

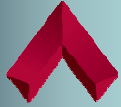


A Need for Standard Documents

Michael J. King, FCSI, CCS

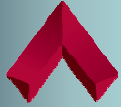
Vice President of Engineering Specifications

ARCOM – Publishers of MASTERSPEC



Commissioning Process Guidelines

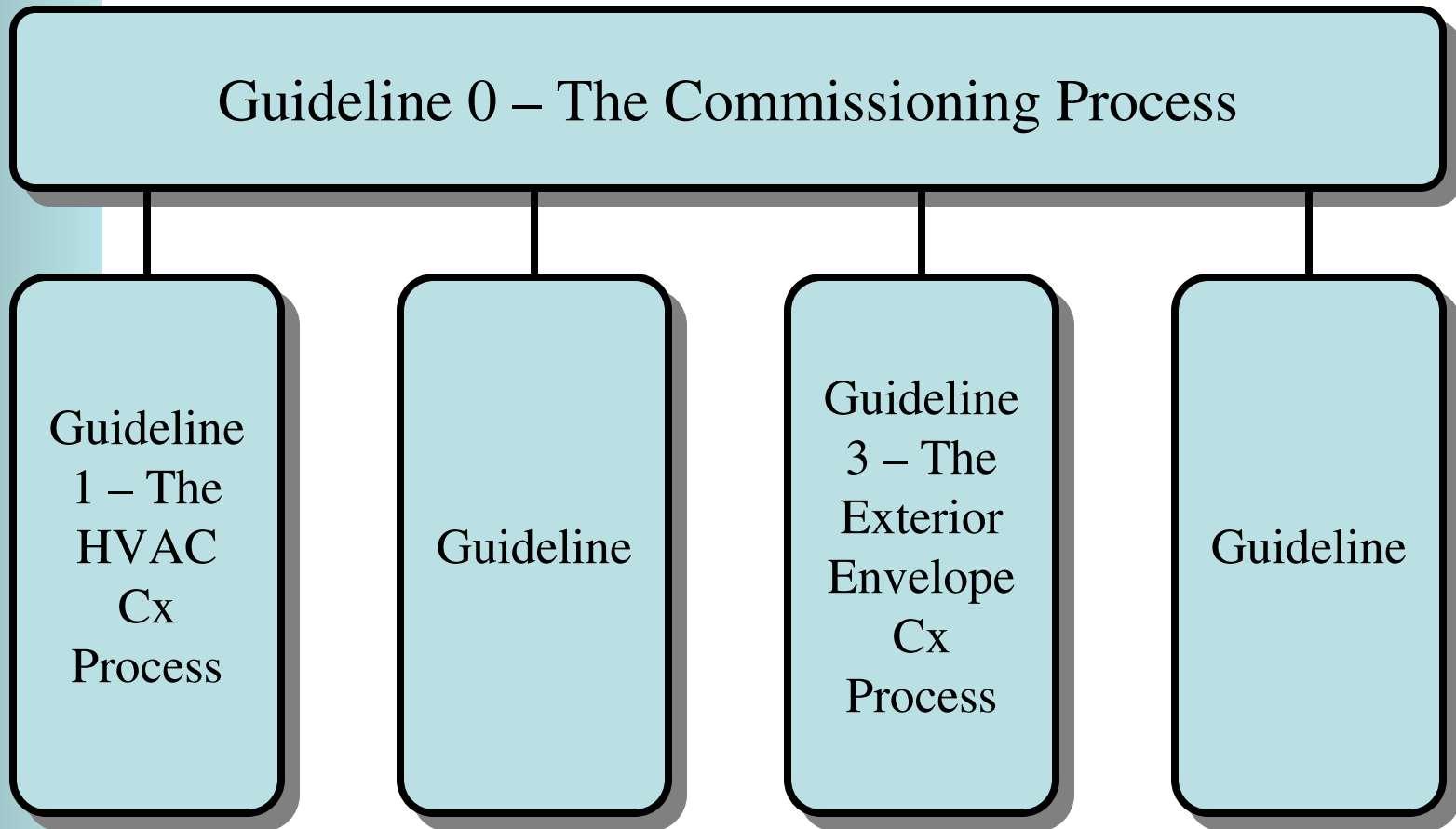
