Financial Administrator Development Program

Understanding MSU Estimating, Design & Construction

Infrastructure Planning and Facilities (IPF)

Leisa Williams-Swedberg
Construction Administrator

Engineering and Architectural Services

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Who is IPF?

The core function is to keep the university’s facilities and outdoor spaces operational, allowing students, faculty and staff to concentrate on their endeavors, running 24/7/365

IPF strives to be the most high-performing, innovative, leading-edge facilities organization in the nation, with a focus on quality, customer satisfaction and value in all we do.
IPF

- 763 Full-Time Employees
- 414 Students
- 340 On Call/Part Time/Temp
- 6 Unions
Building Services

- Commissioning Services
- Custodial Services
- Maintenance Services
- Trouble Truck for “emergency” response
- Report Problems
  - When?
    - 24/7/365
    - Call 3-1760

Campus Planning

- Campus Master Plan
- Public Art on Campus
  - for projects over $1 million
  - $1/2 of 1% of project cost; capped at $250K
- **Campus Infrastructure Planning Work Group** (CIPWG) (Zoning Board)
Facility for Rare Isotope Beams (FRIB)

- Conventional Facilities (civil infrastructure)
- $680 Million
- Permanent: $150-180M
Land Management

- Real estate functions
- Demmer Center
- Hidden Lake Gardens
- 25,500 Acres
- Approximately 78 Locations
- 13 Ag Bio-Research Centers

Landscape Services

- Campus park
- Snow removal
- Forest Akers Golf Course
- Road and sidewalk maintenance
- Mowing and pruning
- Cleanup following university activities such as football or weather events
Occupational Safety and Compliance

- Environmental Health & Safety
- IPF employee safety
- Emergency response
- Continual training

Power and Water

- Power – 100 MW Firm Capacity
  - Send out electricity 318,028,000 KWH
  - Send out Steam 2,496,724,000 lbs.
- Water – 5 million gallons/day
- Heating - steam
- Cooling – use steam absorbers
Support Services

- Applications
- Business Operations
- Computer Systems and Networking
- Communications
- Human Resources
- Unions representation:
  - APA
  - APSA
  - CTU
  - 324
  - 999
  - 1585

Sustainability

- 14 million lbs. of university materials diverted from landfills with another 4 million from public drop off (FY13-14)
- 8 million lbs. pounds recycled in 2013
- $1,268,000 returned to University departments from the sale of reused material (FY13-14)
- MSU Bikes - LEASE
- Energy Transition Plan
- Environmental Stewards
Telecommunication Systems

- Telephones, voicemail
- Data network
- University operators/dispatch
- Cable TV
- 24/7 Emergency Call Center: 3-1760
Engineering and Architectural Services (EAS) where projects begin
**Project Types**

- **Self-Performed by IPF Staff**
  - Various budgets
  - (example: various projects with limited trade work)

- **Purchase Order**
  - Below $250,000
  - (example: office renovation)

- **Minor**
  - $250,000 to $999,000
  - (example: lab renovation)

- **Major – B.O.T**
  - $1,000,000 and above
  - (example: New Building)
Project considerations that may not have originally been anticipated or considered

- LEED certification or green building elements
- Energy considerations and implementations
- Construction Standards
- Life Cycle costs
- Hazardous material assessment and abatement
- Hidden elements that may affect code requirements
- Accessibility and barrier free considerations
- Life safety
- Duration of design, construction and material lead times
- Donor participation
- Grant requirements
Items contributing to the total project budget

1. Art on Campus
2. Construction by contract
3. Construction and services by the University
4. Contingencies
5. Design, inspection and contract administration services
6. Movable Furnishings and equipment
7. Project development
IPF – new fee structure

**IPF Professional Services**

**Advantages**
Transparent and consistent services assessment for our campus clients.
Now backed by financial analysis, these rates are meant to cover costs and will be reassessed annually.

