

ASHRAE Commissioning and PHIUS+

How do they Align?

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Objectives

Introduce the ASHRAE commissioning process

Overlay the PHIUS+ process

Compare the two processes

Draw conclusions



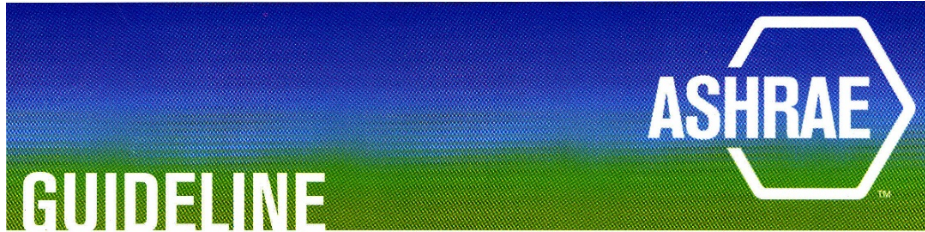
Disclosure

I am a member of the PHIUS Board (thus, may be biased toward a positive comparison)

I am a strong proponent of the commissioning process (thus, may be biased toward a strict view)

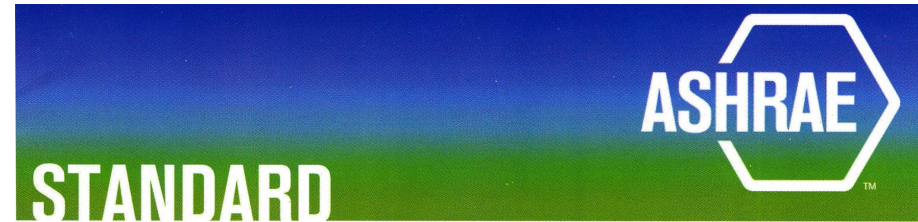


ASHRAE Commissioning



ASHRAE Guideline 0-2013
(Supersedes ASHRAE Guideline 0-2005)

The Commissioning Process



ANSI/ASHRAE/IES Standard 202-2013

Commissioning Process for Buildings and Systems

Guideline 0

Standard 202



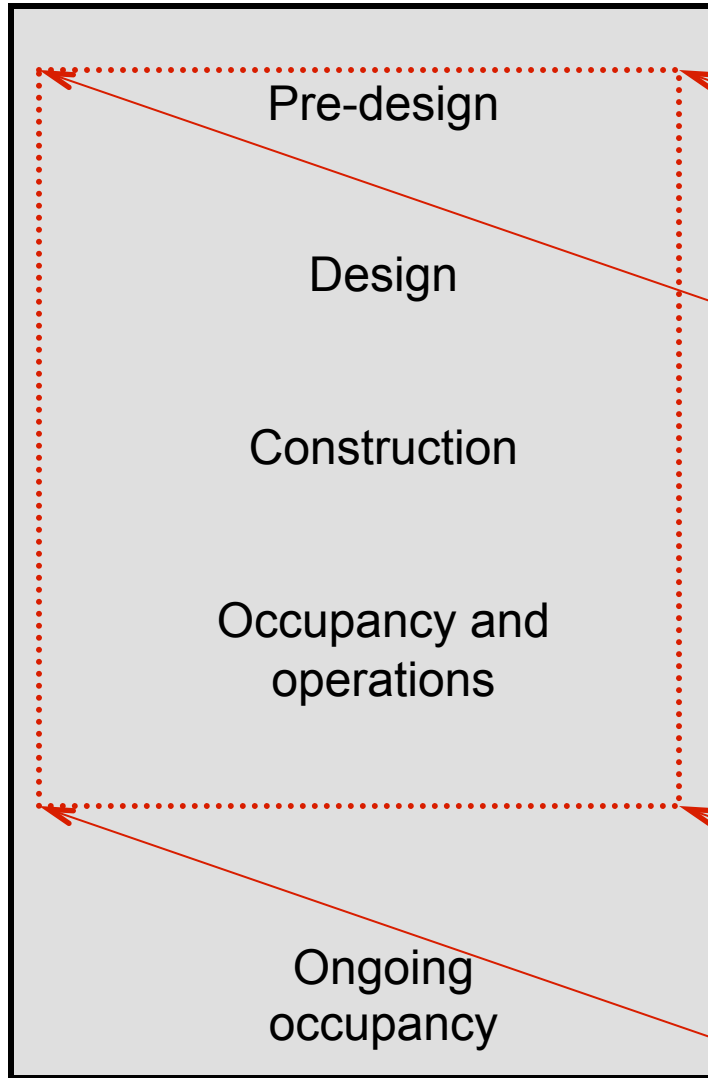
What is Commissioning?

