

# Developing Standards for the Global Smart City & IoT Infrastructure Industry & Advancements in BICSI Training Programs for Aspiring ICT ACE & PMs

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Vice President Global Development and Support





# Agenda

- BICSI Overview
- Developing Standards
- Advancements in BICSI Training



# What is BICSI?

**BICSI - Building Industry Consulting Service International, Inc.**

**BICSI** is a non-profit association serving professionals in the Information & Communications Technology (ICT) community

**Core Purpose:** Advancing the ICT Community

**BICSI's Vision:** BICSI will be the preeminent global resource for developing standards, providing credentials, accreditation and knowledge transfer for the ICT community





# BICSI Provides the ICT Community with . . .

## **Technical Knowledge**

- Internationally Adopted Industry Standards
- Technical Publications & Periodicals

## **Professional Development**

- Globally Recognized Credentials
- Training in ICT Design, Installation and Project Management

## **Access to Local & Global ICT Communities**

- Educational Conferences & Exhibitions
- Professional Networking

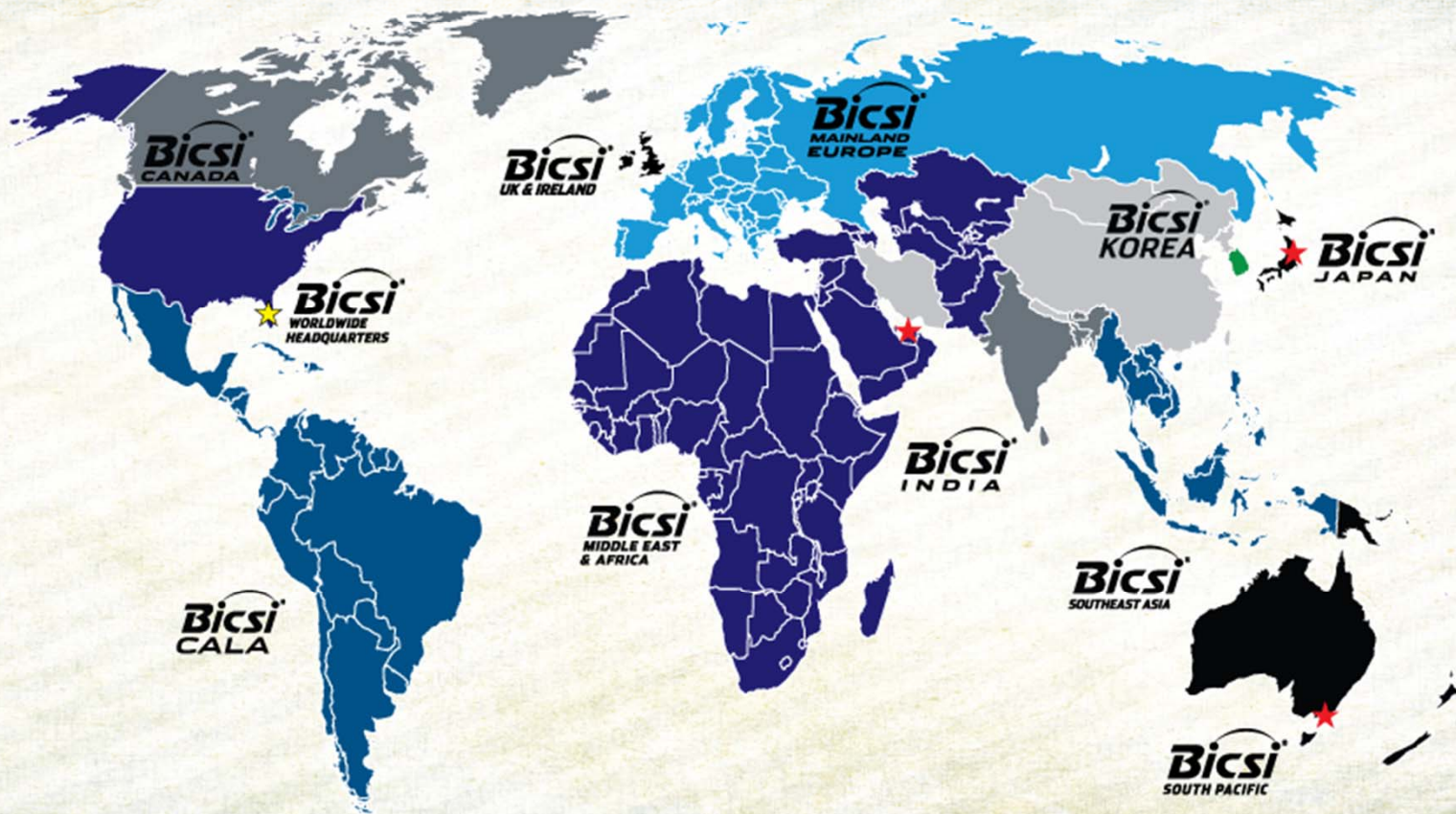




# In the Following ICT Community Segments

- Commercial & Residential Infrastructure
- Datacenters
  - Design
  - Operations
- Outside Plant Cabling Distribution
- Electronic Safety & Security
- Building Automation
- Wireless Systems
- Network Infrastructure
- Telecommunications Project Management
- Installation & Verification of Technology Systems