From Guidelines
To
Contract Documents



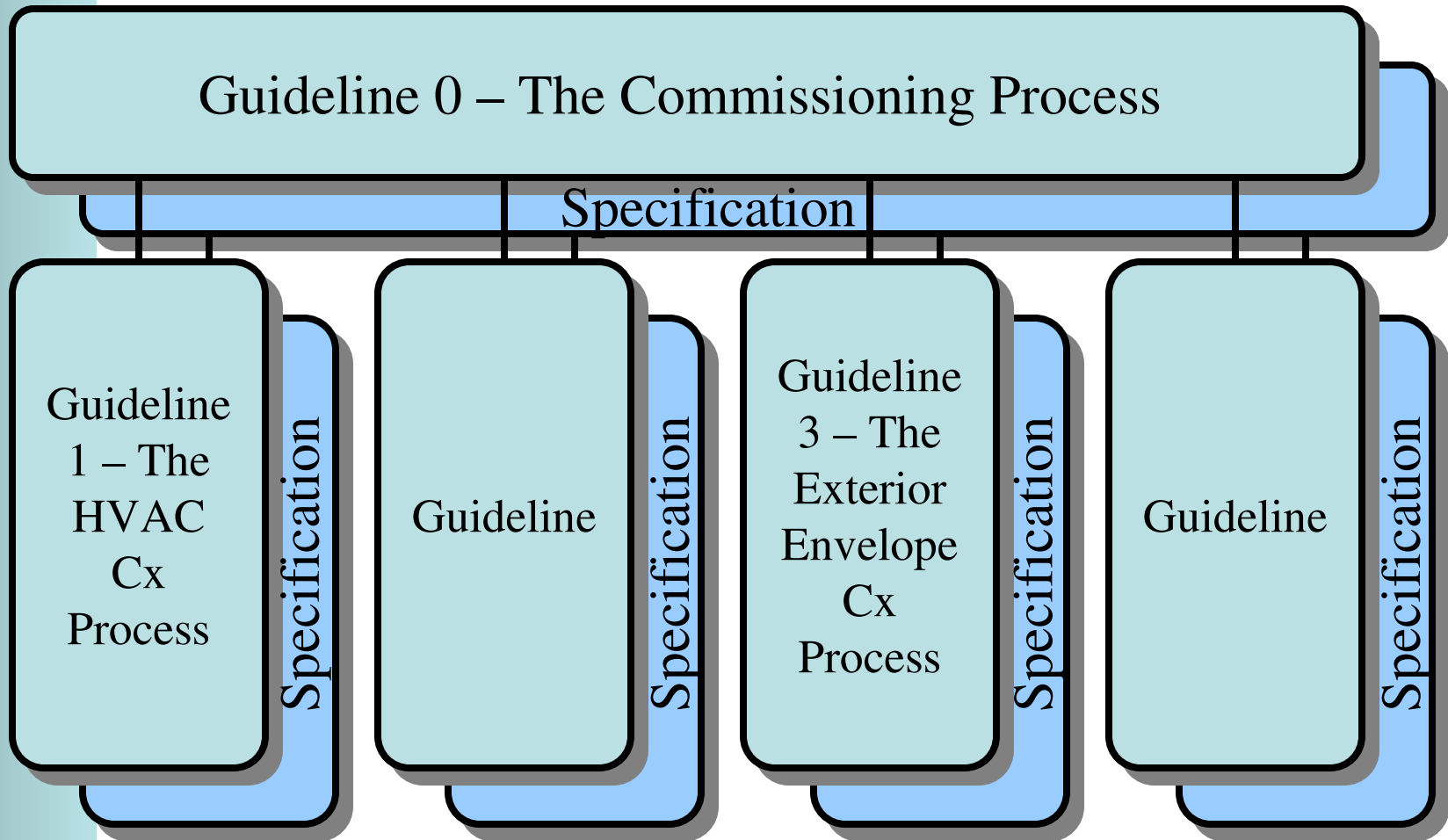
Commissioning Guidelines

- Outline objectives and tasks for each project delivery phase
- Follow traditional project delivery phases:
 - Pre-design
 - Design
 - Construction
 - Owner occupancy and operation

