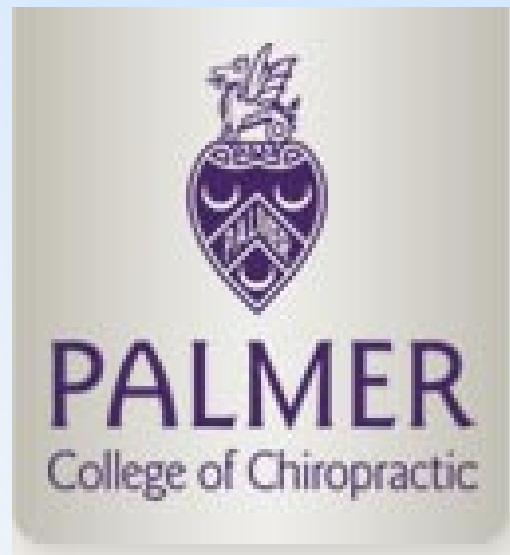


Palmer Mansion Museum

Finding value in the commissioning process



Palmer College of Chiropractic

- Chiropractic history began with the Palmer family and the Palmer School of Chiropractic in Davenport, Iowa in 1895.

- **Legacy and Leadership:**

In many ways, the early history of chiropractic is the history of three generations of Palmers. Daniel David Palmer, usually called D.D.; his son, Bartlett Joshua Palmer, called B.J, and his wife, Mabel Heath Palmer; and B.J. and Mabel's son, David D. Palmer, often called Dr. Dave.



PALMER
College of Chiropractic

Palmer Mansion

- The three-story Palmer Mansion was originally built by Louis Dessaint in 1874.
- The Palmers bought the Mansion in Davenport Iowa for \$25,000 in 1912.



A decorative background image on the left side of the slide, showing a series of classical columns with ornate capitals, rendered in a light blue, semi-transparent style.

Palmer Mansion

- In 1920, the Palmers added a large enclosed porch in which to display their collections. It has a series of rooms on the east and south sides of the original house and a solarium.
- The unique character of the porch earned the house a place on the National Register of Historic Places.

Palmer Mansion





Commissioning

Challenges of
museum design
and how the
commissioning
agent can help the
owner.

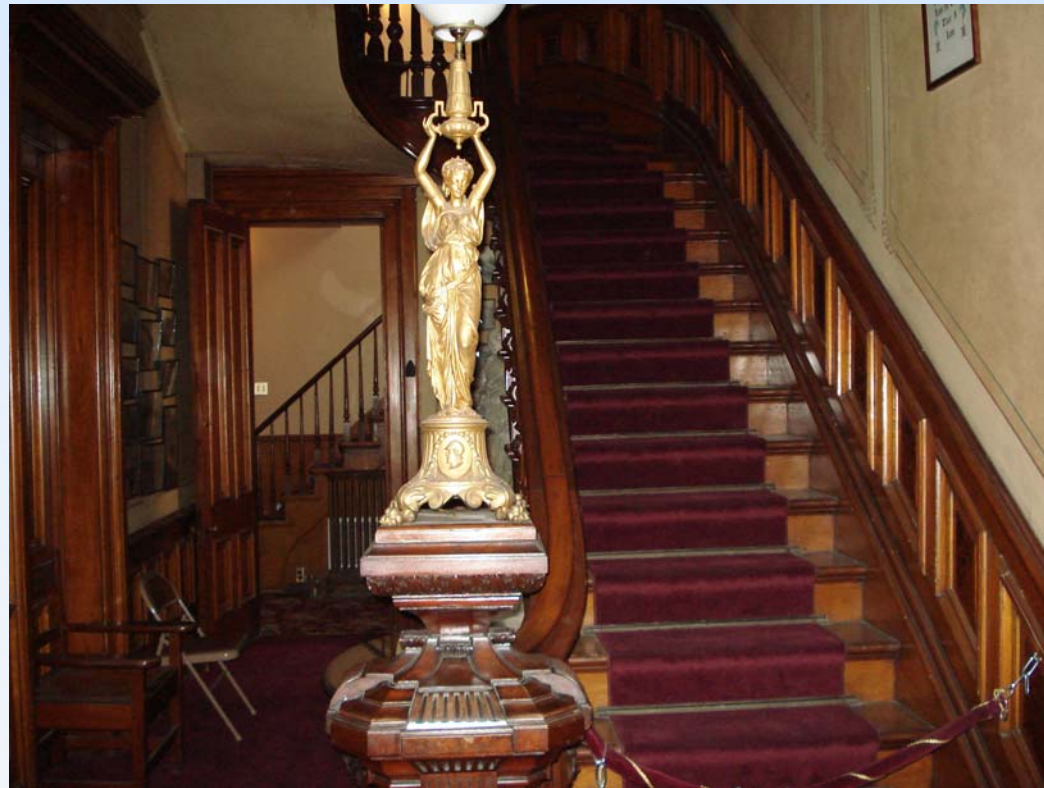


Palmer Mansion Museum

- Renovation Project 2006
- Use the Mansion as a Museum.
- Protect the artifacts within the Mansion.
- Do not modify the visual Architecture of the Mansion.