A quality-focused ***process*** for enhancing the delivery of a project. The process focuses on verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, tested, operated and maintained to meet the *Owner's Project Requirements*.

ASHRAE Guideline 0-2013: 4. Definitions



Building Acquisition Process



Commissioning



Building Commissioning Process



Graphic View of Commissioning

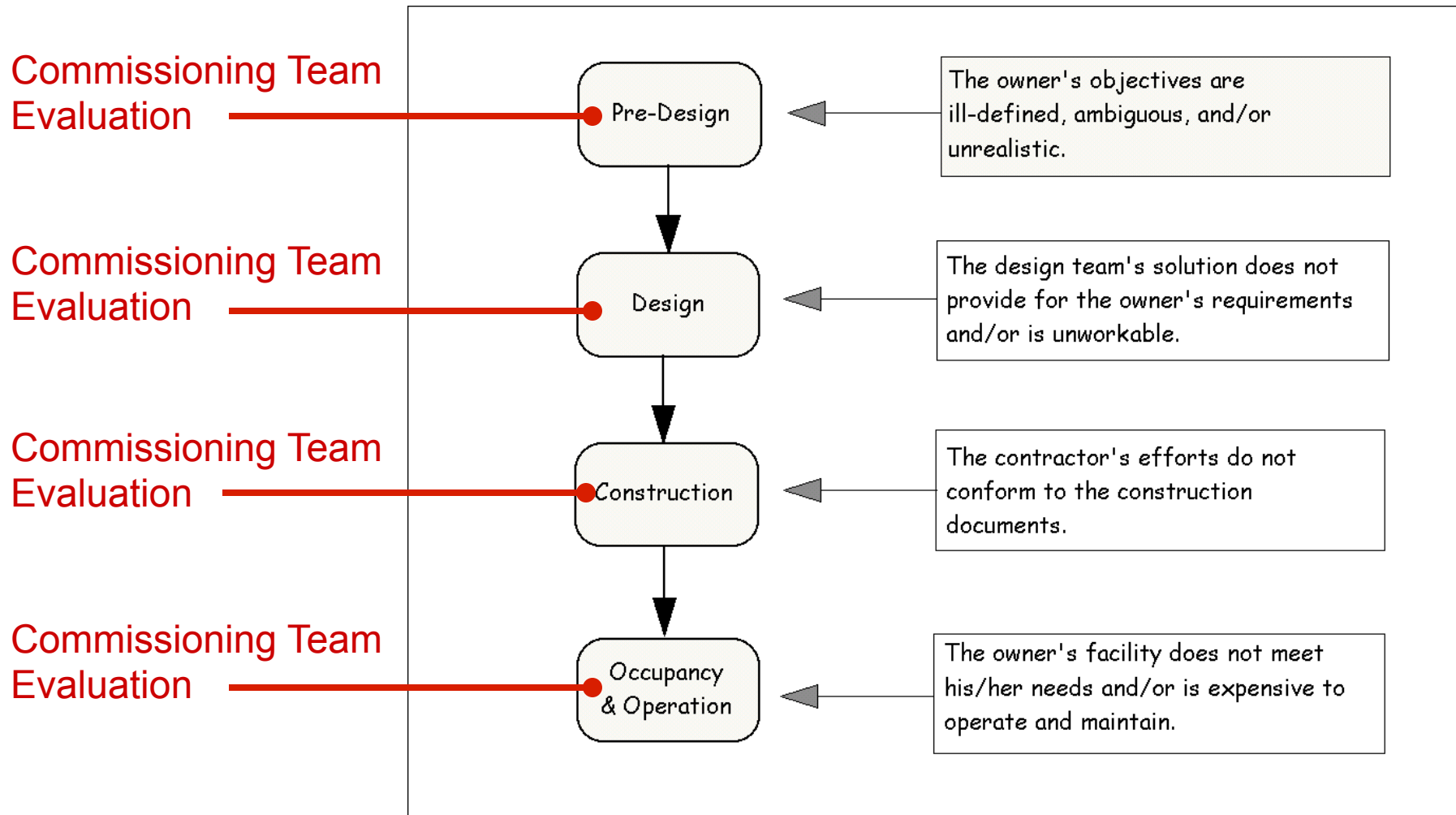


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Graphic View of Commissioning

