

17th NATIONAL CONFERENCE ON BUILDING COMMISSIONING



EFFICIENCY • PERSISTENCE • PERFORMANCE

Is An OPR Necessary

Carl N. Lawson
Commissioning Authority
Hanson Professional Services, Inc.



What Each Team Member Wants

Architects

- Design the next wonder of the world
- No change orders
- No RFI's
- Contractor to build it like it is designed
- No site visits
- Do the engineer's inspections
- No attorneys involved

What Each Team Member Wants

Engineers

- Design that is not VE'd to death
- No change orders
- No RFI's
- Contractor to install systems like they are designed
- Do their own CA
- No legal hassle
- Paid on time

What Each Team Member Wants

GC / CM

- A design that works
- To VE the daylight out of it
- A/E should stay off the site
- Do it their way
- Paid 30% mobilization fee
- Paid monthly and on time
- Hold subcontractor's payment as long as he can
- Get off the job and hope he gets his retainage

What Each Team Member Wants

Sub-Contractors

- Design they can change (for he believes his design is better)
- A/E stay off the job site
- Work at his own pace
- Get paid in a timely manner
- Holds supplier's money since he has not been paid by the GC/CM
- Get off the job quickly
- Hope he gets his retainage

What Each Team Member Wants

Owners

- Project that is pretty, functions well and all systems work
- Project is complete, on time and within budget
- No change orders
- No RFI's
- Low interest construction loan
- Make excuses about paying designers and contractors on time
- Hopes the building and systems work as anticipated.

The Three Systems of Buildings

Static System:

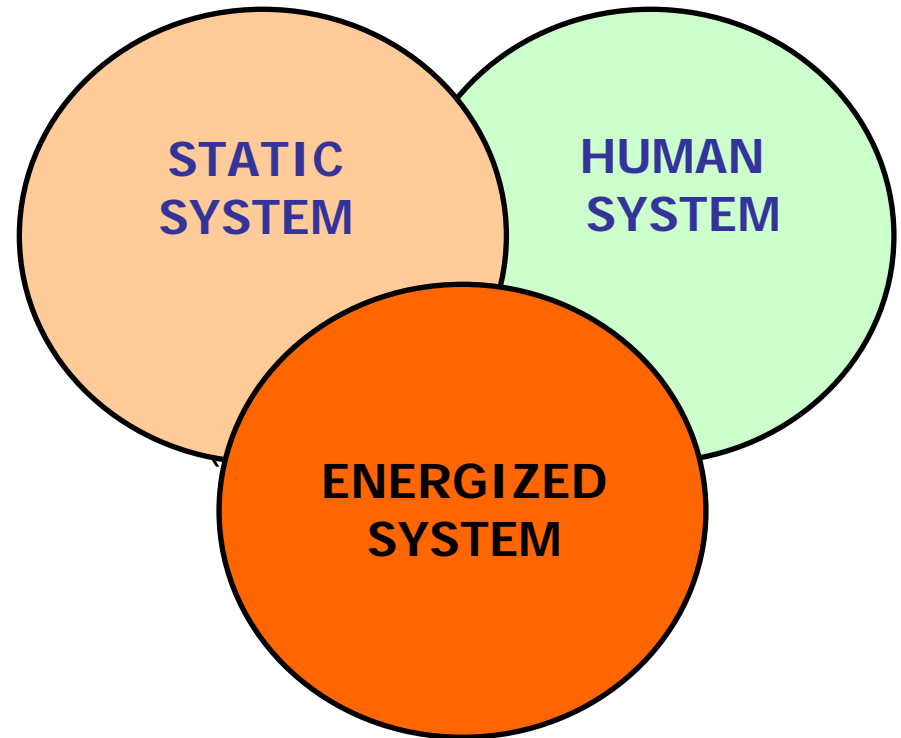
(Frame and
Envelope)

Energized System:

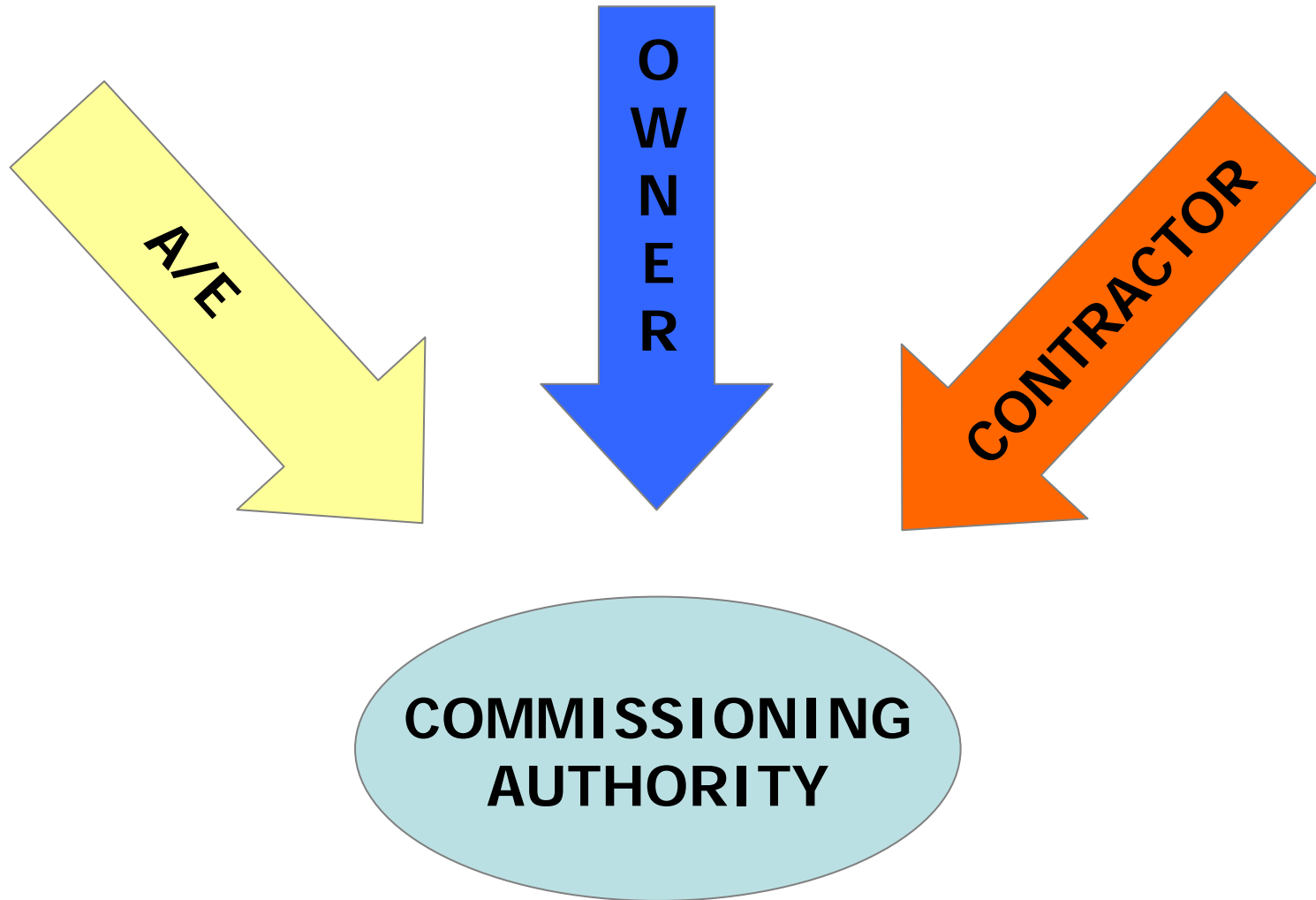
(Building Services)

Human System:

(Tenants and
Occupants)



Building Relationships



Role of the Commissioning Authority

- **Determine what the owner really wants**
- **Work with design team to implement a Basis of Design (BOD) document and Owner's Project Requirements (OPR) document**
- **Develop a plan to implement the BOD and OPR into the construction documents**
- **Verify the right systems are being installed**
- **Verify the operation of the systems**
- **Document the entire project**

We are told never to cross a bridge
until we come to it, but this world is
owned by men who have

“crossed bridges”

in their imagination far ahead of the
crowd.

Price vs. Cost

- **Price is something you pay one time**
 - **Cost is what it takes to operate**

Price vs. Cost

- **PRICE**
 - **QUALITY**
 - **SPEED**

Pick any Two

Commissioning Consultant

Definition of “Consultant” – someone called in to share the blame.

The Blame Game...Dr. John Parker

Lawyer – Have we left anything out?