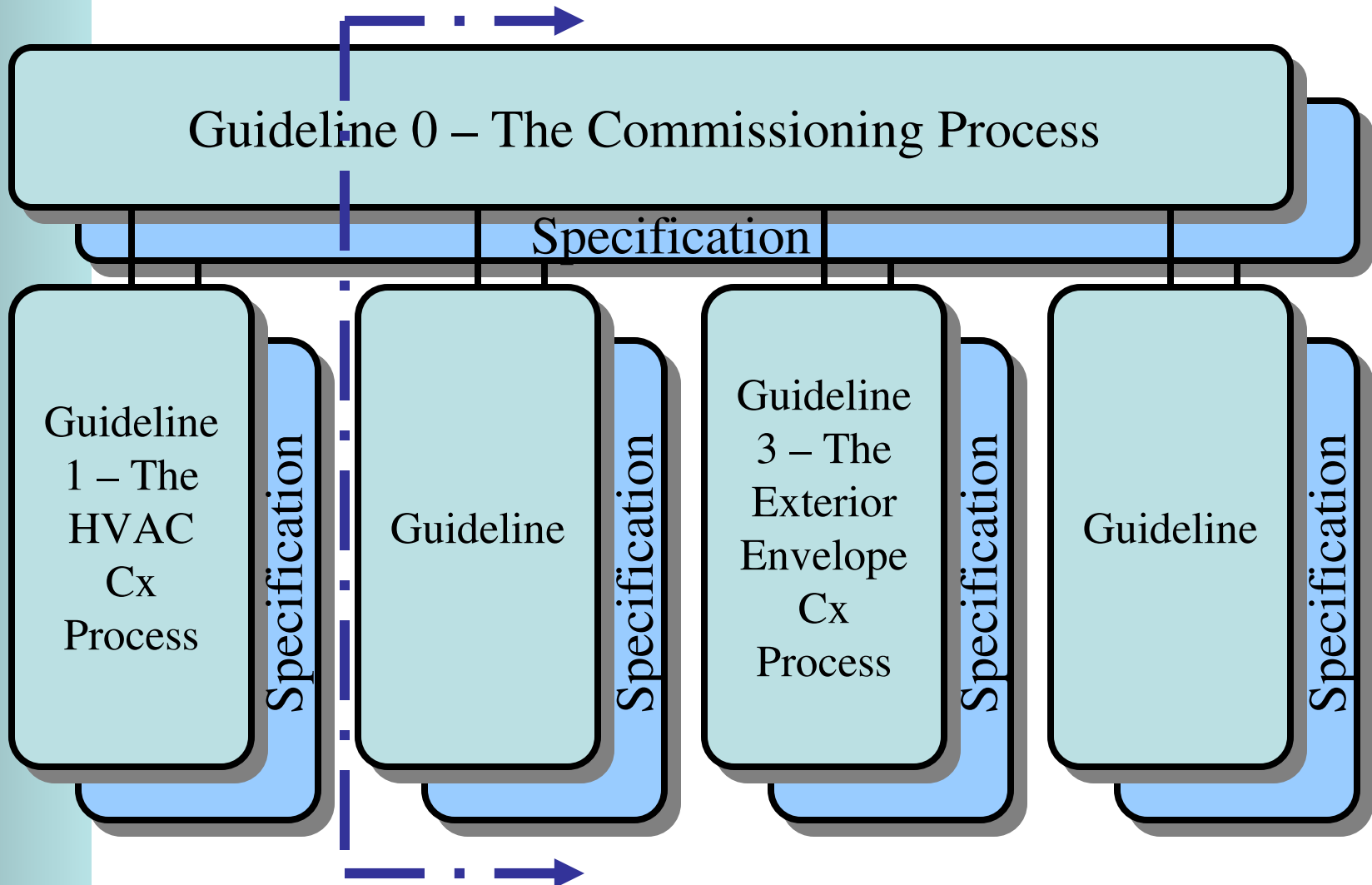
Guidelines Relationship



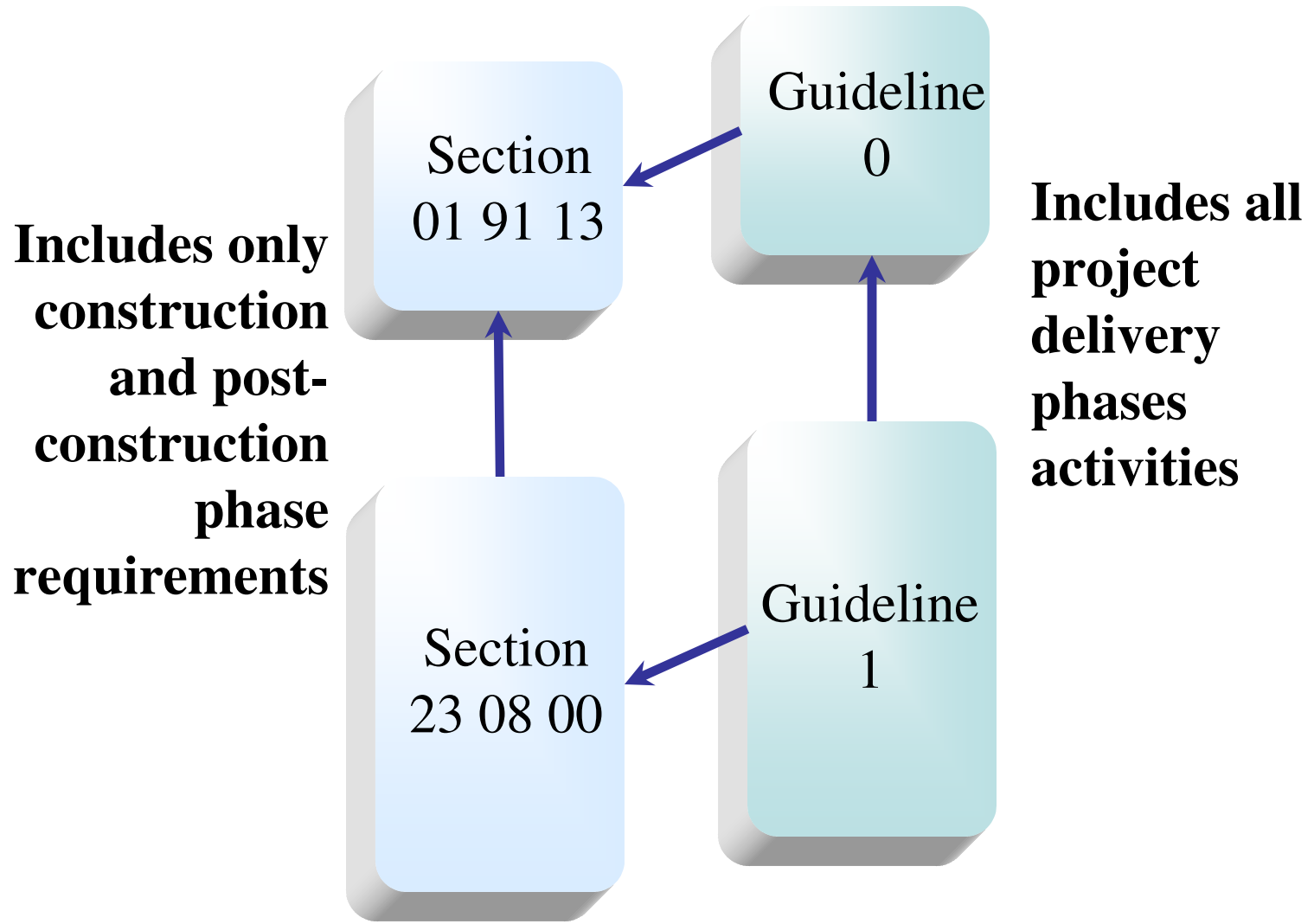
Guidelines Relationship

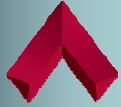


Guidelines Relationship



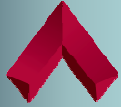
Guidelines Relationship





Currently Published Guidelines

- Guideline 0 – The Commissioning Process
- Guideline 1 – The HVAC Commissioning Process
- Guideline 3 – Exterior Enclosure Technical Requirements for the Commissioning Process



Specifications Assumptions

