken from the pages of BICSI's flagship *Telecommunications Distribution Methods Manual (TDMM)*, this information is now in one convenient place.

Who Should Purchase?

+ Architects + Consultants + Designers + Engineers
+ ICT professionals + Telecommunications professionals



ISBN: 1-928886-69-8 (electronic)

bicsi.org/considerations

ANSI/BICSI 007-2017

Information Communication Technology Design and Implementation Practices for Intelligent Buildings and Premises

The Internet of Things (IoT) has ushered in the year of the interconnected building, premise and city. Driven by the need for environments which are safer, more comfortable, productive or efficient for the people within, ICT has become the means to interconnect building systems of all sizes and applications. With ICT as the common thread, an effective and efficient structured cabling is critical to the success of both initial implementation and future growth to meeting the building and occupant needs.

ANSI/BICSI 007-2017 provides requirements and recommendations for design and implementation of the structured cabling system and related applications for any size building or premise, regardless if it serves commercial, government, transportation, residential or any other function. BICSI 007 also includes information for building automation systems, low-voltage lighting, combined data and power transmission (e.g., PoE, PoH), and a number of other systems routinely found inside intelligent building application.



Who Should Purchase?

- + Architects + Engineers
- + Facilities and building managers
- + ICT system designers
- + Project managers

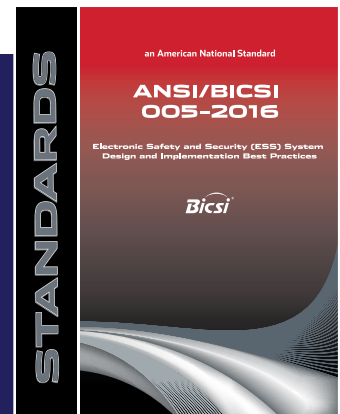
bicsi.org/007

ANSI/BICSI 005-2016

Electronic Safety and Security (ESS) System Design and Implementation Best Practices

Gone are the days of the stand-alone safety or security systems. Today's individual systems are being integrated with each other and a myriad of other building systems and functions to provide an effective, efficient and comprehensive solution for protecting people, assets and property. However, solutions are only able to perform to the level of their weakest link, sometimes that being the cabling infrastructure supporting these systems.

ANSI/BICSI 005 provides the security professional with the requirements and recommendations of a structured cabling infrastructure needed to support today's security systems while providing the cabling design professional information on different elements within safety and security systems that affect the cabling infrastructure design. While content is provided for the primary areas of security, such as access control, intrusion detection and video surveillance, the requirements, recommendations and information contained within apply equally across a wide range of systems that comprise the security and fire-life-safety spectrum.



Who Should Purchase?

- + ICT designers working with ESS systems + Project managers and systems inspectors requiring knowledge of IP-enabled security systems + Security system designers of IP-enabled systems
- + Security system integrators and consultants + Site security and facility personnel

bicsi.org/005

ANSI/BICSI 008-2018

Wireless Local Area Network (WLAN) System Design and Implementation Best Practices

Growth in the WLAN market is stronger than ever as it continues to enable new digital and business strategies and outcomes. With the development of the 802.11ax protocol, WLAN systems are poised to deliver similar networking speeds commonly available through wired cabling. And as wireless technology has also become an enabler for the rapid growth of the number of IoT and building intelligence devices, designing an effective ICT cabling infrastructure for today and tomorrow's WLAN systems is no longer as simple as proving a cable to a single access point.

ANSI/BICSI 008-2018, *Wireless Local Area Network (WLAN) Systems Design and Implementation Best Practices* provides the requirements and recommendations for design and implementation of the structured cabling system supporting a WLAN. In addition, information is provided to assist the ICT designer in understanding concepts within wireless transmission for developing WLAN deployments. The information within BICSI 008 will also be of use to dedicated WLAN designers when planning locations for access points and how placement can be supported by the cabling infrastructure.



Who Should Purchase?

