APPA Institute for Facilities Management

Project Costs & Investments

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1

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2

Course Description

401 Project Costs & Investments APPAU201909H

Facilities management professionals are constantly challenged on the cost of construction and improvements. This session reveals the reasons behind the high cost of higher education construction by breaking this issue down into its component parts. The session also explores the challenges with making total-cost-of-ownership based project decisions.

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3

Why does it cost so much?

4

High Compared to What?

Frame of reference

5

High Compared to What?

Compared to residential construction

6

High Compared to What?

Compared to commercial construction

7

Comparisons Are Not Valid

- **Residential** – Designed and built for light traffic and medium life, high importance placed on aesthetics
- **Commercial** – Designed and built for medium traffic and short life, high importance placed on function
- **Institutional** – Designed and built for heavy traffic and long life, high importance placed on aesthetics and function

8

Bottom Line

Costs for campus projects rank among the highest in the market…

…and would we want it any other way?

9

Total-Cost-of-Ownership

These higher costs are by and large a reflection of sound total-cost-of-ownership decisions

Total-Cost-of-Ownership (TCO) = Total Project Cost + Operating Costs + Capital Renewal + Decommissioning

10

Cost vs. Investment

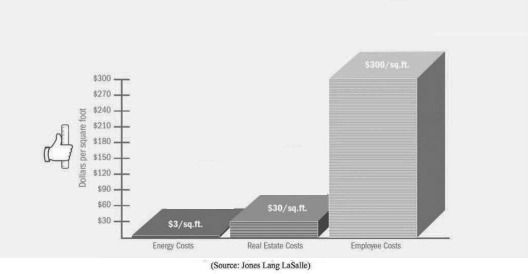
Higher capital investments can lower the total-cost-of-ownership

Many incremental investments we make in a capital projects yield attractive savings and higher values

Therefore, a higher project investment may be in the best financial interest of the institution

11

3-30-300 Rule



(Source: Jones Lang LaSalle)

12

Question?

How do you get these many marbles into this jar without increasing the size of the jar, reducing the number of marbles, or breaking the marbles?

13

Why the High Cost?

- Sense of Place
- Codes, Regulations & Standards
- Complexity
- Institutional and Statutory Requirements
- Time Pressures
- Maintainability, Reliability, Longevity & Sustainability
- Technology, Security & Inclusion

14

Sense of Place

15

Institutional Vision

Our institutions choose to build above the baseline

16

Institutional Vision

The physical environment creates the visual and tangible image of our institutions

17

Institutional Vision

In short, the facilities we construct reflect the vision and aspirations of the institution

18

Image Comes at a Price

Institutions are competing for national and international recognition

$ X million, 152,000 gsf

$ 3X million, 149,000 gsf

19

Marketing

Noel-Levitz, Carnegie Foundation and Washington State University studies have cited the impact the physical environment has on prospective students

20

Marketing

21

Marketing

"As students increasingly select colleges based on what they can see, colleges will spend more money on that which can be seen."



Excerpted from: "Forget the Classrooms: How Big Is the Atrium in the New Student Center? The Chronicle of Higher Education: July 11, 2003

22

Marketing

"Rigor in the classroom and intellect in the faculty cannot easily be seen – certainly not as easily as a fitness center or a three-story granite fireplace."



Excerpted from: "Forget the Classrooms: How Big Is the Atrium in the New Student Center? The Chronicle of Higher Education: July 11, 2003

23

Architectural Character

Building designs make statements


24

Architectural Character

Building designs make statements

25

Architectural Character

With exteriors

26

Architectural Character

And interiors

27

Quality is in the Details

28

Quality is in the Details

Prominent entrances

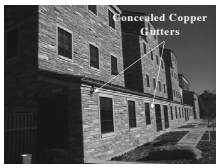
Commercial Entrance

Institutional Entrance

29

Quality is in the Details

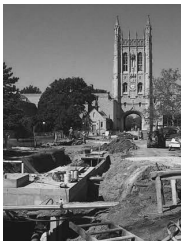
Hidden downspouts



30

Quality is in the Details

Buried utilities



31

Quality is in the Details

Screened trash receptacles

Commercial: None or Chain Link

Institutional: Masonry

32

Quality is in the Details

Discrete service access

33

Quality is in the Details

Public Art

34

Quality is in the Details

Site amenities

35

High Compared to What?

Intensive & extensive landscape

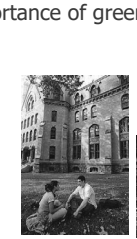
36

Preservation of Land

37

Preservation of Land

Importance of green space





38

Preservation of Land

Optimizing building footprints


39

Preservation of Land

There is a cost of building upward



40

Quality Comes at a Price

We are not just building structures…
…we are creating a "sense of place"




41

Codes, Regulations & Standards

42

Gathering Places

Large assemblies drive our facilities into a higher level of life safety design


43

Gathering Places

Code requires rated corridors, stair towers, fireproofing, fire alarm systems, sprinklers and smoke evacuation systems



44

Legislative Mandates

Federal, state and local regulations add cost burdens to our facilities

- Asbestos abatement
- Hazardous waste removal
- Storm water runoff
- Air quality control
- Dust, noise & vibration controls

45

Universal Design

Universities facilities must not only be compliant with ADA but are increasingly expected to go well beyond to universal design principles


46

Universal Design

Universities facilities must not only be compliant with ADA but are increasingly expected to go well beyond to universal design principles.