Commissioning Process
Documentation
and
Commissioning Team
Communications

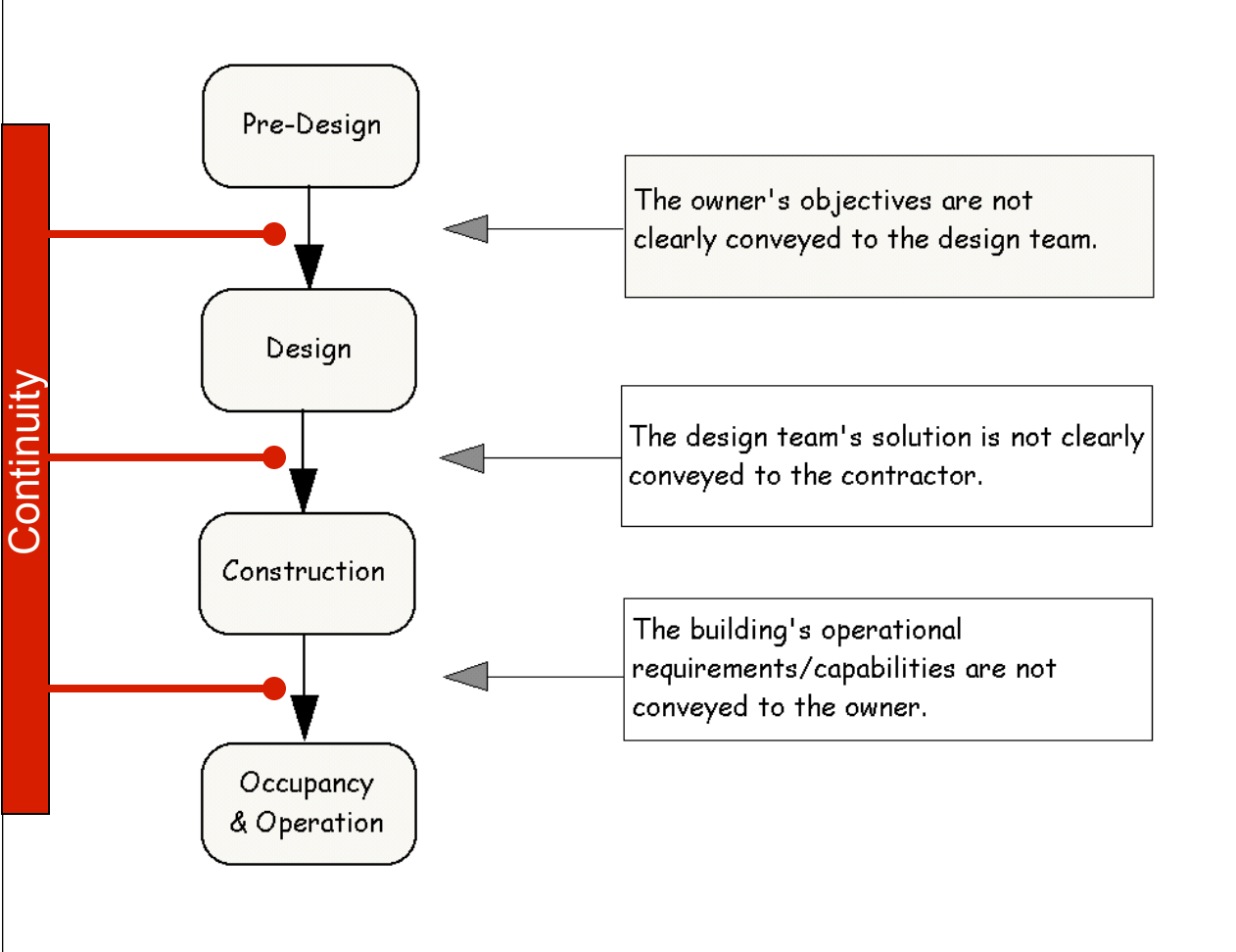


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Defining Elements of Commissioning

PRE-DESIGN

OPR → Owner's Project Requirements

A clear statement of intended project outcomes; with measurable benchmarks



Defining Elements of Commissioning

Basis of Design

A written statement describing design moves that will deliver OPR

Verification

Independent review of design artifacts against OPR

DESIGN



Defining Elements of Commissioning

CONSTRUCTION

Verification

Independent review of construction artifacts against OPR

Training