- + All professionals who use WLANs in conjunction with network and building systems
- + ICT system designers and implementers
- + Architects
- + Facilities and building managers
- + Project managers

bicsi.org/008

¡En Español También! bicsi.org/español

ANSI/BICSI 006-2015

Distributed Antenna System (DAS) Design and Implementation Best Practices

As wireless connectivity has become a necessity in today's ever-changing and mobile populace, solutions such as DAS are no longer seen as just a recommended site upgrade. Services and applications, such as cellular communication, broadband and land mobile radio, and emergency response are all affected by the capacity, reliability and design of the DAS. As more devices connect to the greater world, DASs are becoming an indispensable element of a greater connectivity solution.

ANSI/BICSI 006-2015 is the first standard specifically written for the design and implementation of a DAS. Created to be applicable to all DASs, regardless of manufacturer, service provider or application, BICSI 006 provides ICT and connectivity designers and installers with not only information about the types and components commonly used, but also with the requirements and best practices of the design, installation and implementation of a DAS.



Who Should Purchase?

- + All professionals that use DAS in conjunction with ICT
- + Architects + Engineers
- + Facilities and building managers
- + ICT system designers
- + Project managers

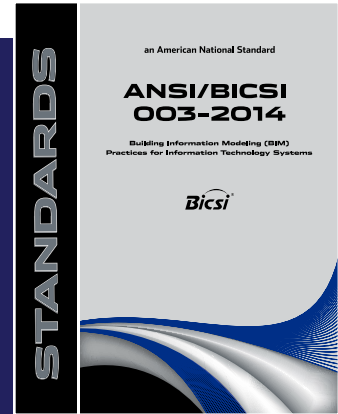
bicsi.org/006

ANSI/BICSI 003-2014

Building Information Modeling (BIM) Practices for Information Technology Systems

The request and adoption of building information modeling (BIM) for information and communications technology (ICT) projects has been steadily increasing in recent years. Architectural, engineering and construction firms all differ in what they require and ultimately provide their client. When combined with the varying levels of information provided by manufacturers that support all aspects of the construction industry, the result can be inefficiencies, frustration and a failure to meet project expectations.

ANSI/BICSI 003-2014 is the first BIM standard written specifically for ICT. At its core, the standard provides detailed information about BIM content models and object parameters, setting the recommended levels and guidelines for BIM models. Also contained are considerations about the integration of BIM within projects, as well as identifying items within ICT systems that often enter into spatial conflicts with other areas of construction (e.g., electrical, mechanical).



Who Should Purchase?

- + Architects + Engineers
- + Facilities and building managers
- + Facility owners and operators
- + ICT system designers + Project managers + Telecommunications and Information Technology (IT) consultants and installers

bicsi.org/003

Attention Military Service Members and Reservists:

Equip Yourself for the Civilian Workforce

Earn BICSI credentials to increase your professional skillset and competitiveness in the civilian sector.

Credentialing Opportunities On-Line (COOL) will pay for your BICSI Certification Exams!

Prepare yourself.

bicsi.org/cool



G.I. Bill Reimbursement also available!
bicsi.org/gibill

ANSI/BICSI 004-2018

Information Communications Technology (ICT) Systems Design and Implementation Best Practices for Healthcare Institutions and Facilities

Today's healthcare facility is increasingly digitized, from health records, and diagnostic and monitoring equipment, to remotely routing office visits spanning thousands of miles. As more systems connect to the network, any ICT infrastructure deployed is not only required to meet today's needs, but those of tomorrow — with minimal to no effect on the overall healthcare mission.

ANSI/BICSI 004-2018 provides requirements and recommendations for best practices for the design and implementation of information technology systems infrastructure for healthcare institutions and facilities for meeting today and tomorrow's needs.

Some of the areas in which the 2018 standard has been revised and expanded include:

- + Communication, ICT and wireless information
- + Architectural aspects of healthcare facilities
- + Emergency medical services radio, sound and acoustical systems
- + Network design and security

ANSI/BICSI 001-2017

Information and Communication Technology Systems Design and Implementation Best Practices for Educational Institutions and Facilities

Today's educational facilities are rarely one building. That means not only does the ICT infrastructure need to meet the varying demands of a specific building, but multiple buildings must all be integrated into one cohesive design. And in today's environment of providing multifunctional spaces, it is not uncommon to find a combination of commercial, industrial, data center, health care and entertainment environments within just a few buildings.