<table>
<thead>
<tr>
<th>Before</th>
</tr>
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<tbody>
<tr>
<td>Design Administration</td>
</tr>
<tr>
<td>Interior Design</td>
</tr>
<tr>
<td>CP&amp;A</td>
</tr>
<tr>
<td>Inspection</td>
</tr>
<tr>
<td>Facilities Information Services</td>
</tr>
<tr>
<td>Technical Trade Inspection</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>After</th>
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<tbody>
<tr>
<td>3.5%</td>
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</table>

**IPF Professional Services**
Higher Education construction volume 2000 – 2014
Averages 19,800 million per year

Value of U.S. local and state government educational construction* put in place between 2002 and 2014 (in million U.S. dollars)

* According to the source, figures include other types of construction, not shown separately.
The figures for 2002 through 2007 are taken from previous editions of the publication; the 2014 figure is preliminary.
MSU Design & Construction Payment Volume

Millions of Dollars

<table>
<thead>
<tr>
<th>Year</th>
<th>Payment Volume</th>
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<tbody>
<tr>
<td>2002-03</td>
<td>$51.3</td>
</tr>
<tr>
<td>2003-04</td>
<td>$65.8</td>
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<tr>
<td>2004-05</td>
<td>$124.8</td>
</tr>
<tr>
<td>2005-06</td>
<td>$108.7</td>
</tr>
<tr>
<td>2006-07</td>
<td>$132.0</td>
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<tr>
<td>2007-08</td>
<td>$114.6</td>
</tr>
<tr>
<td>2008-09</td>
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<tr>
<td>2010-11</td>
<td>$151.6</td>
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<tr>
<td>2011-12</td>
<td>$125.9</td>
</tr>
<tr>
<td>2012-13</td>
<td></td>
</tr>
</tbody>
</table>
Sources of Project Funding

1. Bonded Debt Service
2. Departmental
3. Donors
4. Energy
5. General Fund
6. Grants
7. Just-in-Time
8. State or Federal Funding
Major Project Delivery Phases

1 - 3 months: Preliminary Cost Assessment (PCA) or Study
6 - 18 months: Design
1 - 2 years: Bidding & Construction
1 year warranty: Close-Out

Timeline: 1 - 3 months, 6 - 18 months, 1 - 2 years, 1 year warranty.
MSU Board of Trustee and CIPWG Approval Process

**BOT Step 1**
Authorization to Plan

- Funding Plan Identified
- Consultants identified
- FPSM approval or auxiliary approval granted

**BOT Step 2**
Authorization to Proceed

- Funding Source Identified and funding available – Project specific account established
- Donor(s) identified
- CM delivery authorized

**BOT Step 3**
Authorization to Award Contract

- Funding transferred to Project account
- General Contract delivery authorized

CIPWG 1 - 2 months prior to BOT1
CIPWG 2 - 2 months prior to BOT2
4 steps of Project Initiation

Step 1 – Initiate the project

• Obtain departmental leadership/committee approval
  • Dependent upon your department’s specific requirements

• Academic spaces are subject to approval by Facilities Planning and Space Management within the Office of Planning and Budgets.
  • Non academic projects only require departmental approval

• Initiate a **PCA (Preliminary cost assessment)** using the online service request

• Provide sufficient information to clearly explain your program needs

• Collaborate with IPF on potential solutions and options

• Obtain required authorization should you decide to proceed
Step 2 – Design and Bidding

- Provide clear vision of your goals and expectations for the project
- Come with a clear decision-making hierarchy
- Approve project program requirements prior to the start of schematic design
- Secure the necessary funding
- Provide signed approval of the construction documents prior to bidding
Step 3 - Construction

- Attend construction progress meetings
- Quickly communicate perceived issues or problems during construction
- Have clear decision making hierarchy
- Update your department (and Dean, as appropriate) regarding the project status
Step 4 – Closeout and transition

- Attend training meeting for customer orientation with new equipment; ensure all appropriate parties attend.

- Participate in walk-throughs to ensure that deficiencies (punch list items), warranty and operational issues are understood and addressed.

- Participate in 3, 6 and 10 month walk-throughs following substantial completion (move-in) to identify any outstanding warranty items prior to 1 year warranty period ending.
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Capital Cost of the Building</td>
<td>1x</td>
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<tr>
<td>Operations and Maintenance</td>
<td>5x</td>
</tr>
<tr>
<td>Value of business and human performance conducted within the space</td>
<td>200x</td>
</tr>
</tbody>
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Forest Akers Trust Practice Field

- 106,538 square feet
- $1.150 million
- $10.79 / square foot
Summer Circle Courtyard

Before
- 23,800 square feet
- $1.151 million
- $48 / square foot

After
West Circle Steam – Phase 3 of 4, 2014

- 113,256 square feet
- $14.9 million
- $131 / square foot
Spartan Stadium – North End Zone Addition

- 51,779 square feet
- $24 million
- $473 /square foot
Bio-Engineering

- 130,000 square feet
- $71.8 million
- $552 / square foot