REQUEST FOR FALL ISSUE PAPERS

Each year CEE publishes a special Fall issue devoted to graduate education. This issue consists of articles on graduate courses and/or graduate research, written by professors, and of announcements placed by ChE departments describing their graduate programs. If you are interested in contributing to the editorial content of this issue by submitting a paper on either a graduate course or on graduate research, please send the Editor a letter describing the paper's content and possible date of submission. Address correspondence to Ray Fahien, Editor, CEE, ChE Dept., U. of Fla., Gainesville, FL 32611.

from Eqn. (1) as

$$Q_R = (0.1712 \times 10^{-8})\ (17000)\ (0.75)\ (525^4 - 487^4) = 4.31 \times 10^5 \frac{\text{BTU}}{\text{hr}}$$

If it is assumed that the new ceiling completely eliminates radiation to the ice then over an 8 month period the reduction in heat input to the ice can be calculated as

$$Q_R = (4.31 \times 10^5)\ (365 \times \frac{8}{12})\ (24) = 2.53 \times 10^9 \text{ BTU}$$

Next the Carnot cycle equation can be used for the refrigeration system to calculate the work that is saved. This work is

$$W = Q_R \frac{T_{cond} - T_{evap}}{T_{evap}} \frac{1}{\eta} \qquad (2)$$

where

η = comp. efficiency (assume 0.80)
T_{cond} = cond. temp. (550°R)
T_{evap} = evap. temp. (476°R)

Substituting for Q_R, T_{cond}, and T_{evap}, gives the work savings for the 8 month operating period as

$$W = (2.53 \times {}^9\text{BTU}) \left(\frac{550 - 476}{476}\right) \left(\frac{1}{0.8}\right) (2.931 \times 10^{-4} \left(\frac{\text{kwh}}{\text{BTU}}\right)) = 1.43 \times 10^5 \text{ kw hr}$$

The dollar savings can be calculated as

$$\$\ \text{Savings} = 1.43 \times 10^5 \text{ kw hr} \times \frac{\$\ .05}{\text{kw hr}} = \$7150$$

The estimated payout time for the non-radiating ceiling is 4.2 years which is reasonable. Given the fact that energy costs are bound to rise, the ceiling is probably a good investment. □

REFERENCES

1. "Transport Phenomena," R. B. Bird, W. E. Stewart, and E. N. Lightfoot, John Wiley and Sons, New York, 1960.

ChE book reviews

WHAT EVERY ENGINEER SHOULD KNOW ABOUT ECONOMIC DECISION ANALYSIS

By Dean S. Shupe
Marcel Dekker, Inc., 1980. 136 pages

Reviewed by William G. Sullivan
University of Tennessee

This short book provides a concise treatment of many principles of engineering economic evaluation. It is full of good example problems to illustrate these principles, and it can be read and easily understood by the practicing engineer in a few hours.

Several topics are covered that one might not expect to encounter in a book of this length. For example, several examples deal with inflation and there are numerous solved problems related to solar energy applications. The subject of debt versus equity financing and how to handle it is also included in a separate chapter. Furthermore, several relatively advanced federal income tax provisions are illustrated very clearly in another chapter.

The book is ideal for review of engineering economy topics that appear on professional engineering examinations. In addition, it could serve well as a textbook for a shortcourse (1 or 2 days) on this subject. Because of its brevity in conceptual development regarding why various evaluation methods work the way they do, the book is not suitable as a text for a college-level course. No homework problems are included at the end of any of the eight chapters.

In Summary, *What Every Engineer Should Know About Economic Decision Analysis* should help engineers with no formal training in engineering economics to more fully appreciate the "how to," but not the "whys," of conducting studies of engineering alternatives. The book could make a valuable addition to the practitioner's bookshelf. □