**BICSI Serves more than 23,000 ICT community professionals in 100 countries around the world**





# BICSI Middle East & Africa

## District Chair

Ayman AboSlema, RCDD, DCDC,  
NTS, OSP, CT, CDCDP, CCNA,  
CCDA

[aaboslema@bicsi.org](mailto:aaboslema@bicsi.org)

## District Vice Chair

Werner Heeren

[werner.heeren@bicsi.org](mailto:werner.heeren@bicsi.org)

## Nigeria

### Country Chair

Boye Oyerinde, TECHN, CT

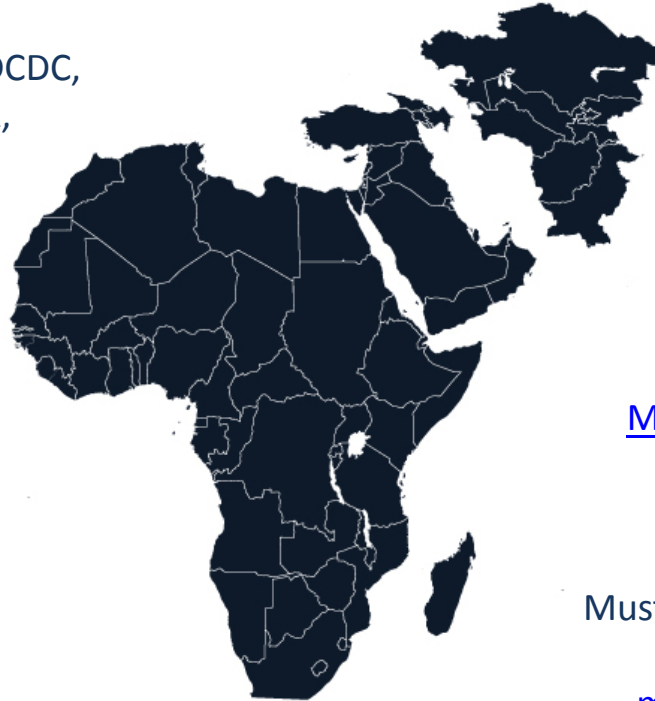
[BoyeOyerinde@bicsi.org](mailto:BoyeOyerinde@bicsi.org)

## South Africa

### Country Chair

Dewald Burger, RCDD

[dburger@bicsi.org](mailto:dburger@bicsi.org)



[www.bicsi.org/mea](http://www.bicsi.org/mea)

## Turkey

### Country Chair

Harun Cakin

[HarunCakin@bicsi.org](mailto:HarunCakin@bicsi.org)

### Vice Country Chair

Murat C. Erenturk

[MuratErenturk@bicsi.org](mailto:MuratErenturk@bicsi.org)

## United Arab Emirates

### Country Chair

Mustafa Masri, RCDD, CDCP,

LEED, GA

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### Vice Country Chair

Haitham M. Hussien, RCDD

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# Developing Standards for the Global ICT/IOT/Smart City Infrastructure Industry







# What are Standards?

***A standard is a document that provides rules or guidelines to achieve order in a given context***

Source: <http://www.etsi.org/standards/what-are-standards>



# Why Use Standards?

- They address especially the needs for interconnection and interoperability.

This is particularly important for open markets, where users, who are increasingly mobile, can 'mix and match' equipment and services, and where suppliers can benefit from economies of scale

- Standards are equally important for ensuring safety, reliability and environmental care.

They are also frequently referenced by regulators and legislators for protecting user and business interests, and in support of government policies

Source: <http://www.etsi.org/standards/what-are-standards>





# ICT Standards and BICSI

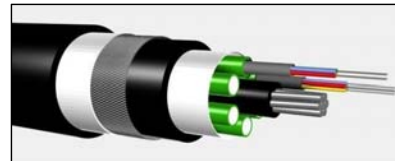
## IEEE

Defines the message and transmission characteristics

7	Application
6	Presentation
5	Session
4	Transport
3	Network
2	Data Link
1	Physical

## ISO/IEC & TIA

Defines the transmission media and system specifications



## BICSI

Defines design solutions using transmission media and systems





# BICSI International Standards Program

- Focus:
  - Develop standards within all facets of Information & Communications Technology (ICT) infrastructure design and installation
- Details:
  - Over 500 members worldwide
  - Accredited by ANSI
  - Develops international standards and best practices
  - “Nonprofit Program” – Free from 3<sup>rd</sup> Party Financial Influence

[www.bicsi.org/standards](http://www.bicsi.org/standards)





# Information on ANSI

- Promotes the use of standards in the US
- Accreditation body for:
  - Standards Development
  - Credentials (ISO 17024)
  - Testing Labs (ISO 17025)
- Ensures open and impartial processes
- Doesn't develop standards!

