New Expansion Project

Regency Integrated Chips (RIC), a large technology company, is considering a new project. This is a **new expansion project,** defined as one where the firm invests in new assets to increase sales. Following is some background information on the project.

Background on the Project

RIC's research and development department have been applying its expertise in microprocessor technology to develop a small computer designed to control home appliances. Once programmed, the computer will automatically control the heating and air-conditioning systems, security system, hot water heater, and even small appliances such as a coffee maker. By increasing a home's energy efficiency, the computer can cut costs enough to pay for itself within a few years. Development has now reached the stage where a decision must be made about whether or not to go forward with full-scale production.

RIC's marketing vice president believes that annual sales would be 20,000 units if the units were priced at $3,000 each, so annual sales are estimated at $60 million. RIC expects no growth in unit sales, and it believes that the unit price will rise by 2% each year. The engineering department has reported that the project will require additional manufacturing space, and RIC currently has an option to purchase an existing building, at a cost of $12 million, which would meet this need. The building would be bought and paid for on December 31, 2008. RIC bases depreciation on the Modified Accelerated Cost Recovery System (MACRS). For depreciation purposes, the building falls into the MACRS 39-year class (1.3%, 2.6%, 2.6%, 2.6%...).

The necessary equipment would be purchased and installed in late 2008, and it would also be paid for on December 31, 2008. The equipment falls into the MACRS 5-year class (20%, 32%, 19%, 12%). The equipment would cost $7.8 million and would require $0.2 million for shipping and installation. The depreciable basis under MACRS is equal to the purchase price of an asset plus any shipping and installation costs.
The basis is *not* adjusted for *salvage value* (which is the estimated market value of the asset at the end of its useful life), so the depreciation basis for the building is $7.8 + $0.2 = $8 million.

The project's estimated economic life is 4 years. At the end of that time, the building is expected to have a market value of $7.5 million and a book value of $10.908 million, whereas the equipment would have a market value of $2 million and a book value of $1.36 million.

The production department has estimated that variable manufacturing costs would be $2,100 per unit and that fixed overhead costs, excluding depreciation, would be $8 million a year. They expect variable costs to rise by 2% per year, and fixed costs to rise

by 1% per year. Depreciation expenses would be determined in accordance with MACRS rates.

RIC's marginal federal-plus-state tax rate is 40%; its cost of capital is 12%; and, for capital budgeting purposes, the company's policy is to assume that operating cash flows occur at the end of each year. Because the plant would begin operations on January 1, 2009, the first full year of operating cash flows would end on December 31, 2009.

Several other points should be noted: (1) RIC is a relatively large corporation, with sales of more than $4 billion, and it takes on many investments each year. Thus, if the computer control project does not work out, it will not bankrupt the company— management can afford to take a chance on the computer control project. (2) If the project is accepted, the company will be contractually obligated to operate it for its full 4- year life. Management must make this commitment to its component suppliers. (3) Returns on this project would be positively correlated with returns on RIC's other projects and with the stock market—the project should do well in other parts of the firm and the general economy are strong.

Assume that you have been assigned to conduct the capital budgeting analysis. For now, assume that the project has the same risk as an average project and use the corporate weighted average cost of capital, 12%.

Exhibit – 1:

All Figures in 000's (except percentage figures)

Input Data			
Building Cost	12000	Market Value of building at Salvage	7500
Equipment Cost	8000	Market Value of Equipment at Salvage	2000
Net Operating Working Capital/Sales	10%	Tax rate	40%
First Year Sales (units)	20000	WACC	12%
Growth rate in units sold	0%	Inflation: Growth in sales price	2%
Sales Price per unit	3	Inflation: Growth in VC	2%
Variable Cost per unit	2.1	Inflation: Growth in fixed cost	1%
Fixed Cost	8000		