Providing operators with information necessary for success (on project)



Defining Elements of Commissioning

Verification

Independent review of project performance against OPR

Training

Providing owners with information necessary for success (on project)

OCCUPANCY



Defining Elements of Commissioning

CONSTRUCTION
DESIGN OCCUPANCY
PRE-DESIGN

Issues Log

A shared repository for issues (problems) detected during verification; should also include resolutions and provide a forum for solutions



Summary Overview of Commissioning

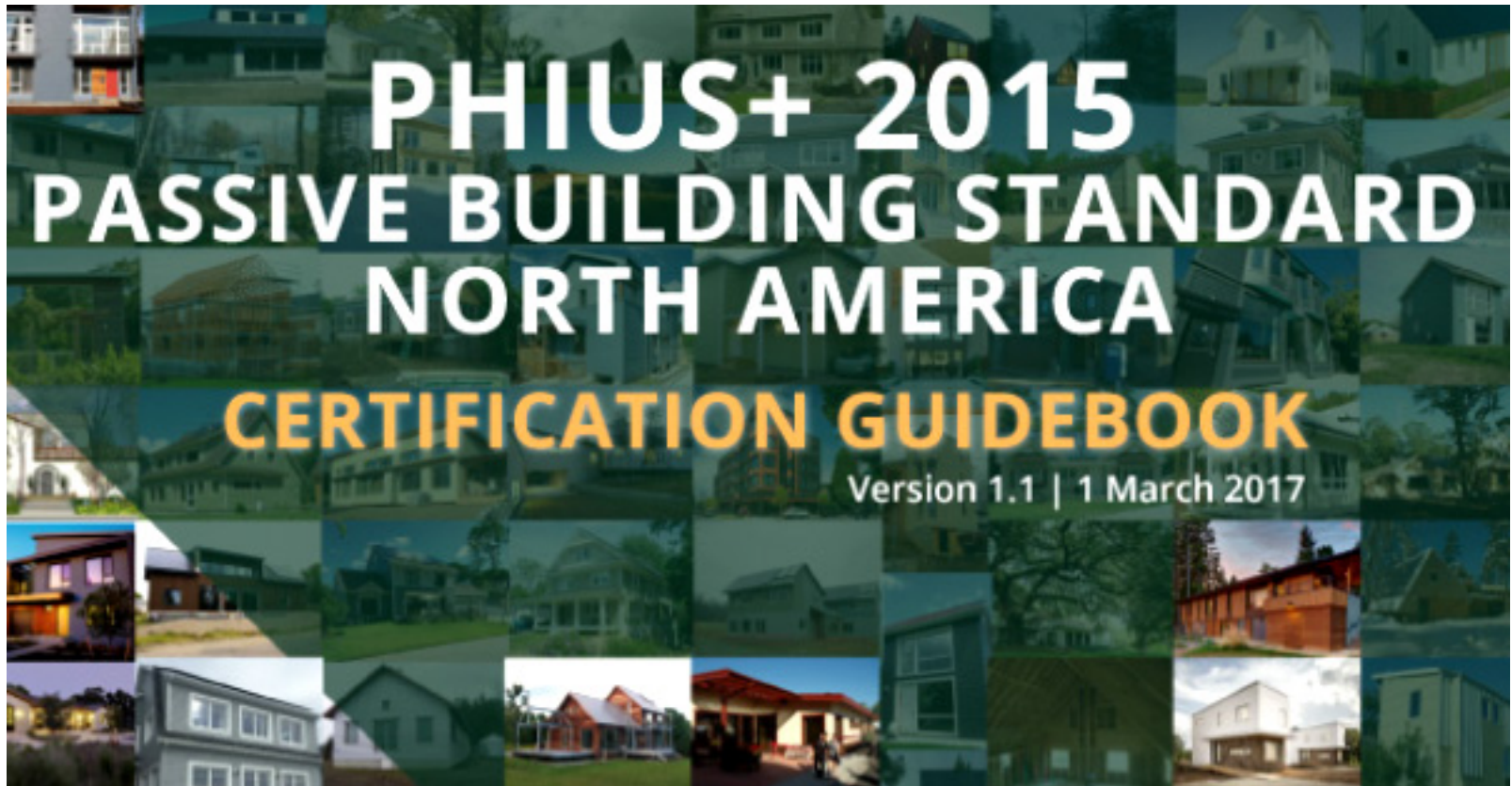
Process acts across four phases of project acquisition: pre-design, design, construction, occupancy