ANSI/BICSI 001-2017 is written for today's educational spaces, where network connectivity is no longer considered "nice to have," but rather a "must have," just like electricity. In addition to providing guidance in the selection and implementation of the ICT infrastructure, more information has been added to address commonly encountered technologies and applications found within the classroom, the building and the campus on which it resides.



Who Should Purchase?

Healthcare facility professionals who:

- + Design and implement ICT and IP-enabled systems
- + Inspect or require knowledge of ICT and IP-enabled systems
- + Manage or maintain ICT and IP-enabled systems
- + Manage ICT infrastructure projects

bicsi.org/004



Who Should Purchase?

- + Architects + Engineers
- + Facility and building managers
- + Facility owners and operators
- + ICT system designers + Project managers + Telecommunications and IT consultants and installers

bicsi.org/001

BICSI Library

All BICSI technical manuals and the entire collection of BICSI standards are available in one convenient package.

This complete collection is ideal for anyone starting their ICT library, or those looking to update their existing BICSI publications.

Content throughout the 5,000-plus page collection is extensive, ranging from the fundamentals of ICT to cabling design to specialized applications. It also costs less than purchasing and shipping each of the publications individually.

The BICSI Library Includes:

Manuals/Publications

- + *Telecommunications Distribution Methods Manual (TDMM)*
- + **NEW!** *Outside Plant Design Reference Manual (OSPDRM)*
- + *Information Technology Systems Installation Methods Manual (ITSIMM)*
- + *Telecommunications Project Management Manual (TPMM)*

Standards

- | | |
|-----------------------|----------------------------|
| + ANSI/BICSI 001-2017 | + ANSI/BICSI 007-2017 |
| + ANSI/BICSI 002-2014 | + ANSI/BICSI 008-2018 |
| + ANSI/BICSI 003-2014 | + ANSI/BICSI N2-17 |
| + ANSI/BICSI 004-2018 | + ANSI/NECA/BICSI 568-2006 |
| + ANSI/BICSI 005-2016 | + ANSI/NECA/BICSI 607-2011 |
| + ANSI/BICSI 006-2015 | + BICSI G1-17 |

The BICSI Library is available in both print and downloadable formats.

bicsi.org/publications

Corporate Solutions

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BICSI has joined forces with IHS Standards Expert™ and Techstreet to provide all BICSI publications through an online standards management platform. These platforms provide you and your organization easy-to-use online access to the latest industry standards.

- + Subscribe to one, some or all of BICSI’s content.
- + Incorporate standards from other standards bodies, including TIA, NFPA, ISO/IEC, BSI, CSA and more.
- + Solutions are provided by internet access, corporate network deployment or other means to address security concerns.

Find out more about each of our partners at **ihs.com/bicsi** or **techstreet.com/publishers/bicsi**.





Global Resources

Information and communications technology (ICT) plays a significant role in our daily lives in virtually every part of the world. So providing the education and resources to make sure we continue to build this knowledge is important to BICSI, both locally and globally. [bicsi.org/global](https://www.bicsi.org/global)

Global Conferences and Events

As our association continues to grow, BICSI adds more global events to its list of activities. A valuable way to make new industry connections, these occasions allow you to learn about industry issues that directly affect your part of the world. [bicsi.org/conferences](https://www.bicsi.org/conferences)

Authorized Training Providers

BICSI Authorized Training Providers are organizations that offer BICSI-certified training from their own facilities located in areas around the globe. They use the same quality curriculum, classroom equipment and materials offered in any BICSI-conducted class. See page 9 for details.