- CxA should be a separate prime contractor
- CxA should be a registered professional
- Construction specifications include only construction phase tasks to be performed by the contractor
- Each technical specification section will continue to include only FQC tests
- Commissioning sections will include systems integration testing
- CxA should contribute to specifications

To sort all this out:



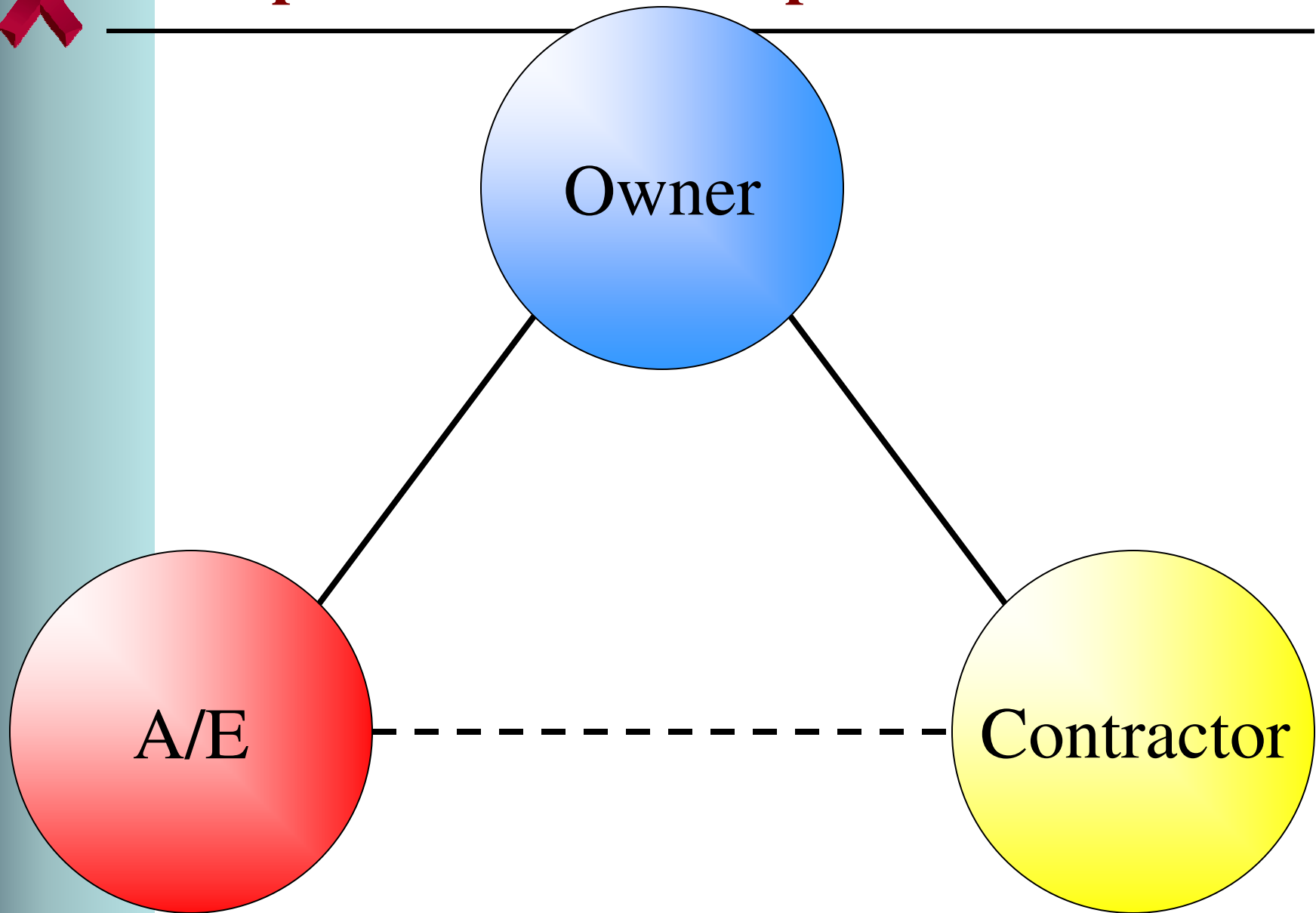
Let's review
contracting
entities and
how they
relate to
each other