Process involves repeated application of three key tools: documentation, communication, and verification

Benchmark for all verifications is the OPR

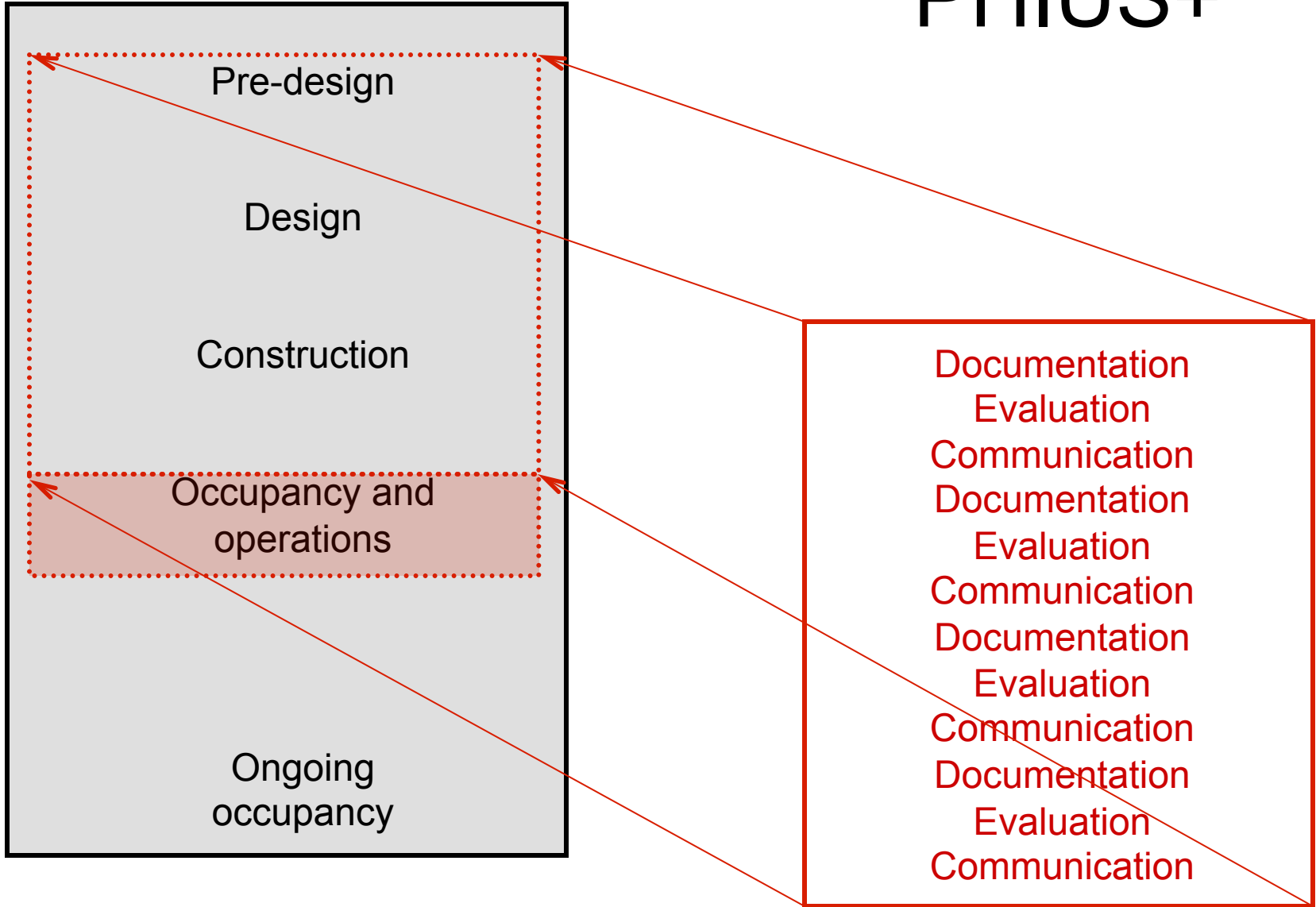


PHIUS+



Building Acquisition Process

PHIUS+



Building Commissioning Process



Graphic View of PHIUS+

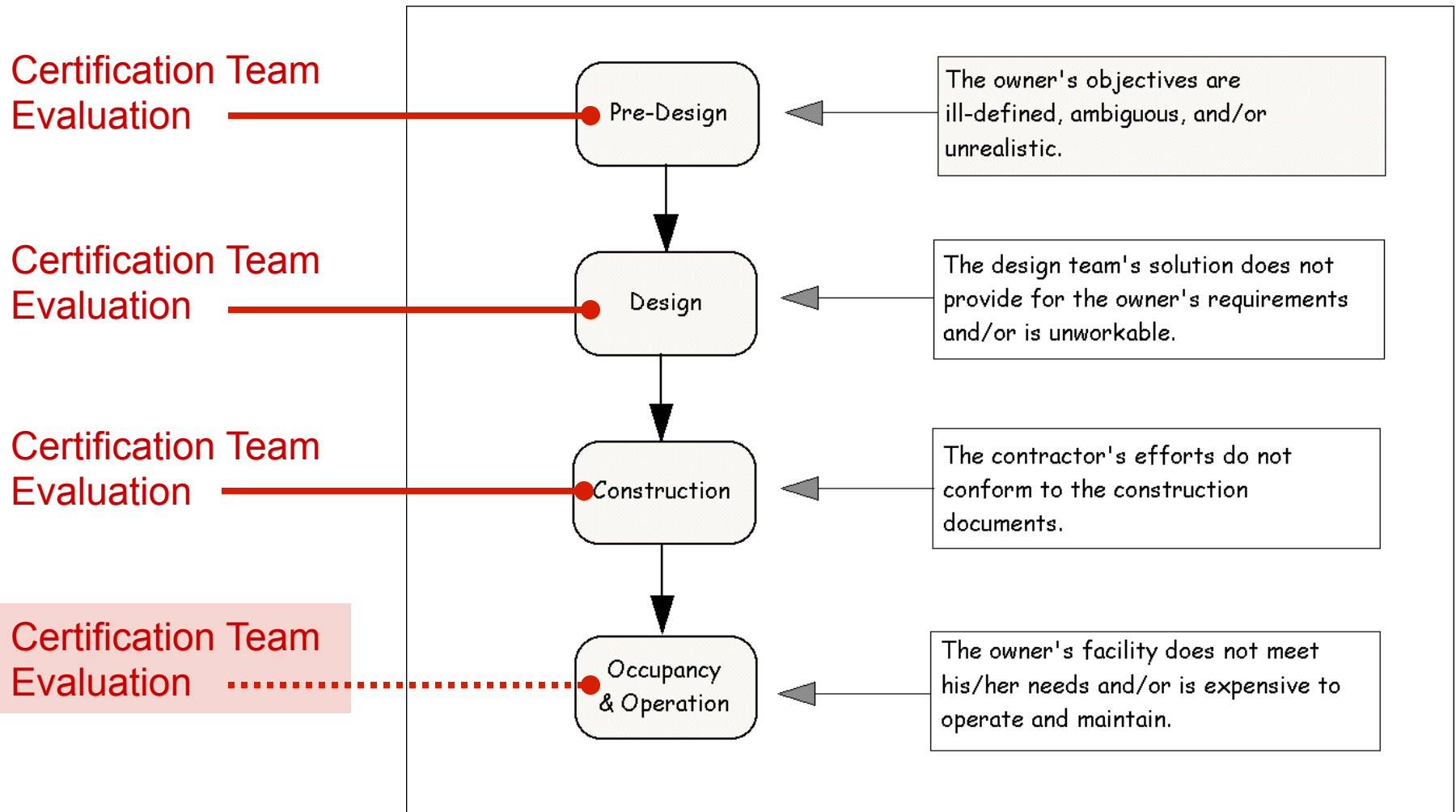


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Graphic View of PHIUS+

Certification Process
Documentation
and
Certification Team
Communications

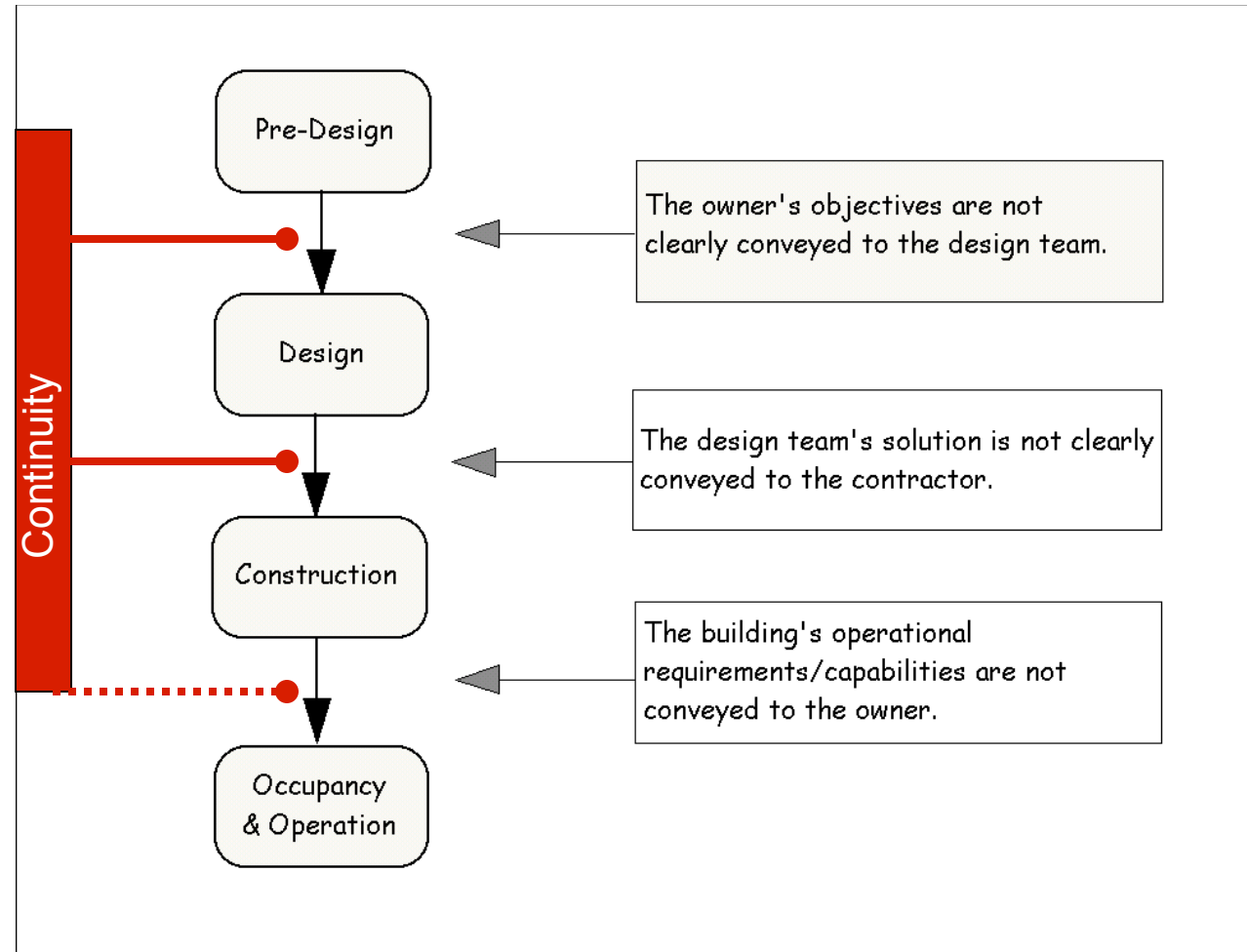


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Defining Elements of PHIUS+

PRE-DESIGN

Climate-Specific Performance Requirements

A clear statement of intended project outcomes; with measurable benchmarks