- + **Authorized Design Training Providers (ADTPs)** offer BICSI design and project management courses. [bicsi.org/adtp](https://www.bicsi.org/adtp)
 - + **Authorized Training Facilities (ATFs)** are approved to offer BICSI's Cabling Installation Program. [bicsi.org/atf](https://www.bicsi.org/atf)
-

Language Translations

BICSI offers Spanish and Japanese translations of select BICSI products, as referenced throughout this catalog. [bicsi.org/espaol](https://www.bicsi.org/espaol)

Distance Learning

Learn about the newest industry trends and earn CECs without leaving your home or office. We offer BICSI CONNECT online courses, as well as live webinars and virtual instructor-led training. See pages 8-11 for details. [bicsi.org/training](https://www.bicsi.org/training)

Electronic Publication Distribution

Receive instant access and eliminate shipping fees when you purchase BICSI manuals and standards as downloadable documents. Orders can be placed online 24-hours a day.

IHS Global and Techstreet provide electronic subscriptions and corporate solutions for BICSI publications, as well as other technical bodies, so they can be accessed all over the world. See page 62. [ihs.com/bicsi](https://www.ihs.com/bicsi) or [techstreet.com/publishers/bicsi](https://www.techstreet.com/publishers/bicsi)

Electronic Testing

BICSI credentialing exams are administered in a computer-based testing (CBT) format at Pearson VUE Authorized Testing Centers around the world. Find a testing site near you. [pearsonvue.com/bicsi](https://www.pearsonvue.com/bicsi)



Course Registration Details bicsi.org/courses

BICSI members pay less for BICSI courses.

BICSI Open Enrollment Courses

NOTE: Details below apply to instructor-led courses only.

BICSI Cancellations: Occasionally BICSI may have to cancel a class. If this happens, all class attendees will be notified by email. Attendees will have the option of moving to a future class at a different location or receiving a full refund of class registration fees.

BICSI recommends that students do not make non-refundable travel plans until 30 days prior to scheduled start date.

BICSI will attempt to make all class cancellation/rescheduling decisions no later than 30 days prior to the scheduled start date of the class. If a class is cancelled by BICSI within 30 days of the scheduled start date, BICSI will reimburse the student for any change fees (hotel and airfare) resulting from the need to reschedule travel arrangements. Proof of incurred expenses must be provided to receive the reimbursement.

If BICSI cancels a class more than 30 days prior to the scheduled start date, BICSI is unable to provide refunds or cover any expenses relating to travel, including but not limited to hotel and airfare.

If you have any questions about your class, please contact BICSI at 800.242.7405 (USA and Canada toll-free) or +1 813.979.1991 or email bicsi@bicsi.org.

Student Cancellations: BICSI understands your busy schedule and knows that, from time to time, you may need to cancel and withdraw your attendance in a class. Class registration fees are refundable if a written cancellation request is received by BICSI no later than 11 business days prior to the first day of class. All subsequent cancellation requests will be subject to a cancellation fee of 25% of the class registration fee. Any cancellation request received within 11 business days prior to the first day of class will be subject to a late cancellation fee of 25% of the class registration fee.

Cancellation requests must be submitted in writing by email to bicsi@bicsi.org or by fax to +1 813.971.4311.

Transfers: BICSI will allow one transfer without penalty if a written request is received no later than 11 business days prior to the first day of class. All subsequent transfer requests received no later than 11 business days prior to the first day of class will be subject to a US\$100 transfer fee. All transfer requests received within 11 business days prior to the first day of class will be subject to a transfer fee of US\$250. Transfer requests must be submitted in writing by email to bicsi@bicsi.org or by fax to +1 813.971.4311.

No-Shows: Those who do not cancel before the first business day of class and do not show up for class are considered no-shows. A refund is not available for those who are considered no-shows. Additionally, continuing education credits (CECs) are not issued if the student is a no-show or does not complete the class. BICSI is unable to accommodate transfers to an alternate class or location for those considered no-shows.

Substitutions: Substitution requests must be received no later than 2 business days prior to the first day of class. Requests to substitute one student for another must be submitted in writing by email to bicsi@bicsi.org or by fax to +1 813.971.4311.

GSA: Those receiving GSA pricing should review the terms and conditions of the GSA Contract for cancellations.

Class Confirmations: Confirmation will be emailed to registered students. This will include the date and location of the training, required course materials and the edition number of the manual that will be used.