47

HVAC Standards

Labs are intensive energy consumers


48

HVAC Standards

Classroom and assemblies are also intensive


49

HVAC Standards

Ventilation requirements drive up the size and cost of mechanical systems


50

- Complexity

51

Complex Facilities

Sophisticated research facilities

52

Complex Facilities

High occupancy and specialized venues

53

Complex Facilities

Intensive technological environments

54

Complex Mechanical Systems

Designed for extreme conditions
Hottest and coldest temperatures
Humidity extremes
Strictest controls
Highest occupancy
Sensing and metering
Fault Detection & Diagnostics

55

Structural Loading

Heavy floor loadings

56

Structural Loading

Column-free spans

57

Mixed Use Facilities

Combine classrooms, laboratories, meeting rooms and offices under one roof

58

Institutional & Statutory Requirements

59

Statutory Requirements

Procurement Statutes
Prevailing Wages
Project Labor Agreements
MBE/DBE/TSB Programs
Insurance
Bonding

60

Institutional Constraints

"Protected environment" of the campus

61

Institutional Constraints

Minimize campus disruptions

62

Challenging Logistics

Restricted building sites

Commercial Site

Campus Site

63

Challenging Logistics

Limited access and staging space



64

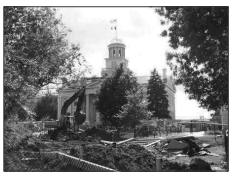
Challenging Logistics

Restricted construction traffic

65

Challenging Logistics

Complex phasing schemes

66

Additional Requirements

Noise restrictions





67

Additional Requirements

Noise restrictions
Fencing and protection


68

Additional Requirements

Noise restrictions
Fencing and protection
No Parking
No Smoking
Litter-free, weed-free work site
Full time supervision
Elevated safety expectations

69

- **Time Pressures**

70

Time Constraints

Immovable completion date and compressed construction windows

71

- **Maintainability, Reliability, Longevity & Sustainability**

72

Stewardship

Designing for low life cycle cost requires higher initial investments:

- Energy efficiency
- Maintainability
- Long life
- Adaptability

73

Adaptability

Increased floor to ceiling heights lower future renovation costs

74

Durability

Campus facilities subjected to frequent cycles of use

75

Durability

Durability important component of doors, hardware, carpeting, restrooms, furniture, etc.

76

Durability

Much of our deferred renewal backlog is due to short-sighted life cycle decisions

77

Reliability

Reliable electrical and mechanical systems are essential to our institutional missions



78

Reliability

Higher cost for providing emergency power, redundancy, generators, UPS systems, and centralized utility systems

79

Sustainability

Higher education embraces sustainable design

- Renewable-sourced building products
- Managed construction waste
- Porous pavements
- Green roofs
- Gray water systems
- Solar Panels
- Other

80

Technology, Security & Inclusion

81

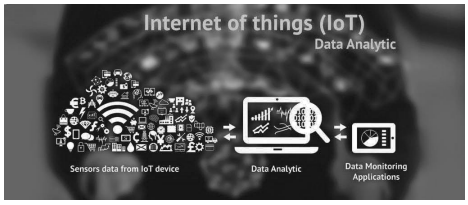
Technology

Active learning classrooms

82

Technology

Sensors, Fault Detection and smart building systems



83

Access & Security

Increasing demands for safety

84

Inclusiveness

Diversity, equity and inclusion

85

What About Renovations?

86

Renovations

Often modifying existing conditions is more expensive than starting new

87

Renovations

Often modifying existing conditions is more expensive than starting new

We find this to be true with ADA compliance


88

Renovations

Buildings built in previous generations may not have the infrastructure for today's renovations

89

Renovations

Investments in renovations must often be made to correct the "sins of the past"

90

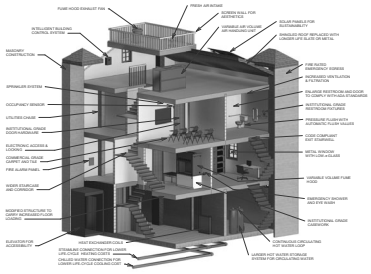
Renovations

Renovations magnify the perception of high cost because they often fall in the realm of personal expenditures…thus heightening the "sticker shock" experience

Inevitably, comparing institutional renovation costs to residential housing investments…

91

Your House on Campus



92

Why the High Cost?

93

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94

In Summary…

- Stewardship demands a long-term view of project investment decisions
- Investments are made with total-cost-of-ownership as an aligning principle
- Value and excellence is in the details - thousands of cost additive details
- Construction costs mirror institutional values, demands and aspirations

95

This concludes The American Institute of Architects Continuing Education Systems Course

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96