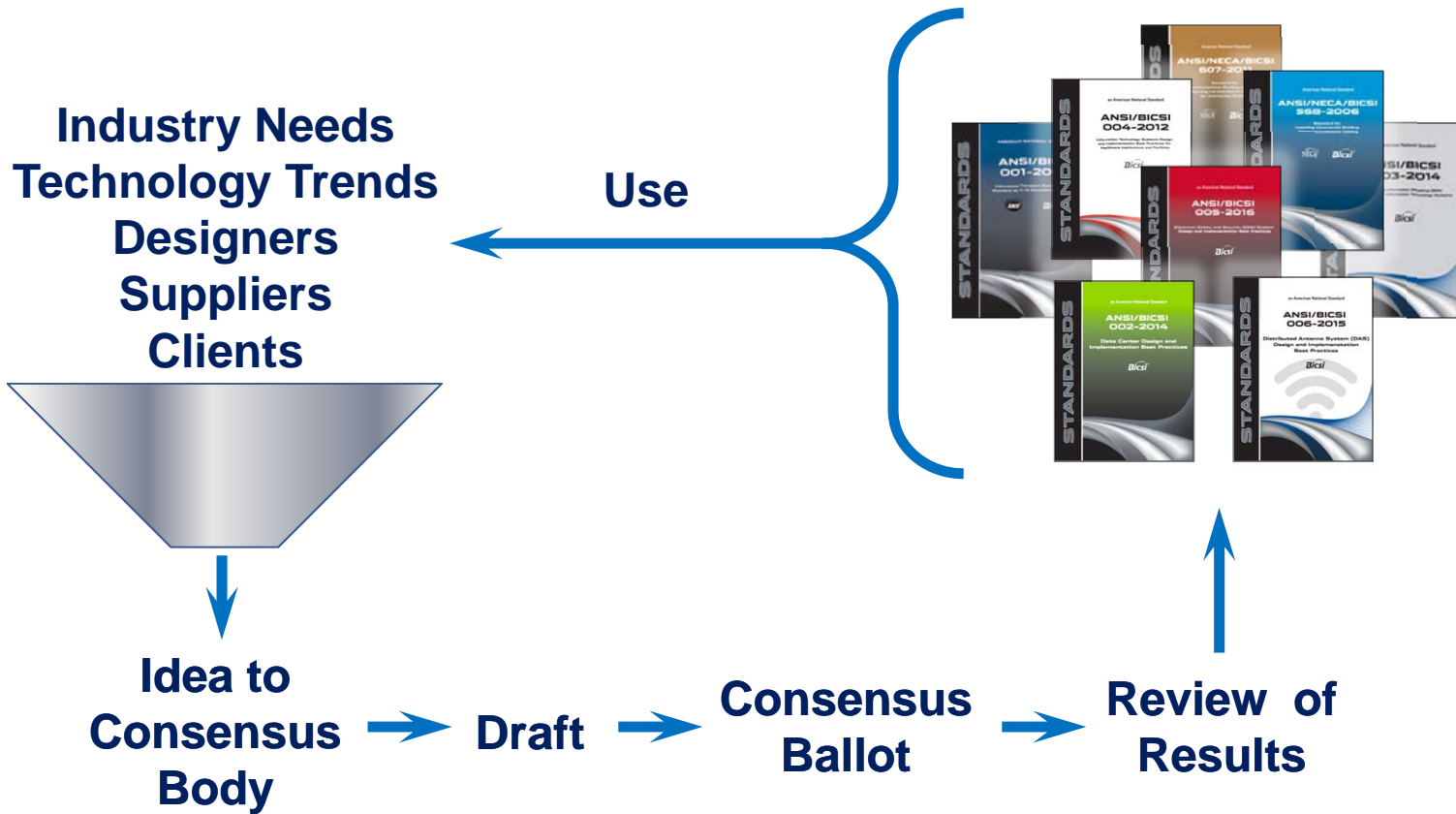


# Individual Participation

- An individual who joins the BICSI Standards Program as a member can:
  - Propose new projects for standardization
  - Participate in development of draft standards
  - Comment on work-in-progress in the subcommittee(s)
  - Critique existing BICSI standards
- Travel is not a requirement to participate
- No charge for membership in BICSI Standards



# Standards Development Cycle





# BICSI Published Standards

- Building/Facilities
  - Best Practices for Educational Institutions and Facilities (001)
  - Data Centers (002)\*
  - Healthcare Facilities (004)
  - Intelligent Buildings and Premises (007)
- Systems
  - ESS (005)
  - DAS (006)\*
- Installation
  - Cable Installation (NECA/BICSI 568)
  - ICT Bonding and Grounding (NECA/BICSI 607)\*
- Other
  - BIM for ICT (003)

*\* Available in Spanish*





# BICSI Standards Update

- Newest Standards:
  - ANSI/BICSI 007-2017, *Information Communication Technology Design and Implementation Practices for Intelligent Buildings and Premises*
  - ANSI/BICSI 001-2017, *Information and Communication Technology Systems Design and Implementation Best Practices for Educational Institutions and Facilities*





# BICSI Standards Update

- BICSI Standards to be Released:
  - ANSI/BICSI G1-17, *ICT Outside Plant Construction and Installation: General Practices*
  - ANSI/BICSI N2-17, *Practices For The Installation of Telecommunications and ICT Cabling Intended to Support Remote Power Applications*