Program Fees and Payment Information

Full payment for BICSI courses must be received by BICSI prior to the start of class or session. Students who arrive to class without payment will be excused until course fees are paid in full.

BICSI CONNECT

All BICSI CONNECT courses are nonrefundable and nontransferable.

Exam Registration Details bicsi.org/exams

BICSI members receive discounts on BICSI exam registrations.

Certificate & Credentialing Exams

Exam Registration: Registration for a course does not automatically register you for the examination. You must apply separately to sit for all credentialing exams. See the corresponding sections of this catalog for exam information specific to your desired career path. Visit the BICSI website at bicsi.org/credentialing to apply.

Program Fees And Payment Information: BICSI accepts VISA, MasterCard, American Express, Diner's Club, Discover, checks (U.S. dollars, drawn on a U.S. bank), money orders, purchase orders (company P.O.s must be in excess of US\$500) and wire transfers. Please contact BICSI's Accounting Department for instructions on wiring funds. Full payment for exam applications must be received by BICSI when you submit your exam application. All fees are nonrefundable.

Exam Confirmations: Confirmations will be emailed upon approval. Contact BICSI's Credentialing Department for details at 800.242.7405 (USA and Canada toll-free) or +1 813.979.1991.

Installation Program

Application Processing: A complete exam application and a non-refundable application fee must be received by BICSI's Credentialing Department for review and processing no later than 15 business days prior to the exam date. An exam application may be expedited if received 5-14 business days prior to the exam date. The final exam application and fee deadline is 5 business days prior to the exam date. Exam applications will not be processed after the deadline. After the exam application is approved, it is valid for one year.

Exam Format: Exams are made up of two parts, hands-on and written. You must successfully pass both parts of the exam to earn a BICSI certificate or credential. Written exam retakes are available via a computer-based testing format at a Pearson VUE Authorized Testing Center.

Exam Reschedule and Cancellation Policy: You must contact Pearson VUE at pearsonvue.com/bicsi at least one business day prior to the scheduled appointment. Rescheduling or canceling less than one full business day prior to your appointment/exam may result in forfeiting your exam fees.

RCDD, RTPM, DCDC and OSP Programs

Application Processing: BICSI processes applications in the order they are received. Please be sure that all of your references have a phone number and email address. Only completed applications will be accepted (do not send in partial applications). Please allow 30-60 days for approval. The exam application is valid for one year from approval date.

Exam Format: The examinations are administered in a computer-based testing (CBT) format at Pearson VUE Authorized Testing Centers, worldwide. Locations of Pearson VUE Authorized Testing Centers can be found at pearsonvue.com/bicsi.

Exam Reschedule and Cancellation Policy: You must contact Pearson VUE at pearsonvue.com/bicsi at least one business day prior to your scheduled appointment. Rescheduling or canceling less than one full business day prior to your appointment may result in forfeiting your exam fees.

SAVE 10%*

- + When three or more students from the same company preregister for the same class at the same time.
- + When a student preregisters for three or more classes at the same time.

SAVE 5%*

- + When a student preregisters for a course at least 45 days in advance.

*BICSI CONNECT and Authorized Training Provider courses are not eligible for these discounts. This offer cannot be combined with other offers.

DEALS ON COURSES

Call +1 813.979.1991 or 800.242.7405 for details.

Reap the Rewards of Membership

Join BICSI today to begin experiencing the benefits of membership, including discounts on many of the offerings in this catalog.

Below are just a few of the advantages of BICSI membership:

- + **BICSI Recognition:** Name and contact info posted on BICSI site; use of BICSI member logo; membership certificate
- + **Exclusive Association Discounts:** Save money on BICSI training, credentialing applications and renewals, publications and standards; conference registrations
- + **Website Forums:** Discuss, post and answer ICT issues; ability to post and search employment opportunities
- + **Standards Development:** Make your mark in the industry by helping to ensure ICT projects are completed to the highest levels of specification
- + **College Scholarships:** Members and immediate family are eligible for the Ray Gendron/BICSI Cares Scholarship
- + **Volunteer Opportunities:** Share your expertise with the ICT community and build your reputation as an industry leader; serve on BICSI Board of Directors or specific BICSI committees
- + **ICT Today Subscription:** Read national and global technical articles to increase your knowledge; write features to be published
- + **BICSI Insider:** Get updated on the latest BICSI happenings in this bi-monthly digital newsletter

Choose Your Membership

In addition to Individual and Corporate memberships, BICSI offers discounted memberships for Installers and Technicians, Students, Apprentices, Active-Duty Military and Seniors. Visit bicsi.org/membership to find out more.