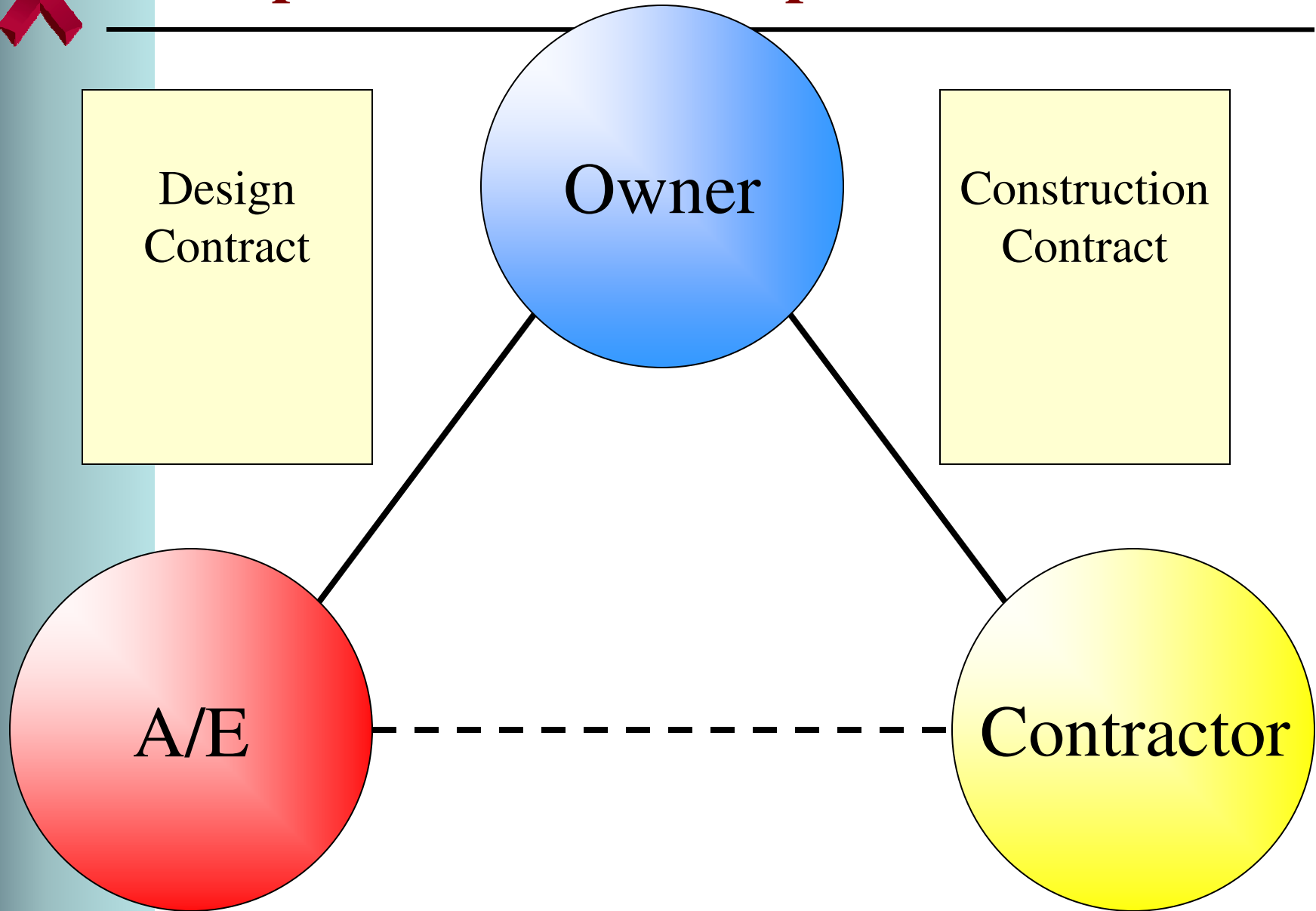
Contracting Entities

- Owner
- Design professional and Consultants (A/E)
- Commissioning Authority
- Contractor and Subcontractors
- Equipment and systems manufacturers

