## Facilities Renewal Requirements

Basis of Estimates:

In its Unified Budget Recommendations for the last several budget years, the Alabama Commission on Higher Education included funding, to be provided from nonrecurring revenues, for the renewal of facilities. The amount recommended for each institution is an estimate of the amount of money needed to provide for the aging of all building elements in a given year.

The method used by the Commission staff to estimate facilities renewal needs is not as precise as a carefully prepared engineering estimate based on detailed facilities inspections. However, until each institution has thoroughly documented its entire requirement for repair and renovation a detailed engineering estimate cannot be prepared and the process followed by the staff provides a consistent and realistic estimate of needs.

The rationale behind the process is as follows:

(1) The incidence of major repair and the need for general renovation of a building increase with its age, and the relationship is generally skewed toward the older, unrenovated facilities.

(2) Different elements of a building wear out or become obsolete at different ages. For example, foundations and principal elements of the superstructure are essentially permanent. Exterior walls, plumbing, and lighting have expected life of 40 to 50 years. Roofs and air conditioning should last 20 to 25 years. Interior surfaces require reworking in 10 years or less.

(3) Different types of buildings, even though constructed to similar standards of quality and of similar materials, are comprised of different combinations ("mixes") of elements, and the cost of replacing or renovating each type depends on the mix and the cost per square foot of each element.

(4) The "renewal allowance" of a building is defined as the amount, which should be budgeted in any year to provide for the aging of all elements of that building. The "renewal backlog" of a building is defined as the summation of all the years' renewal allowances to date, for that building, from its initial completion (or latest complete renovation) and is a measure of the total amount which should be spent to bring the building to essentially new condition. The renewal allowances and backlogs are estimated by multiplying the sums of maximum renewal costs for each 25-year and 50-year element by factors reflecting the age of the building elements.

Attachment 1 summarizes maximum renewal costs, at 2002 construction cost levels, for 50-year and 25-year elements, for different types of college and university buildings, derived from the 2002 Means Square Foot Costs. These construction costs were then adjusted using a regional cost factor of .80. Elements normally requiring reworking or replacement in less than 20 to 25 years (e.g. wall finishes) are not included in renewal costs, on the basis that these elements are dealt with in the course of regular maintenance. (See Reference 2)

Procedure for Calculating Renewal Allowances and Backlogs

Renewal Allowances and Renewal Backlogs are calculated as follows:

(1) Calculate the current replacement value of each 50-year and 25-year element of each major campus building according to Attachment 1 and determine the Maximum Renewal Allowance for each facility as follows:

(a) 50-year Elements: Maximum Renewal Allowance is the sum of the current replacement costs of 50-year elements.

(b) 25-year Elements: Maximum Renewal Allowance is the sum of the current replacement costs of the 25-year elements.

(2) Calculate the "adjusted age" of the 50-year and 25-year elements for each building that has undergone renovation since its construction (up to 50 and 25 years respectively), as follows:

(a) 50-year Elements - Multiply the proportion of the building area renovated by the time elapsed since each renovation. Multiply the proportion not renovated (i.e. one minus the proportion renovated) by the age of the building up to and including 50 years. The sum of the two (or more) products equals the adjusted age of the 50-year elements.

(b) 25-year Elements - Multiply the proportion of the building area renovated by the time elapsed since each renovation. Multiply the proportion not renovated by the age of the building, up to and including 25 years. The sum of the two (or more) products equals the adjusted age of the 25-year elements.

(3) Calculate the current year Renewal Allowance for each facility as follows:

(a) 50-year Elements - Divide the building age (actual or adjusted), up to and including 50 years, by 1,275 (the sum of the years digits from 1 to 50). Multiply the quotient by the Maximum Renewal Allowance for 50-year elements and this product by the gross building area.

(b) 25-year Elements - Divide the building age (actual or adjusted), up to and including 25 years, by 325 (the sum of the years digits from 1 to 25). Multiply the quotient by the Maximum Renewal Allowance for 25-year elements and this product by the gross building area.

(c) Add products (a) and (b).

(4) Calculate a 50-year element renewal factor and a 25-year renewal factor for each facility as follows.

(a) 50-year Elements - Sum the numbers from 1 to the current (actual or adjusted) age of the building (up to 50 years) and divide by 1,275.

$$F\,50 = \frac{1 + 2 + 3 + \text{----------} + \text{Current Age}}{1 + 2 + 3 + \text{----------} + 49 + 50}$$

(b) 25-year Elements - Sum the numbers from 1 to the current (actual or adjusted) age of the building (up to 25 years) and divide by 325.

$$F\,25 = \frac{1 + 2 + 3 + \text{----------} + \text{Current Age}}{1 + 2 + 3 + \text{----------} + 24 + 25}$$

(5) Calculate the Renewal Backlog for each building as follows:
Renewal Backlog = (50-year renewal factor) x (50-year Maximum Renewal Allowance) + (25-year renewal factor) x (25-year Maximum Renewal Allowance).

(6) Sum the calculated current year Renewal Allowances and Renewal Backlogs for all campus facilities broken down by funding category (e.g. E&G, Auxiliary, Health Professions, etc.). The sum of the Renewal Backlogs represents current total renovation backlog. The sum of the current year Renewal Allowances will be the amount that should be appropriated for facility renewal for the current year.

Attachment 2 summarizes Renewal Allowances and Renewal Backlogs for all Alabama public postsecondary institutions of higher education, based on the Fall 2001 Facility Inventory, 2002 Space Data Reports and 2002 construction cost data.

References

2002 RS Means® Square Foot Costs, 23nd Annual Edition, R. S. Means Company, Inc. Construction Publishers & Consultants, Kingston, MA, 2000.