Defining Elements of PHIUS+

Design Submittal

Written documentation describing design moves that will meet standard

Verification

Independent review of design artifacts against standard

DESIGN



Defining Elements of PHIUS+

Verification

Independent review of construction artifacts against “standard”

Training

Providing operators with information necessary for success (on project)

CONSTRUCTION



Defining Elements of PHIUS+

Verification

Independent review of project performance against OPR

Training

Providing owners with information necessary for success (on project)

OCCUPANCY



Defining Elements of PHIUS+

Project Files (Database)

A shared repository for issues (problems) detected during verification; should also include resolutions and provide a forum for solutions

CONSTRUCTION
DESIGN OCCUPANCY
PRE-DESIGN



Summary Overview of PHIUS+

Process acts across three phases of project acquisition: pre-design, design, construction

Process involves repeated application of three key tools: documentation, communication, and verification

Benchmark for all verifications is the standard



PHIUS+ and Commissioning

The PHIUS+ process cannot be technically deemed to comply with ASHRAE Guideline 0 minimum requirements for commissioning

What is missing (big picture) –

- serious incursion into the Occupancy Phase of a project
- training to ensure persistence of benefits



PHIUS+ and Commissioning

The PHIUS+ process could reasonably be deemed to comply with the ASHRAE Guideline 0 philosophy of commissioning

With –

- clear definition of project objectives in pre-design
- independent third-party verification
- engagement in three of four project phases



PHIUS+ and Commissioning

Gaps between the ASHRAE Guideline 0 commissioning process and PHIUS +

Can rationally be attributed to –

- a foundational residential versus commercial building typology
- the nature of most building certifications



PHIUS+ and Commissioning

It is worth speculating whether the gaps between the ASHRAE commissioning process and PHIUS+ might close with increasing certifications of larger buildings

Due to –

- more complex MEP systems, which would benefit from: (a) post-occupancy measurement, verification, and tuning and (b) better trained operators



Discussion?

