



Window Film



Demand Analyzer Warehouse Payback Analysis

Demand Analyzer utilizes the U.S. Department of Energy's sophisticated DOE-2 building energy analysis software for estimating energy savings for building projects. DOE-2 is a whole-building analysis program that calculates energy use and operating cost for each hour of the year, using typical weather data for the selected location. DOE-2 is widely used by consulting engineers for the design of energy-efficient buildings; by researchers for impact analysis of new heating, cooling and lighting technologies; and by state and federal agencies for developing energy-efficiency standards. DOE-2 is internationally recognized for the accuracy of its energy analysis algorithms as well as its ability to model a variety of buildings, HVAC systems and energy conservation measures.

Additional information about ITEM Systems and Demand Analyzer is available at <http://www.halcyon.com/byrne> and DOE-2 information can be found at <http://gundog.lbl.gov>.

The energy savings are based on methods using the U.S. Department of Energy's DOE-2 energy simulation program. The methods used are believed to be reliable, but the accuracy and completeness thereof is not and cannot be guaranteed. Neither the party presenting this report, AIMCAL, the referenced film manufacturer, or the film seller assumes liability in connection with the inability to realize the estimated energy savings shown.

1. To begin the Energy Simulation Process, please refer to the inputs below and answer each line item. Note, some questions have multiple choices, please check or circle the correct answer.

When complete fax to 3M Technical Service Attn:

This section to be filled out by the 3M Window Film Dealer

Category (Dealer Name) _____ Dealer Fax _____
 Dealer Address _____ Dealer Email _____
 _____ Description (Project Name) _____
 Dealer Phone _____

Films to be analyzed

Cost per ft²

Films to be analyzed	Cost per ft ²

This section to be filled out by the building owner/facility engineer

General Information

2. Building type
 - a. If this is not a warehouse please refer to the correct Demand Analyzer checklist
3. Building Age
 - a. Pre 1978
 - b. 1978-1992
 - c. 1992-Present
4. Climate Zone (Project City) _____
5. Total Floor Area (All Floors) _____
6. Aspect Ratio: (Building length east-west)/(Building length north-south. For example, a square building this is 1, for a rectangular building take the length along the east west side and divide that length by the north south length) _____
7. **Building Azimuth/Building Orientation** (example, a rectangular building with each face pointing directly north south east and west would be 0degrees, if the building is turned clockwise so that north faces north-east, it would be 45 degrees) _____

Utility Rates

Electric

Gas

- | | |
|--|--|
| 8. Energy cost per kWh _____ | 14. Energy cost per therm _____ |
| 9. Demand cost per kW _____ | 15. Fixed cost per month _____ |
| 10. Minimum demand cost per kW _____ | 16. Minimum cost per month _____ |
| 11. Fixed cost per month _____ | 17. Maximum effective rate per therm _____ |
| 12. Minimum cost per month _____ | |
| 13. Maximum effective rate per kWh _____ | |

18. Required: Annual Energy Cost for building _____

19. *Also please attach latest energy bill**

20. Occupant Density

- a. Office _____ ft²/person
- b. Service _____ ft²/person
- c. Warehouse _____ ft²/person

21. Indoor Occupancy Sensors (Circle yes or no)

22. Indoor lighting

- a. Office _____ W/ ft²
 - b. Service _____ W/ ft²
 - c. Warehouse _____ W/ ft²
23. Outdoor lighting type
- a. Mercury Vapor Lamps
 - b. High Pressure Sodium Lamps
 - c. Metal Halide Lamps
24. Electrical equipment
- a. Office _____ W/ ft²
 - b. Service _____ W/ ft²
 - c. Warehouse _____ W/ ft²

Thermostat Setting

25. Heating Setback _____ °F
26. Cooling Setback _____ °F
27. Office Heating _____ °F
28. Office Cooling _____ °F

29. Ceiling roof insulation (R-value Typically R-11, with a typical upgrade to R-19) _____
30. Roof Absorbance (This is a value between 0 and 1, with a typical value of 0.8, lighter smoother roofs approach 0, with darker rougher roofs closer to 1) _____
31. Air Curtain Entrance (Circle yes or no)

Exterior Shading

32. North (Check yes or no)
33. East (Check yes or no)
34. South (Check yes or no)
35. West (Check yes or no)

Window Area ft²

36. North _____ ft²
37. East _____ ft²
38. South _____ ft²
39. West _____ ft²

Window Setback ft

40. North _____ ft
41. East _____ ft
42. South _____ ft
43. West _____ ft

Window Shading/Window Treatments (The number here should be the % of time that the window treatments are open, if you have no blinds/drapes, or the blinds/drapes are always open this number should be 1, if the blinds/drapes are always closed this number should be 0)

44. North _____
45. East _____
46. South _____
47. West _____

Window Glass Type (ex 1/4" tinted insulated, or 1/8" single pane clear)

48. North _____ ft
49. East _____ ft
50. South _____ ft
51. West _____ ft

52. Domestic hot water heater type
- a. Electric
 - b. Gas
 - c. Point of use
 - d. Heat pump
53. Domestic hot water heater efficiency _____
54. Domestic hot water tank insulation (Circle yes or no)
55. Domestic hot water pipe insulation (Circle yes or no)

56. Domestic hot water circulation pump timeclock (Circle yes or no)

57. Ventilation rate _____cfm/person

58. Duct insulation (Circle yes or no)

59. Air side economizer (Circle yes or no)

60. HVAC system clocks (Circle yes or no)

61. Energy management system (Circle yes or no)

62. Deadband thermostats (A deadband thermostat provides a range or a band of temperatures where neither the heating nor the cooling systems of an HVAC system operate. This type of thermostat prevents heating and cooling equipment from operating simultaneously, in immediate succession, or when room air characteristics require no conditioning of the air) (Circle yes or no)

Central Plant

63. Heating System

- a. None
- b. Gas Furnace
- c. Electric Furnace
- d. Room Heat Pumps
- e. Central Heat Pump
- f. Gas Heat Pump

64. Cooling system

- a. None
- b. Central DX A/C
- c. Packaged Terminal A/C

65. Cooling tower

- a. None
- b. Centrifugal fans
- c. Propeller fans
- d. Two-Speed propeller fans
- e. Variable speed propeller fans

66. Heating system efficiency _____

67. Cooling system efficiency _____

68. Infrared space heaters (Circle yes or no)

69. Indirect evaporative pre-cooling (An evaporative pre-cooler uses a wetted filter positioned on the suction side of the condenser fan. The filter is continuously kept wet. Air is drawn through the filter and across the condenser coils by the condenser fan. By evaporating water into the ambient air before it passes across the condenser coils, the ambient air is cooled, causing lower condenser temperatures.) (Circle yes or no)