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Passive and Low Energy Architecture

Proceedings of the Second International PLEA Conference, Crete, Greece, 28 June–1 July 1983

1983, Pages 547-561

HEAT STORAGE AND DISTRIBUTION INSIDE PASSIVE SOLAR BUILDINGS *

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<https://doi.org/10.1016/B978-0-08-030581-3.50069-4>

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Abstract

Passive solar buildings are investigated from the viewpoint of the storage of solar heat in materials of the building: walls, floors, ceilings, and furniture. The effects of the location, material, thickness, and orientation of each internal building surface are investigated. The concept of diurnal heat capacity is introduced and a method of using this parameter to estimate clear-day temperature swings is developed. Convective coupling to remote rooms within a building is discussed, including both convection through single doorways and convective loops that may exist involving a sunspace. Design guidelines are given.

Keywords

Passive solar heating; heat storage; heat distribution; diurnal heat capacity; convection

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* This work performed under the auspices of the US Department of Energy, Office of Solar Heat Technologies.

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