# BICSI Standards Update

- BICSI Standards in development (2018 release)
  - D037, *Wireless Local Area Network (WLAN) Systems Design and Implementation Best Practices*
  - D036, *Data Center Operations*
  - D042, Revision of BICSI 004, Healthcare
  - D043, Replacement of NECA/BICSI 568

*Note: D0## is the project number, official designation released close to publication*



# BICSI Standards Update

- Outside Plant Construction and Installation in development:
  - D038 – Aerial Pathway: Poles, Holes, Guys
  - D039 – Aerial Pathway: Cabling Install and Lashing
  - Underground and Direct-Buried Pathways Outlined

*Note: D0## is the project number, official designation released close to publication*



# BICSI Standards Update

- Starting Soon
  - Revision to BICSI 002, Data Center Design
  - Revision to BICSI 003, BIM
  
- Planned Project for 2018
  - Replacement of NECA/BICSI 607: Bonding Installation Practices



# Interoperability

**BICSI**  
Standards, Design Manuals  
and Best Practices

Government Regulations

Electrical Code

Building Codes

Fire Code

Electrical Standards

Cabling Standards

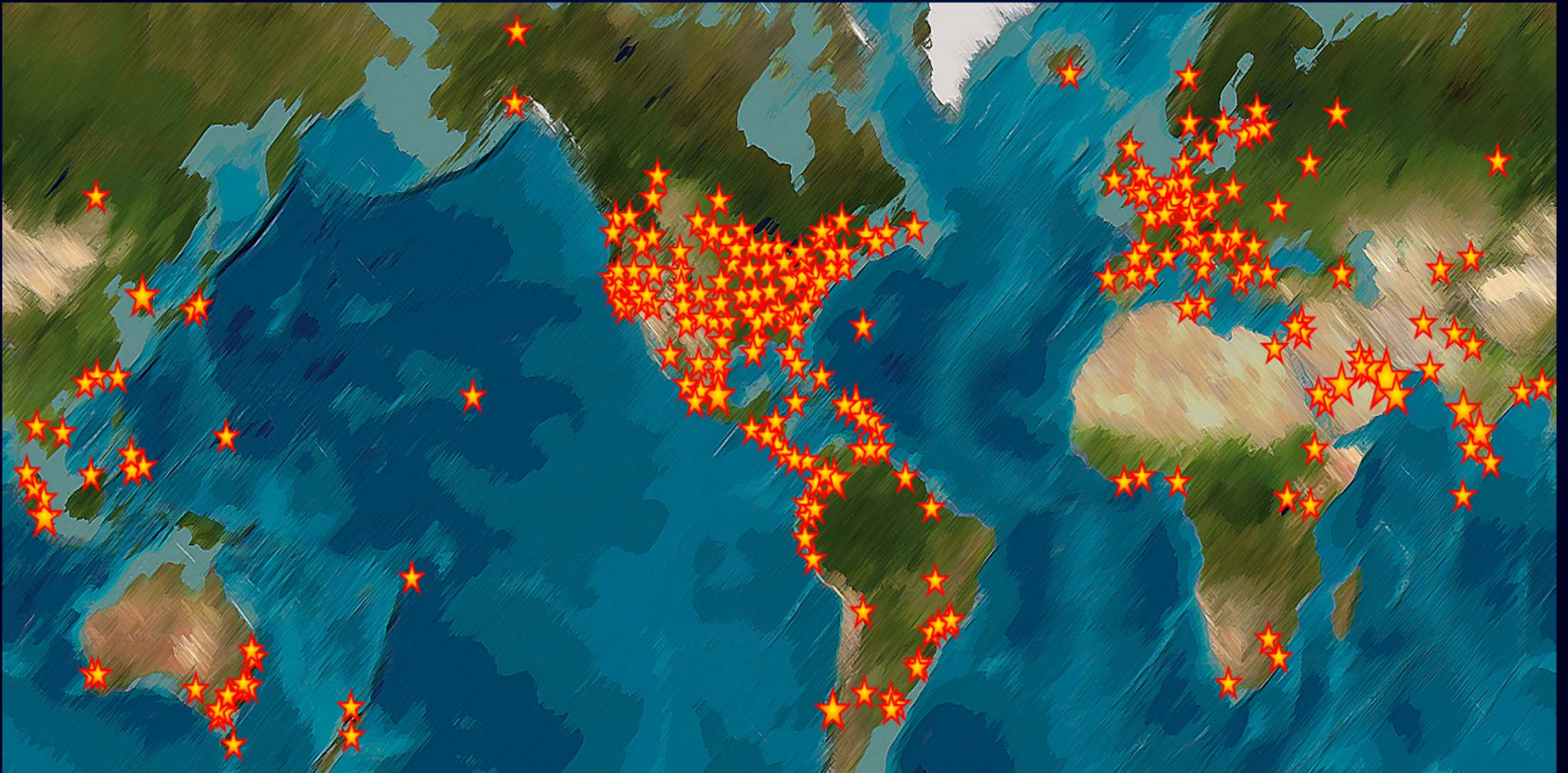
Cabling Pathways and Spaces

Environmental Conditions

Building Standards

Security Standards

# Reach of BICSI Standards



# BICSI Training & Certification PROGRAMS







# Registered Communications Distribution Designer

***Bicsi***<sup>®</sup>  
*RCDD*

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





# Registered Communications Distribution Designer

UFC 3-580-01  
01 Jun 2016  
Change 1, 01 Jun 2016

UFC 3-580-01  
01 Jun 2016  
Change 1, 01 Jun 2016



## UNIFIED FACILITIES CRITERIA (UFC)

### TELECOMMUNICATIONS INTERIOR INFRASTRUCTURE PLANNING AND DESIGN



#### CHAPTER 2 DESIGN REQUIREMENTS

##### 2-1 GENERAL GUIDANCE

Design interior telecommunications infrastructure to meet the needs of the activity and supporting facilities in accordance with this document. A/E contractor generated final drawings and specifications for design-bid-build and design-build projects must be stamped by a Bicsi Registered Communications Distribution Designer (RCDD).

*Note: Design and construction may be concurrent efforts in Design-Build projects, and multiple phases of construction may be approved. Therefore, the final documents for each construction phase must be stamped.*

##### 2-1.1 Government-Designed Projects

On government-designed projects (in-house design) the government designer must:

- Obtain the approval of the service appointed telecommunications agent, prior to bid, in accordance with regulations, policies, memorandums, and guidance.
- Ensure that the bid documents require an RCDD stamp on the contractor's telecommunications shop drawings submitted for approval.

##### 2-1.2 Small Scale Projects

Small scale projects limited to adding work area outlets from existing telecommunications rooms do not require an RCDD stamp provided the work is being accomplished under the technical authority of an RCDD or the government telecommunications manager.

##### 2-2 CLASSIFIED INFRASTRUCTURE

Classified Infrastructure is any infrastructure that is used to transmit unencrypted classified National Security Information (NSI). Examples would be the infrastructure to support classified networks such as Secret Internet Protocol Router Network (SIPRNET) and Joint Worldwide Intelligence Communications System (JWICS).

Coordinate the design of classified telecommunications infrastructure with the telecommunications manager and the Certified Tempest Technical Authority (CTTA) responsible for that area. The following documents may be applicable:

- CNSSAM TEMPEST/1-13 (FOUO); defines the RED/BLACK installation guidance to consider during design and installation, and provides potential solutions (1)
- CNSSI 7003 (U); provides guidance on Protected Distribution Systems. (1)

##### 2-3 SYSTEM OVERVIEW

Provide a complete, standards based, flexible telecommunications design including telecommunications spaces, pathways, outlets, connectors, cabling, grounding, bonding, and static protection in accordance with the following paragraphs.

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

RCDD Call out on  
Pgs. 3, 27, 39 & 51

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UNIFIED FACILITIES CRITERIA (UFC)





# Telecommunications Designer Program

## Manual



**DD101 (online)**  
*Foundations of Telecom  
Distribution Design*



## Courses

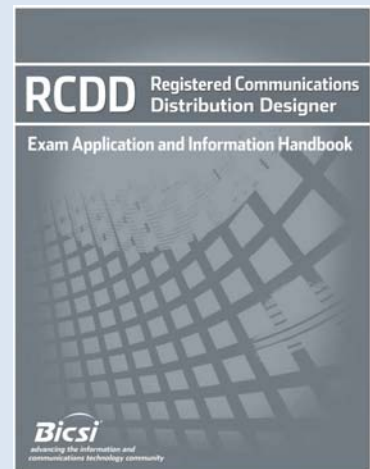
**DD102 (classroom)**  
*Designing Telecom  
Distribution Systems*



**RCDD Test  
Prep (online)**



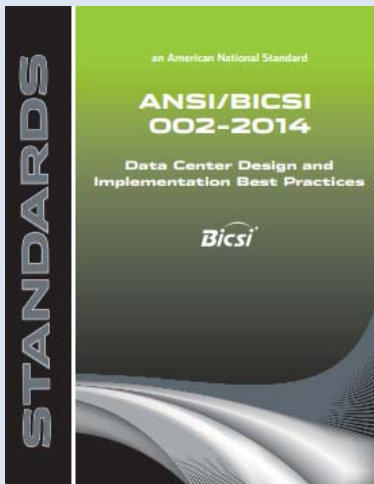
## Exam





# Data Center Design Program

## Standard



## Courses

DC101 (online)  
*Intro to DC Design*



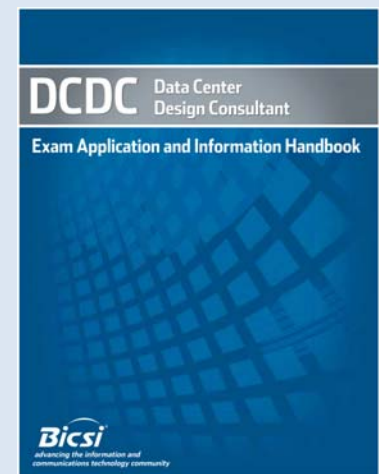
DC102 (classroom)  
*Applied DC Design*



DCDC Test  
Prep (online)



