

By Amanda Parolise

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Building Program To Basis Of Design For A Commercial Building Tenant Space Retrofit

For a building program to be successful and sustainable, it is imperative that the program include an operating budget as well as a construction budget. Fifteen to 20% of the cost of a building is first cost, and that other 80% or more is in the operation over the life of the building. The following is a sample of what the HVAC annual operating budget for a commercial office building tenant retrofit could look like at the conceptual phase of a project.

When designing a new or renovated commercial office building shell-and-core and tenant fit out, the design engineer should refresh his memory relative to this basis of design by first going to ASHRAE *Handbook 2015 Applications* and read chapters 3 Commercial and Public Buildings, chapters 36 through 43 relative to building operation and management, chapter 57 on room air distribution, chapter 59 for HVAC security, and chapter 61 for codes and standards. Also, a review of the LEED CI (construction interiors) and Existing Building certifications should be done even if the owner chooses not to apply for the certification but instead be LEED-compliant.

Quite often, commercial office building property management and O&M is outsourced to third-party management firms and their O&M companies for the day-to-day requirements. Building owners or their representatives will most likely contract major HVAC equipment maintenance to an HVAC service company for the planned maintenance of the seasonal primary equipment startup and shutdown. The conceptual design phase annual operating budget for entire 200,000-sq-ft building, including the routine O&M for this tenant's existing 10,000-sq-ft space and retrofit of the additional 10,000-sq-ft space, is as follows.

Administrative		
SALARIES, WAGES & BENEFITS		
• Employee salaries & wages	(1) Manager (1) Supervisor (0) Technician	\$ 250,000
• Taxes, health care, etc.		\$ 0
• Retirement & benefits		\$ 0
OUTSOURCED O&M (IN FEE)		
• Employee salaries & wages	(0) Manager (0) Supervisor (2) Technician	\$ 0
• Taxes, health care, etc.		\$ 0
• Retirement & benefits		\$ 0
SERVICE CONTRACTS		
• Refrigeration equipment	(1) Air-cooled chiller twice a year	\$ 18,000
• Heating equipment	(2) condensing boiler twice a year	\$ 1,200
• Filters	By outsource vendor	\$ 0
• Emergency generator	By outsource vendor monthly	\$ 0
CONSULTANTS		
• CAD (computer-aided drafting)	None	\$ 0
• Energy	None	\$ 0
• Information technology	None	\$ 0
INFORMATION TECHNOLOGY		
• CMMS	In outsource O&M fee	\$ 0
• Handheld devices	In outsource O&M fee	\$ 0
EXPENSES		
• Education	None	\$ 0
• Conferences	None	\$ 0
• Offices supplies	None	\$ 0
UTILITIES		
• Electricity	20,000 sq ft via meter	\$ 30,000
• Gas	20,000 sq ft via Btu meter	\$ 12,000
• Oil		\$ 0
• Propane		\$ 0
• District/campus steam		\$ 0
• District/campus chilled water		\$ 0
• District/campus hot water		\$ 0
DOCUMENTATION		
• Printing	None	\$ 0
UTILITIES		
• Maintenance repair	In outsource O&M fee	\$ 0
• In-house HVAC modifications	None	\$ 0
• Capital projects	None	\$ 0
• Energy initiatives	None	\$ 0
TOTAL ANNUAL OPERATING COST		\$311,000
TOTAL ANNUAL OPERATING COST/Sq Ft		\$3.37

NOTE: Include tenant's portion of building management cost based on 20,000 sq ft of lease (\$1.27/sq ft) plus tenant secondary meter cost (\$2.10/sq ft) for utilities.