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O'Leary

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(54) **STRUCTURALLY INTEGRATED SOLAR COLLECTOR**

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(52) **U.S. Cl.** **52/173.3; 126/621; 126/623; 126/633; 136/206; 136/251**

(58) **Field of Search** **52/173.3; 126/621; 126/623, 629, 633, 906; 136/206, 251; 165/482; 323/906**

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(57) **ABSTRACT**

A structurally integrated solar collector. Roof and wall covering components are integrated with solar collectors to permit solar energy to be converted to heat, electricity and hot water for use within a building. A roof truss is described that additionally captures sunlight for illuminating a building. The roof and wall components are adaptable to heating and cooling seasons so as to minimize the loss of air-conditioned air in the summer time and to maximize solar heating during cold months. Solar energy captured by a structurally integrated solar collector can be directly converted to electricity through use of photovoltaic materials or by harnessing airflow through structurally integrated solar collector to obtain electricity through mechanical conversion.

19 Claims, 12 Drawing Sheets