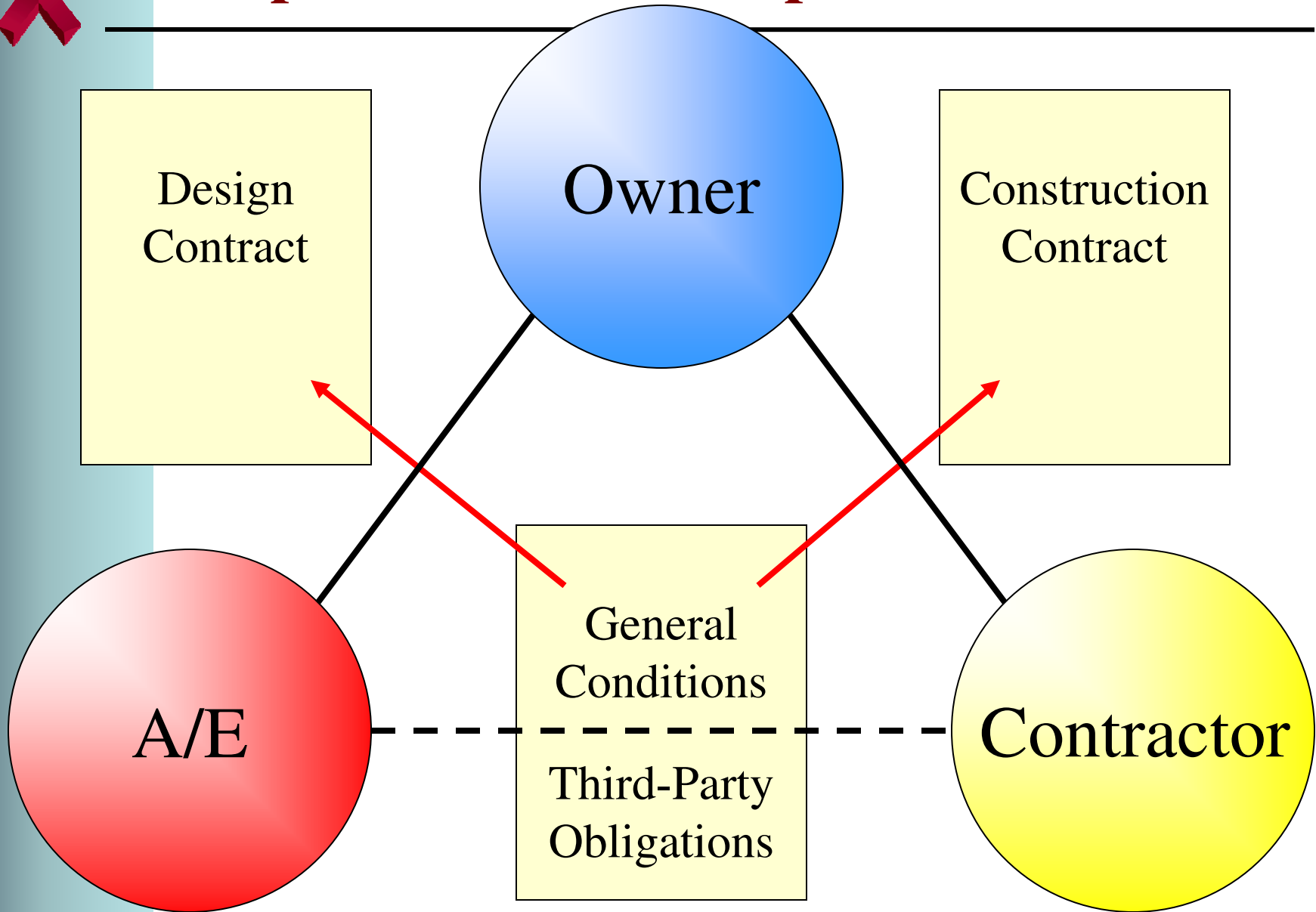
Tripartite Relationship



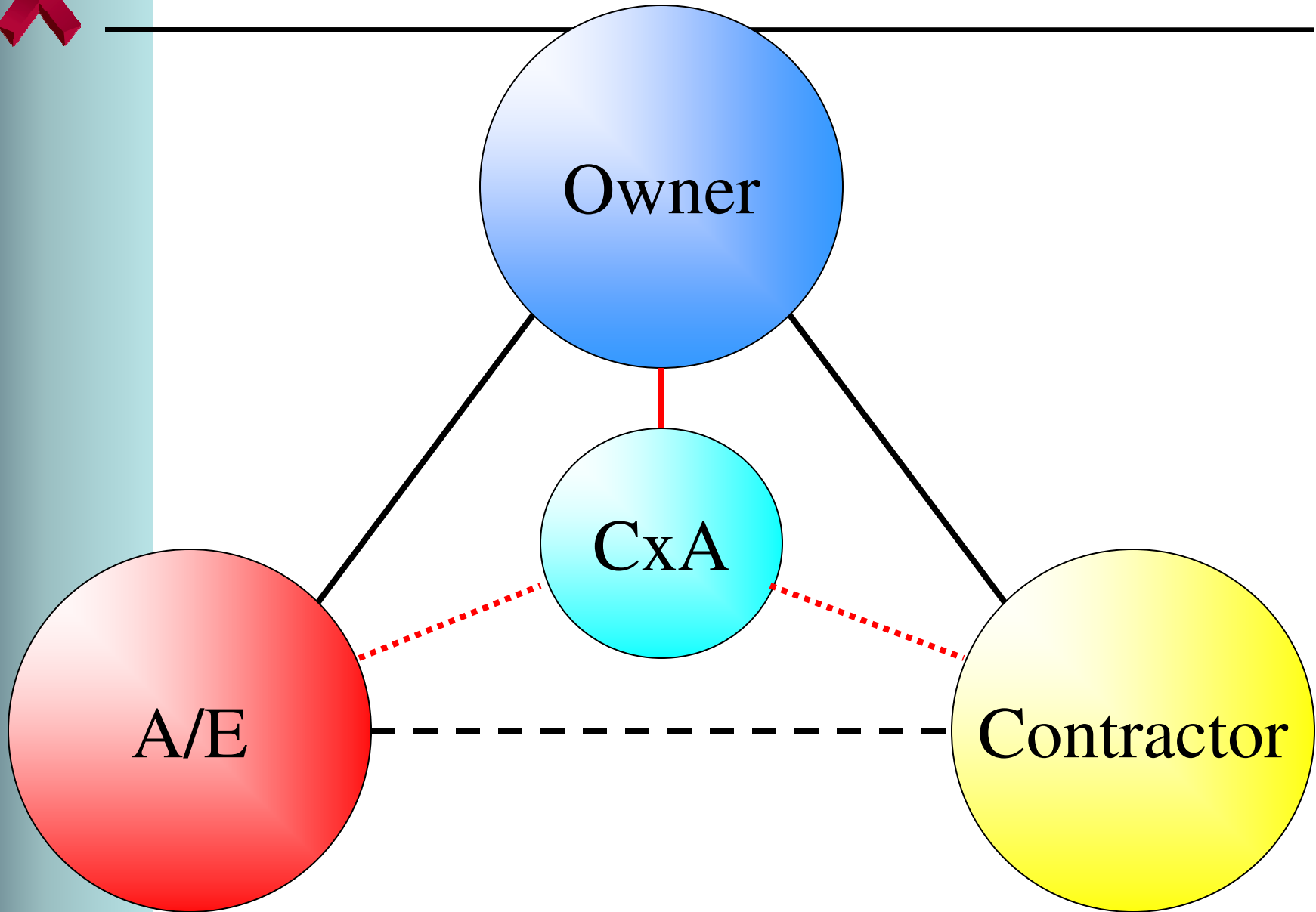
Tripartite Relationship



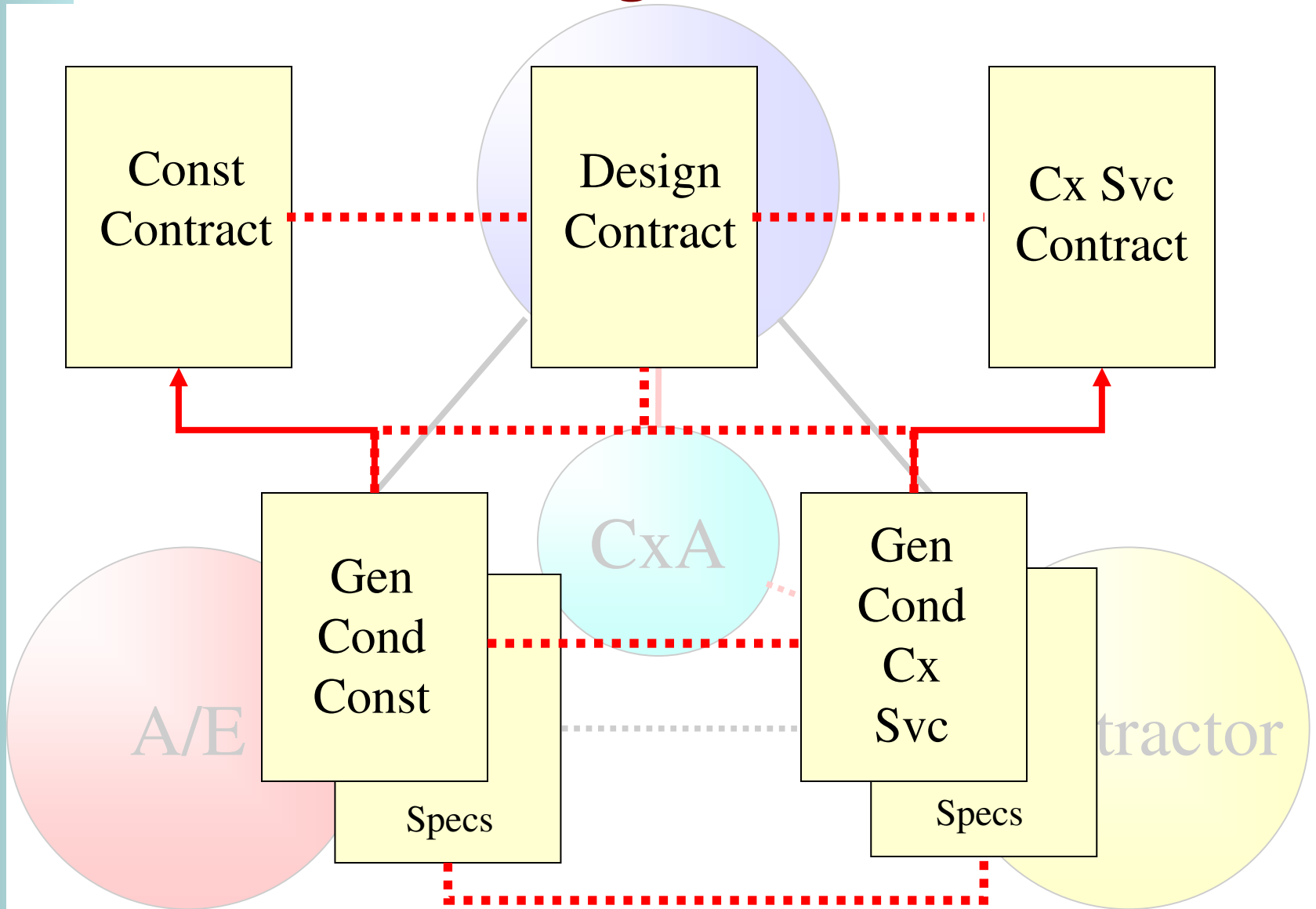
Tripartite Relationship



With CxA Added



Coordination Among Contract Documents



Two sets of Contract Documents

Commissioning Contract

Procurement &
Contract
Rqmts for
CxA

Specs
for CxA

Construction Contract

Procurement &
Contr Rqmts
for Const

Specs
for
Const

**Form of
Agreement**

**Conditions of the
Contract**

**Division 1 General
Requirements**

**Divisions 2-49
Specifications**

**Construction
Contract
Documents**

DRAWINGS

M1

**Form of
Agreement**

**Conditions of the
Contract**

**Division 1 General
Requirements**

**Divisions 2-49
Specifications**

Commissioning
**Contract
Documents**

DRAWINGS

M1

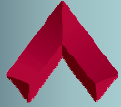


Commissioning Services Procurement and Contract Requirements



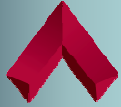
Commissioning Services

- Procurement Requirements
- Contracting Requirements
- Specifications
- Drawings



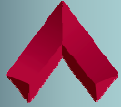
Procurement Requirements

- Advertisement for Bids for Commissioning Services
- Invitation to Bid for Commissioning Services
