Office of Facilities Coordination

Academic Space Projection Model

Overview of the Components and Methodologies Used to Determine Space Requirements

As developed by the Texas Higher Education Coordinating Board
Academic 5-Factor Model

- Approved by the THECB in 1992
- The model predicts the net assignable area of E&G space an institution needs in five categories:
  1. Teaching
  2. Library
  3. Research
  4. Office
  5. Support
- Auxiliary spaces are excluded.
Academic 5-Factor Model

**Uses:**

- **New Construction Request**
- **Funding**
  - Funding Formulas (1997)
  - Higher Education Assistance Fund (HEAF) fund allocation formula
Academic 5-Factor Model

- Classrooms
- Class Labs
- Special Class Labs
- Self-Study Labs
- Physical Education
- Demonstration

- Audio/Visual
- Animal Quarters
- Assembly
- Exhibition
- Lounge/Meeting Rooms
- Locker Rooms
• **Teaching Space**
  - FTSE is calculated for each program area
    - Undergraduate SCH / 15
    - Masters SCH/12
    - PhD SCH/9
  - The derived teaching space depends on funded semester credit hour production by program area and level of course.
• **Program Areas:**
  
  – **Area 1:** Most space intensive programs  
    • Agriculture, Architecture, Engineering, Optometry, Trade and Industrial Arts, Visual/Performing Arts  
  
  – **Area 2:**  
  
  – **Area 3:** All other programs (not space intensive)
### Academic 5-Factor Model

#### Teaching Space Program Area per FTSE

<table>
<thead>
<tr>
<th></th>
<th>Area 1</th>
<th>Area 2</th>
<th>Area 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>75.0</td>
<td>60.0</td>
<td>45.0</td>
</tr>
<tr>
<td>Masters</td>
<td>52.5</td>
<td>42.0</td>
<td>31.5</td>
</tr>
<tr>
<td>Doctorate</td>
<td>30.0</td>
<td>24.0</td>
<td>18.0</td>
</tr>
</tbody>
</table>
The Teaching Space Coefficient:

- **Economy of scale factor**
  - Applied to those institutions with more than 15,000 undergraduate FTSE.
  - Applied to the same proportion of predicted undergraduate teaching space as the proportion of undergraduate FTSE.
  - A factor of 0.98 is used for 0-1,000 FTSE above 15,000.
  - Decreases 0.02 for each 1,000 undergraduate FTSE.
  - Applied only to the predicted undergraduate space.
Academic 5-Factor Model

• **Space Types:**
  - Reading/Study Rooms
  - Stack Space
  - Library Service Rooms
  - Offices with Library Use Codes

• **Calculation based on:**
  - Association of College & Research Libraries standards for college libraries
  - Data from Nat’l Center for Education Statistics
    • Integrated Postsecondary Education Data Systems (IPEDS)
Academic 5-Factor Model

- **Calculation:**
  - Stack Space = FTSE x (Volumes x 0.10 NASF)
  - Study Space = FTSE x 6.25 NASF
  - Staff Space = 12.5% of the Total space Calc

- **Total Prediction = Sum of above**
Academic 5-Factor Model

• **Space Types:**
  – Research Lab & Laboratory Service Rooms

• **Calculation based on:**
  – 9,000 sqft for every $1.174927 million in Research Expenditures
    • Average of Last 3 years’ expenditures
    • Consumer Price Index inflation factor reflected in the variable
**Academic 5-Factor Model**

- **Space Types:**
  - Offices, Conference Rooms
  - Associated Service Areas

- **Calculation based on:**
  - **Personnel**
    - Faculty FTE as reported in the CBM-005
    - Non-Faculty = 1.8 x Faculty FTE
  - **Space Needs**
    - 190 Sqft x Faculty FTE
    - 170 Sqft x Non-Faculty FTE
**Academic 5-Factor Model**

- **Space Types:**
  - Data Processing/Computer Rooms
  - Shops, Storage, Vehicle Storage
  - Associated Service Areas

- **Calculation based on:**
  - 9% of the Sum of Predicted Space from:
    - Teaching
    - Library
    - Research
    - Office
### TAMU Infrastructure Funding

#### Model Elements

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<thead>
<tr>
<th>Factor</th>
<th>Academic</th>
<th>Health-Related</th>
<th>Service Agencies</th>
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<tbody>
<tr>
<td>Teaching</td>
<td>X</td>
<td>X</td>
<td>TCE ¹, TEEX,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TAES, TEES,</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>TTI</td>
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<tr>
<td>Library</td>
<td>X</td>
<td></td>
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<tr>
<td>Research</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Clinical</td>
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<td>X</td>
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<tr>
<td>Multiple Campus</td>
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<tr>
<td>Adjustment</td>
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</table>

¹Texas Cooperative Extension (formerly TAES)
<table>
<thead>
<tr>
<th>Institution/Agency</th>
<th>Predicted</th>
<th>Actual</th>
<th>Surplus/Deficit</th>
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<tbody>
<tr>
<td>Texas A&amp;M University</td>
<td>5,023,404</td>
<td>4,757,136</td>
<td>(266,268)</td>
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<tr>
<td>TAMUS Agencies</td>
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<tr>
<td>Tx Engineering Exp Station</td>
<td>603,092</td>
<td>424,118</td>
<td>(178,974)</td>
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<tr>
<td>Tx Engineering Ext Service</td>
<td>166,868</td>
<td>213,898</td>
<td>47,030</td>
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<tr>
<td>Tx Transportation Institute</td>
<td>247,280</td>
<td>176,702</td>
<td>(70,578)</td>
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<tr>
<td>Tx Agricultural Exp Station</td>
<td>833,457</td>
<td>744,196</td>
<td>(89,261)</td>
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<tr>
<td>Tx Agricultural Ext Service</td>
<td>122,829</td>
<td>151,134</td>
<td>28,305</td>
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<td>Tx Vet Med Diagnostic Lab</td>
<td>19,450</td>
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<td>13,685</td>
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<td>Tx Forest Service</td>
<td>6,732</td>
<td>11,078</td>
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<td>TAMUS Health Science Center</td>
<td>476,843</td>
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