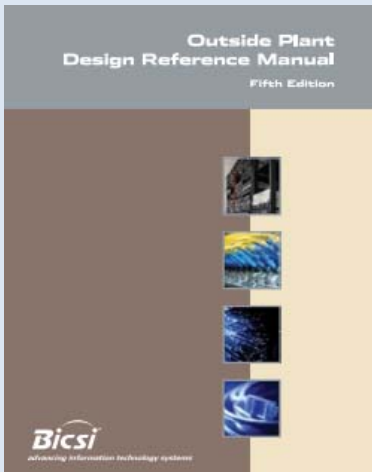
## Exam





# Outside Plant Design Program

## Manual



## Courses

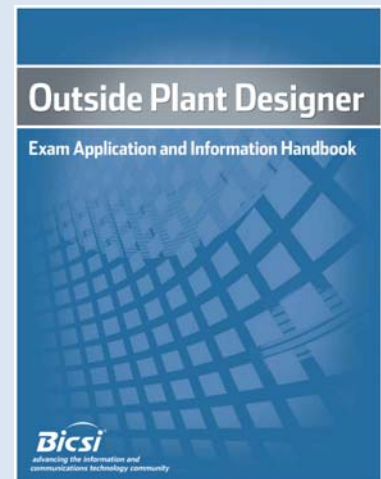
OSP110 (classroom)  
*Cable Plant Design*