- Request for Proposals for Commissioning Services
- Request for Qualifications for Commissioning Service Providers
- Instructions to Bidders for Commissioning Services
- Commissioning Services Bid Forms



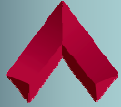
Contract Requirements

- Standard Form of Agreement between the Owner and Commissioning Services Provider
- General Conditions of the Contract for Commissioning Services
- Supplementary Conditions for the Contract for Commissioning Service



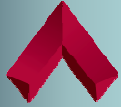
Commissioning Specifications

- 01 11 83 – Summary of Work for Cx Services
- 01 26 93 – Cx Services Contract Modifications
- 01 29 83 – Cx Services Contract Payment Procedures
- 01 31 83 – Cx Team Meetings
- 01 32 83 – Cx Plan
- 01 32 86 – Cx Progress Documentation
- 01 32 89 – Cx Issues Log and Reporting Requirements
- 01 32 91 – Cx Forms



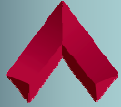
Commissioning Specifications

- 01 32 93 – Construction Checklists Requirements
- 01 32 96 – Cx Acceptance Requirements
- 01 33 83 – Cx Process Submittal Procedures
- 01 43 26 – Testing Agency Qualification
- 01 43 29 – Special Inspector Qualifications
- 01 52 13 – Field Offices and Sheds
- 01 78 83 – Systems Manuals
- 01 79 00 – Documentation and Training



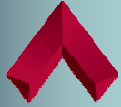
Summary of Work for Commissioning Services

- Roles and responsibilities of the CxA, Owner, and design professionals.
- Requirements to develop the Owner's Project Requirements (OPR), including an OPR workshop
- Requirements for development of commissioning plan
- Requirements for development of commissioning specifications (for the construction contract documents)



Summary of Work, continued

- Requirements for development of testing procedures and construction checklists
- Requirements for development of systems manual
- Requirements for development and execution of a owner's maintenance and operations personnel training plan



Revisions to Design Agreements

- Need to revise A/E design services agreement to include additional services required for commissioning processes
 - Additional activities
 - Do NOT supplant professional responsibilities



Way Forward

- Collaborative work among multiple organizations
- Draft documents and get public review and comment
- Make readily available and easily accessed



A Need for Standard Documents

Michael J. King, FCSI, CCS

Vice President of Engineering Specifications

ARCOM – Publishers of MASTERSPEC

(800) 200 6652

mking@arcomnet.com

