

## PHASE 2: PREPARE

### RCDD V14 EXAM BLUEPRINT

RCDD v14 EXAM BLUEPRINT	% OF EXAM
Define Scope of ICT Design	10%
Design ICT Solutions	66%
Support ICT Bid/Tender Process	9%
Support ICT Installation Process	15%
<b>Total</b>	<b>100%</b>

DEFINE SCOPE OF ICT DESIGN	10%
Identify the scope of work to be performed to have a clear understanding of client Information and Communications Technology (ICT) requirements and what is in scope and out of scope.	
Design ICT systems based upon applicable codes & standards per the authority having jurisdiction and established order of precedence to ensure minimum performance specifications and legal compliance.	
Estimate ICT project costs based on scope of work to provide the owner (e.g., client, company) the necessary information for an ICT project suitable to the clients' performance and budgetary expectations.	
Estimate ICT project timeline schedule based on scope of work to provide the owner (e.g., client, company) the necessary information for an ICT project suitable to the clients' timeframe expectations.	
Assess ICT current conditions as required to determine design solutions by conducting a site survey and reviewing record documentation.	
DESIGN ICT SOLUTIONS	66%
Produce ICT design project documentation that includes the specific scope, constraints, risks and technical design for stakeholder (i.e., client, installers) review, approval and implementation.	
Locate and size ICT telecommunication spaces by reviewing drawings and/or coordinating with the project stakeholders to ensure standards compliance and/or client requirements are met.	
Coordinate ICT design with other disciplines (e.g., electrical, Heating Ventilation and Air Conditioning [HVAC]) to ensure interdependencies between systems are met and to avoid interference amongst work trades.	
Coordinate ICT work area outlet locations with project stakeholders to ensure standards compliance and/or client requirements are met.	
Specify ICT work area outlet products to ensure a design with performance-based requirements and/or client requirements from the project scope are met.	
Specify ICT horizontal transmission media to ensure a design with performance-based requirements and/or client requirements from the project scope are met.	
Calculate (size) ICT horizontal pathways to ensure standards and code compliance and/or client requirements are met.	

Specify ICT horizontal pathway types to ensure standards and code compliance and/or client requirements are met.
Coordinate ICT horizontal pathways with project stakeholders to ensure standards compliance and/or client requirements are met, and to avoid interference amongst work trades.
Specify ICT Outside Plant (OSP) backbone transmission media to ensure a design that meets performance-based requirements and/or client requirements from the project scope.
Calculate (size) ICT Outside Plant (OSP) backbone pathways to ensure standards and code compliance and/or client requirements are met.
Specify ICT Outside Plant (OSP) backbone pathway types to ensure standards and code compliance and/or client requirements are met.
Coordinate ICT Outside Plant (OSP) backbone pathways with project stakeholders to ensure standards compliance and/or client requirements are met, and to avoid interference amongst work trades.
Specify ICT premise backbone transmission media to ensure a design that meets performance-based requirements and/or client requirements from the project scope.
Calculate (size) ICT premise backbone pathways to ensure standards and code compliance and/or client requirements are met.
Specify ICT premise backbone pathway types to ensure standards and code compliance and/or client requirements are met.
Coordinate ICT premise backbone pathways with project stakeholders to ensure standards compliance and/or client requirements are met, and to avoid interference amongst work trades.
Incorporate ICT telecommunication space system requirements (e.g., server, switch, Private Branch Exchange [PBX]) into the design to ensure there is space and supporting infrastructure.
Advise the project's electrical engineer of the ICT telecommunication space electrical requirements in order to coordinate the minimum lighting, equipment load, equipment locations and backup power needs to ensure the systems' availability as per the client.
Advise the project's mechanical engineer of the ICT telecommunication space Heating Ventilation and Air Conditioning (HVAC) requirements in order to coordinate the minimum environmental needs per the client requirements and governing codes and standards.
Specify ICT telecommunication space Structured Cabling System (SCS) components (e.g., patch panels, racks) to ensure a design that meets performance-based requirements and/or client requirements from the project scope.
Design ICT telecommunication spaces to ensure standards compliance and/or client requirements are met.
Calculate (size) ICT telecommunication space pathways to ensure standards and code compliance and/or client requirements are met.
Specify ICT telecommunication space pathway types to ensure standards and code compliance and/or client requirements are met.
Coordinate ICT telecommunication space pathways with project stakeholders to ensure standards compliance and/or client requirements are met, and to avoid interference amongst work trades.
Produce ICT design documents (i.e., drawings, specifications, calculations) for the project stakeholders per the project scope.
Evaluate ICT design (e.g., Quality Assurance [QA]) to ensure standards and code compliance and/or client requirements are met.