Palmer Mansion Museum

- Stairway to all levels



Palmer Mansion Museum

- Entry Door way



Palmer Mansion Museum

- B.J. Palmer Study (original physician office)



Palmer Mansion Museum

- Wrap Around Porch & Collections.



The background of the slide features a light blue gradient with a faint, semi-transparent image of classical architectural columns on the left side. The columns are white with detailed capitals and are set against a darker blue background. The entire slide is framed by a thin brown border.

Design Commissioning

- River Place Technologies, LLC (RPT) was employed by Palmer College as the commissioning authority (CxA) near the end of the design period.
- Following the outline of the ASHRAE 0 Standards RPT helped review the design and establish the Basis of Design (B.O.D.)

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Design Commissioning

- The new heating, ventilating and air conditioning (HVAC) system could not modify the interior features of the Mansion.
- The owner wanted to abandon the original steam heating with new heating, air conditioning and humidification systems.



Design Commissioning

- The Basis of Design deviated from the ASHRAE recommended design characteristics for artifacts due to the age of the structure and the building envelope.
- Compromise was required to achieve the many objectives of the owner.
- Explanations of the reason for compromise are some of the important values that the CxA provided for this project.

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Design Commissioning

- A major compromise concerned humidity control. Normal humidity for a museum is maintained between 40% rh & 60%rh.
- In the cold seasons of the Midwest this can cause condensation and freezing in the walls of structures.

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Design Commissioning

- It was decided to reduce the humidification design in the winter to 25%rh to minimize damage to the mansion exterior walls.
- The CxA helped the owner understand the need for the compromise.

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Design Commissioning

- The Basis of Design revolved around a unique air handling system.
- The system uses small two inch diameter duct threaded through the walls to deliver the heating, air conditioning and humidification to the spaces.

Design Commissioning

- The duct terminates in the space with small, medium velocity diffusers.



Design Commissioning

- The air handling units where designed with a high pressure low volume blower for the small duct system.



Design Commissioning

- A high efficiency central boiler system provides heating for the hot water coils of the air handling units.



Design Commissioning

- The hot water coils also provide dehumidification ability for humid seasons.





Construction Commissioning

- The CxA provides a crucial component to the owners understanding of the construction process.
- The mansion was a remodel project. Many items were uncovered during the construction process that could not be fully predicted during the initial design.
- The CxA provided the owner with unbiased knowledge as to changes and modifications recommended by the installing contractors.
- The CxA provided documentation of these changes and the discussions that lead to the decisions that were implemented.

Construction Commissioning

- The CxA reviewed and noted items during the construction process that would impact the owners maintenance ability.



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Functional Commissioning

- The Functional Commissioning process is the commissioning process that the current standard grew from.
- The CxA provides a hands on review of the functionality of the primary components and equipment systems.

Functional Commissioning

- The CxA works closely with the technology contractors in a project.



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Functional Commissioning

- The technology contractors such as Building Automation Systems and Fire & Security systems provide the majority of the owners interface with the building systems.
- Verifying the functionality of the systems is important to bring the full value of the commissioning process to the owner.

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Functional Commissioning

- Since the technology is where the owner interfaces with the building systems. Helping to make sure the systems are as easy to use as possible and meeting the designers intent is crucial to the perceived value of commissioning by the owner.

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Occupancy & Operational Commissioning

- Assisting the owner through the first year of operation is a valuable part of the ASHRAE 0-2005 commissioning process.
- In the Midwest systems need to be validated through the different seasons.

Occupancy & Operational Commissioning

- During the first winter season one area of the Mansion was grossly below the design temperature settings.





Occupancy & Operational Commissioning

- The functional commissioning process had verified all equipment systems were operating per specifications at the end of construction in the early fall.
- A review of the design was implemented with the design engineer of record.

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Occupancy & Operational Commissioning

- The commissioning process reduced the time it took to address the issues uncovered.
- The time was reduced by eliminating the typical finger pointing between the design team and the installing contractors which results in time wasted and owner frustrations.

Occupancy & Operational Commissioning

- It was found that a walk way mirror, open to the outdoors, was poorly installed originally.





Occupancy & Operational Commissioning

- Large gaps in the framing allowed vast amounts of cold air to pour directly into the Solarium space.
- It was also determined that the Solarium space required a separate zone of HVAC equipment to properly heat and cool.



Occupancy & Operational Commissioning

- Without the commissioning process the owner would have had competing interests accusing each other with the failure of the system.
- The engineer provided a modified design at no charge for the additional HVAC zone. The equipment system is being installed currently.

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Holistic Commissioning

- The commissioning process has evolved from an inspection of individual pieces of mechanical equipment to a Holistic process.
- This holistic process is developed to deliver to the owner a fully functional and operational facility designed and built to the Owners expectations.

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Holistic Commissioning

- When implemented fully the Building Trades Industry gains in reputation and owner satisfaction.