Corporate Membership Program

Increase your company's industry exposure, client retention and employee engagement as a BICSI Corporate Member. Choose from three levels:

Alliance Level: Two corporate memberships; Corporate listing on BICSI website, including list of credentialed employees; Reduced outside vendor CEC evaluations; Corporate Buyer's Guide App listing; Corporate member logo and plaque

Elite Level: Four corporate memberships; ALL Alliance perks PLUS choice of Marketing or Training module, each with multiple related benefits

Elite Plus Level: Eight corporate memberships; ALL Alliance perks PLUS BOTH Marketing and Training modules; PLUS six BICSI webinar registrations.

Complete a membership application at bicsi.org/membership.

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About BICSI

BICSI is a professional association supporting advancing the information and communications technology (ICT) community. ICT covers the spectrum of voice, data, electronic safety & security, project management and audio & video technologies. It encompasses the design, integration and installation of pathways, spaces, optical fiber- and copper-based distribution systems, wireless-based systems and infrastructure that supports the transportation of information and associated signaling between and among communications and information gathering devices.

BICSI provides information, education and knowledge assessment for individuals and companies in the ICT industry. BICSI serves nearly 23,000 ICT professionals, including designers, installers and technicians. These individuals provide the fundamental infrastructure for telecommunications, audio/video, life safety and automation systems. Through courses, conferences, publications and professional registration programs, BICSI staff and volunteers assist ICT professionals in delivering critical products and services, and offer opportunities for continual improvement and enhanced professional stature.

Headquartered in Tampa, Florida, USA, BICSI membership spans nearly 100 countries.

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Do You Qualify for GSA Pricing?

BICSI offers U.S. General Services Administration (GSA) pricing to qualifying agencies for students attending open enrollment classes and agencies wishing to host BICSI classes for their employees. BICSI credentials are highly respected throughout the industry for the level of training excellence they represent. They carry great weight when competing with other ICT professionals. Start the process of earning a BICSI credential today and help secure your future.

Contract Information

SIN 132-50—Training courses for information technology equipment and software. (FPDS Code U012)

Contract Number: GS-35F-0253M

Period Covered by Contract: February 8, 2012-February 7, 2022

The full contract is available to view at bicsi.org/gsa

DUNS: 04-425-6352

SIN	Course Code	Course Description
132-50.....	DD102	Designing Telecommunications Distribution Systems
132-50.....	DC102	Applied Data Center Design and Best Practices
132-50.....	OSP110.....	Cable Plant Design
132-50.....	PM110	Telecommunications Project Management
132-50.....	IN101	BICSI Installer 1 Training
132-50.....	IN225	BICSI Installer 2, Copper Training
132-50.....	IN250	BICSI Installer 2, Optical Fiber Training
132-50.....	TE350	BICSI Technician Training

To view a complete list of GSA course offerings, including a complete list of Open Market courses and pricing, visit bicsi.org/gsa.

Products and ordering information in this Authorized Federal Supply Service (FSS) Information Technology Schedule List are available on the GSA Advantage! System. Agencies can browse GSA Advantage! by accessing the FSS home page at gsa.gov. Under GSA guidelines, BICSI will accept government payments made using SmartPay credit cards that are authorized through major national banks. Please contact BICSI Membership and Customer Care at 800.242.7405 (USA and Canada toll-free) or +1 813.979.1991 with any questions you may have on both GSA pricing and ordering. You may also email bicsi@bicsi.org.



Contract Holder

BICSI is a registered provider for the U.S. General Services Administration (GSA).

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