Review ICT design documents with owner (e.g., drawings, specs) and modify as required to obtain approval to proceed with the project.	
Produce ICT Bill of Materials/List of Materials (BOM/LOM) for the project stakeholders.	
Specify ICT grounding, bonding, lightning and surge protection requirements to ensure standards and code compliance and/or client requirements from the project scope are met.	
Specify ICT system administration and labeling requirements to ensure standards and code compliance and/or client requirements from the project scope are met.	
Specify ICT system testing requirements to ensure standards and code compliance and/or client requirements from the project scope are met.	
Specify ICT firestop and penetration (Sound Transmission Class [STC] ratings) requirements to ensure standards and code compliance and/or client requirements from the project scope are met.	
<b>SUPPORT ICT BID/TENDER PROCESS</b>	<b>9%</b>
Generate ICT Request for Proposal (RFP) or Request for Quote (RFQ) for project stakeholders based on the required design to provide clear direction to prospective bidders based on project requirements and expected deliverables.	
Respond to ICT Request for Proposal (RFP) or Request for Quote (RFQ) based on the required design and other stakeholder requirements to provide a clear response on design intent and how contractual requirements are met.	
Generate ICT Request for Information (RFI) to gather further clarification of design intent or installation concerns from other project stakeholders.	
Respond to ICT Request for Information (RFI) to provide further clarification of design intent or installation concerns raised by other project stakeholders.	
Review ICT bids/tenders for completeness to the Request for Proposal (RFP) response and compliance to the design.	
Participate in additional bid/tender activities (i.e., bidders' conference, meetings, site walks) as required.	
<b>SUPPORT ICT INSTALLATION PROCESS</b>	<b>15%</b>
Produce ICT submittals for approval (i.e., product submittals, shop drawings) to ensure the defined installation documents are coordinated with stakeholders, are constructible, and deliverables comply with contract.	
Review ICT submittals (i.e., product submittals, shop drawings) to approve, reject or comment as necessary based on design criteria.	
Revise ICT submittal based on a rejection or comments.	
Participate in the procurement of ICT materials to ensure the materials match the submittals.	
Coordinate ICT installations with others (e.g., utilities, Authority Having Jurisdiction [AHJJ]) to ensure interdependencies between systems are met and to avoid interference amongst work trades.	
Perform field engineering/observations to clarify and provide direction to the installer as to where issues exist.	
Conduct ongoing ICT inspections to ensure standard and code compliance, design intent and/or client requirements are met.	
Conduct final ICT inspections to ensure standard and code compliance, design intent, and/or client requirements are met.	
Produce ICT close-out documentation for the owner to provide the record documentation of the installation.	
Review ICT close-out documentation with the owner to ensure it is accurate and complete.	

## KNOWLEDGE AND SKILLS NEEDED AT CERTIFICATION

### DEFINE SCOPE OF ICT DESIGN

Mediation skills

Negotiation skills

Time management skills

Budgeting skills

Skill to identify the obstacles that impact the design of pathways and spaces (i.e., interior design)

Knowledge of estimating principles

Basic knowledge of liability and risk

Knowledge of all applicable codes and standards (i.e., local, building, national, federal)

### DEFINE ICT SOLUTIONS

Knowledge of data networking and cloud computing principles

Knowledge of telephony systems and principles

Knowledge of mobile and wireless computing principles (i.e., Wi-Fi)

Knowledge of client environments (i.e., federal, commercial, residential, industrial, health care)

Knowledge of TV systems (i.e., Community Antenna [or Access] Television [CATV], Master Antenna Television System [MATV], and Internet Protocol [IP]) and principles

Knowledge of AV systems and principles

Knowledge of electronic security and safety

Knowledge of paging systems and sound masking

Knowledge of design drawings and specifications (i.e., Construction Specifications Institute [CSI] Master Format)

Knowledge of architectural design process (i.e., Schematic Design [SD], Design Development [DD], Construction Documents [CD])

Knowledge of computer software (i.e., Office, Revit MicroStation, AutoCAD)

Knowledge of industry-related and currently used products

Knowledge of Disaster Recovery (DR) and Business Continuity (BC)

Knowledge of impact of converged systems on Structured Cabling System (SCS)

Knowledge of virtualization impact (i.e., server, network) on Structured Cabling System (SCS)

Knowledge of electromagnetic interference and compatibility

Knowledge of physical security concepts

Knowledge of Integrated Building Technology (IBT)

Knowledge of fiber to the x (any network)

Knowledge of the different media types (i.e., copper, fiber, wireless) and converters

Knowledge of transmission principles and associated electronics

Knowledge of distributed antenna systems (i.e., DAS)

Knowledge of system integration

Knowledge of Power over Ethernet (POE), POE+, and POE++ technologies

Knowledge of building automation systems

Knowledge of electrical principles

Knowledge of Heating Ventilation and Air Conditioning (HVAC) principles

Knowledge of pathways and spaces (i.e., types, sizes, where they can be used)

Knowledge of passive optical networks

Knowledge of fire suppression and detection

## SUPPORT ICT BID/TENDER PROCESS

Presentation skills

Written communication skills (i.e., emails, reports, specification writing, technical writing)

Oral communication skills

Legal contract knowledge (i.e., types of contracts and obligations)

Electrical terms knowledge

Knowledge of architectural terminology

Knowledge of mechanical terminology

Knowledge of structural terminology

Knowledge of civil engineering terminology (i.e., outside plant)

## SUPPORT ICT INSTALLATION PROCESS

Problem solving skills

Collaboration skills

Skill to review the designs of other trades (i.e., electrical, architectural)

Skill to coordinate with service providers

Knowledge of basic project management