Surgeon – Have we left anything in?

Engineer – Is there anything left?

**“Engineers vary like doctors and lawyers,
some are good – some are not
Unfortunately, in engineering failure
shows.”**

***Peter Shepard
(former President of RIBA)***

Definition of a Consultant

- **Someone called into share the blame**
- **Blame Game**
- **Lawyer have we left anything - out**
- **Surgeon have we left anything - in**
- **Engineer is there anything - left**
- **CxA verify the above “get er done”**

Price vs. Cost

- **Price is something you pay once**
- **Cost is what it takes to Operate**

Embarrassment??

- Embarrassing to the Programmer
- Embarrassing to the Architect
- Embarrassing to the Engineer
- Embarrassing to the Maintenance Staff
- Embarrassing to the Owner
- Embarrassing to the Users

Programmer

- May not know enough about the facility or the function of the facility.
- May not understand the operation of the facility.
- May not know or understand the owner or the users.

Architect

- Seems to have all of the answers
- It is going to be my way
- It is my decision what the owner really needs.
- My specifications describe how the facility is to function.
- Does the owner or user know what he wants.

Engineer

- I work for the architect.
- They don't need all of those lights and that much AC.
- I have been doing it this way for 40 years and it has worked.
- Why do we need another party in the mix.
- It is my decision.

Maintenance Staff

- My other buildings are working fine.
- Don't need training
- We will make it work
- Just give me the facility for I will make it work
- Is this extra involvement necessary
- Time consuming
- Expensive

Owner

- Why do I have an architect and engineer
- What are they doing and getting paid for
- My people are capable of maintaining the building
- This is a contractor's problem
- What are the costs
- What is my payback

Building User / Occupant

- Will this delay us from getting into the building.
- Is this cost going to be added to our rent.
- What happens if something goes bang
- Will we have trained maintenance personnel
- After hours operation.

What Is An OPR

Planning Phase

- A written document detailing the functional requirements of the project and the expectations of how the project will be used and operated.
- Defines the project goals as well as the performance and success of project.
- The OPR must be developed no later than the Design Development (DD) Phase if not during the Schematic Design (SD) phase.

What Is An OPR (cont.)

Planning Phase

- For this document to be most effective representatives from all groups of people that will occupy, operate, maintain and otherwise be affected by the building must be involved in the creation of the OPR.
- A valuable tool for the commissioning team during all phase of the project.

What Is An OPR

Design Phase

- Commissioning authority is to verify that the requirements of the OPR are being met within the design.
- The OPR is used as tool for the design team when preparing the Basis of Design document (BOD) and other design documents.
- The BOD is a document that defines the assumptions made in the development of the project design while achieving the requirement of the OPR.

What Is An OPR

Construction Phase

- The OPR documents have been documented in the documents.
- The design is complete and meets the OPR requirements.
- The OPR serves as a useful tool to the contractors.
- Contractor has an understanding of what the owner wants.
- The commissioning authority will document the building construction and verify it meets the OPR.
- The purpose is to document that the building construction and equipment installation meets the requirements of the OPR.

What Is An OPR

Warranty Phase

- Complete seasonal testing.
- Document and task warranty callbacks.
- Document lesson learned.
- Document and verify that the owner has received the building as he assumed.
- Interview the end users, operators, and maintenance staff to verify that all issues were have met the owner's project requirements.

YES an OPR is Necessary

- Very seldom do we have the owners real thoughts and needs listed in the specification.
- Have a Basis of Design
- Have correct Commissioning specifications
- Hold a meeting to determine what the owner really wants and have his wishes placed in the specifications

Questions (cont)

- It is important to have maintenance free facility?
- Why is it important to an energy efficient facility?
- What in your previous building do you not want to see in the new building.?
- Is Green Building (LEED) status important to you?

Example Questions

- How do you expect your building to operate?
- Are there any operating parameters?
- Will there be a special areas that have special requirements?
- Will there be any special procedures?
- Define energy?
- Define maintenance?

YES

- The OPR is the document the commissioning authority should be using to commission the systems.
- This is the document that allows the owner to add substance to the specifications.

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Carl N. Lawson
Commissioning Authority
Hanson Professional Services, Inc.
720 N. Maitland Avenue, Suite 102
Maitland, FL 32751
Tel: (407) 622-2050 Fax: (407) 622-2051