OSP (classroom)  
*Design Review course*



## Exam



Updated Program Coming May 2018





# NEW! Installation Program

## Manual



## Courses

### Installer 1



### Installer 2, Copper



### Installer 2, Optical Fiber



### Technician



## Exams



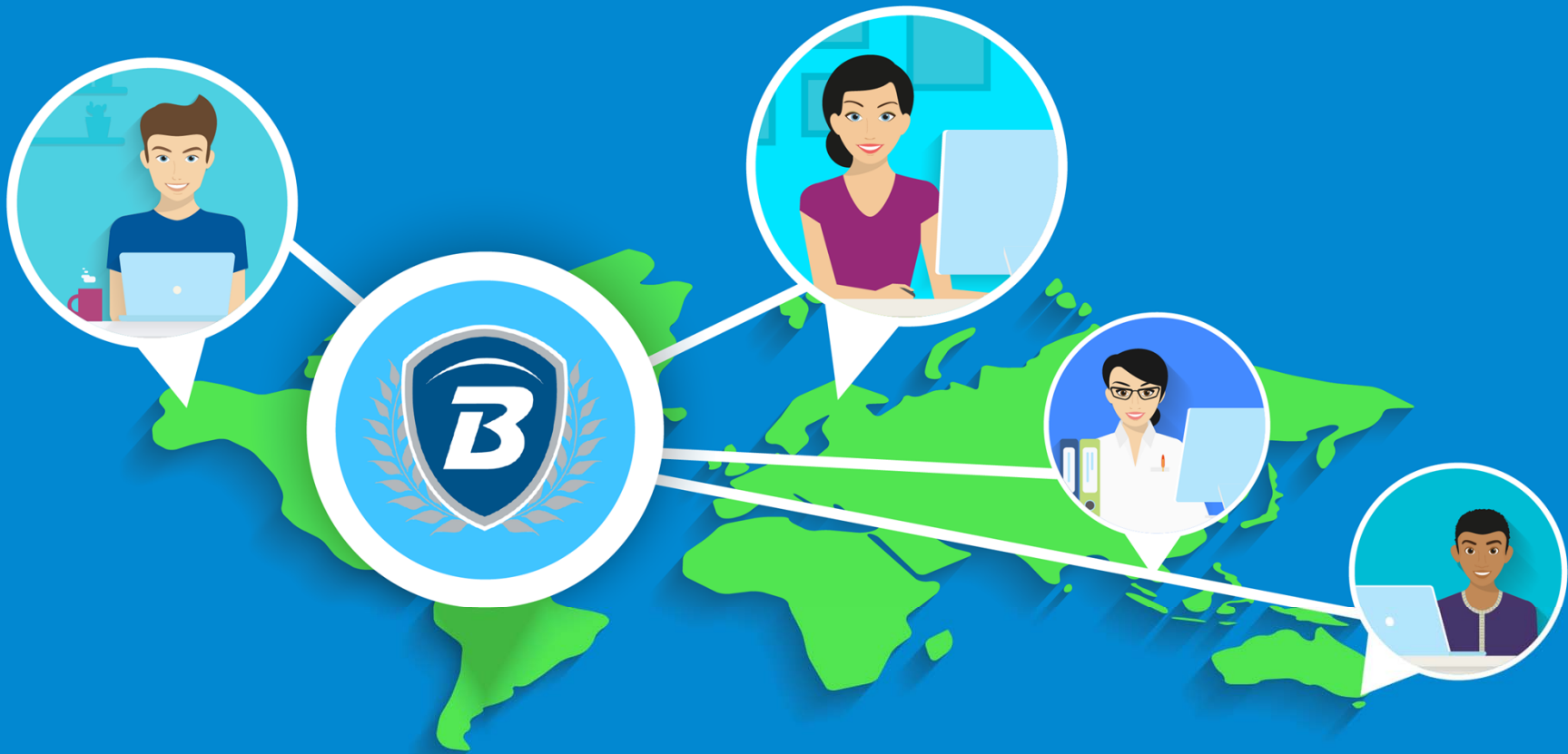
V7.0 Launched March 2017

# VIRTUAL INSTRUCTOR-LED

*coming January 2018*

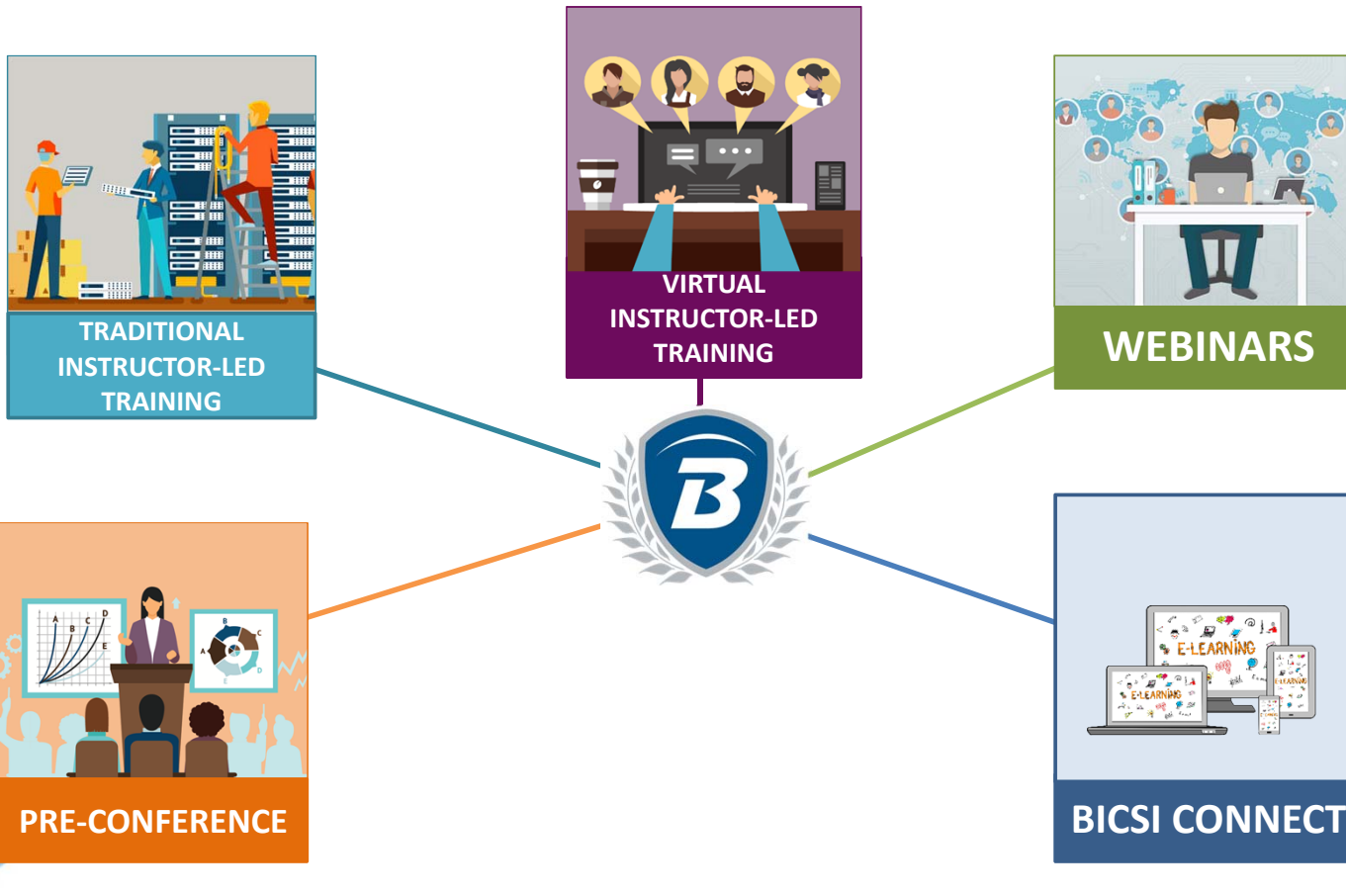






ICT Workshop Series  
*Virtual Instructor-Led Training*

# Product Placement





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“ Technology has not decreased the demand for instructor-led training, but gives instructors new tools to reach learners. ”

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*CITRIX 2016 Benchmark Report: The State of Online Training*





# Virtual Instructor-Led Training (vILT)

- Live online workshops
- Engaging and interactive sessions
  - Instructor-to-student
  - Student-to-student
- Collaborative and application based
- Focused on relevant trends and industry concerns





