9.4.2 Case Study, The Cambria Department of Environmental Protection Office Building, Ebensburg, Pennsylvania (Office)

Building Design

Floor Area: 34,500 SF Floors: 2

Open office space (1)	File storage area	Two small labratories	Conference rooms
Break room	Storage areas	Two mechanical rooms	Telecom room

Shell

Windows

Material: Triple Pane, low-e with Aluminum Frames and Wood Frames

Triple Pane Aluminum Frames		Triple Pane Wood Frames	
U-Factor	0.24	U-Factor	0.26

Wall/Roof

	Primary Material	R-Value
Wall :	Insulating Concrete Forms	27.0
Roof:	Decking and Insulation	33.0

HVAC

	Total Capacities(thousand Btu/hr)
12 Ground Source Heat Pumps	644 (2)
12 Auxiliary Electric Resistance Heaters	382 (3)

Lighting Power Densities(W/SF)

Open Office Area:	0.75
Office Area Task Lighting(4):	0.5

Energy/Power

PV System:	18.2 kW grid-tie system (5)
Net Annual Energy Usage (thousand Btu/SF*year):	36.0

Note(s): 1) Office space is for 100 people. This accounts for approximately 20,000 SF of the total building floorspace. 2) Cooling capacity 3) Auxiliary heating capacity. 4) Task lighting is in addition to the open office area LPD and is only in select cubicals and offices. 5) Includes 17.2 kW of roof PV array and two 0.5 KW ground level single axis tracking PV arrays.

Source(s): NREL, Analysis of the Design and Energy Performance of the Pennsylvania Department of Enverionmental Proctection Cambria Office Building, March 2005, p. ; NREL, Lessons Learned from Case Studies of Six High-Performance Buildings, June 2006, p. 5 Table A-2 p. 130.