# GoToTraining



GoToTraining – An Overview

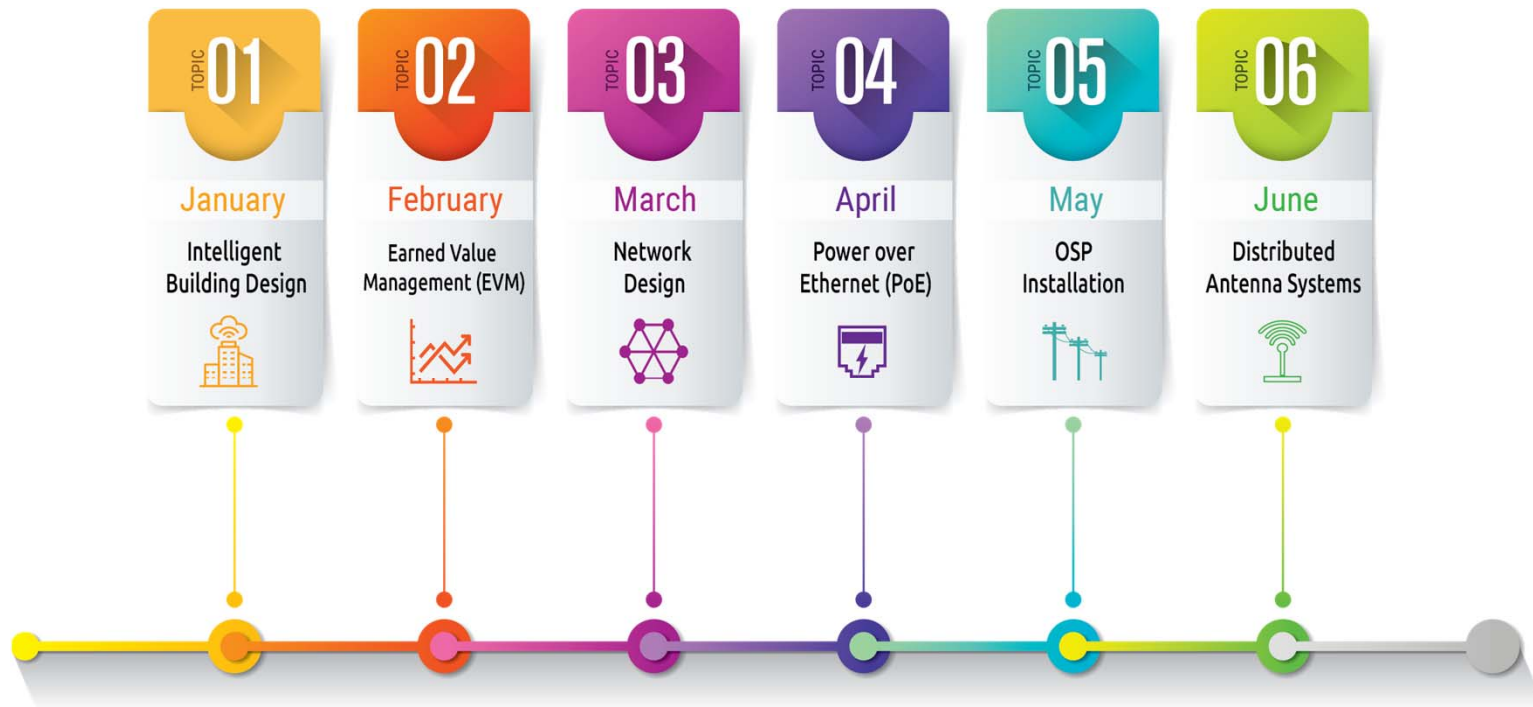


# Program Topics - Sample

Type	Examples
<b>Emerging Topics</b>	<ul style="list-style-type: none"><li>• Power over Ethernet (POE)</li><li>• Intelligent Buildings (IB)</li><li>• Distributed Antenna Systems (DAS)</li></ul>
<b>Single Domain of a Job Task Analysis (JTA)</b>	<ul style="list-style-type: none"><li>• Data center operations and maintenance assessment</li></ul>
<b>Core Topics</b>	<ul style="list-style-type: none"><li>• OSP Installation</li><li>• Network Design</li><li>• Project Management and Cost Estimation</li></ul>



# Schedule & Topics (Example)





# BICSI MEA Conference 2018

## **A Connected World:**

Smart Cities, Smart Building, Smart Infrastructure, and More!

Ritz-Carlton DIFC, Dubai, UAE

- **Dates (17<sup>th</sup> – 19<sup>th</sup> April 2018)**
  - 17<sup>th</sup> April: Pre Conference Workshops
  - 18<sup>th</sup> & 19<sup>th</sup> April: Conference
    - Dubai World Trade Centre (Al Multaqua Ballroom)

**For information please contact : [bicsimea@bicsi.org](mailto:bicsimea@bicsi.org)**







# Key Takeaways

- ✓ BICSI is an ANSI Accredited SDO
- ✓ BICSI Offers Comprehensive ICT Professional Development & Training
- ✓ Improve Quality of ICT Systems Deployed Worldwide via, Education, Credentialing & Standards Development
- ✓ World Renowned Global Association

# Thank You!

Paul Weintraub, RCDD, ESS, RTPM, TECH, CAE  
Vice President Global Development and Support

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