

Contribution Details

Contribution Details

497

Conference Track / Type of Submission: **YRSB13 Abstract**

Format: --

Exergy Performance as a measure of building efficiency

Leoncini, Lorenzo (1); Baldi, Marta (2)

Organization(s): 1: Dipartimento di Energetica "S. Stecco" – Università degli Studi di Firenze - Italy; 2: Dipartimento di Ingegneria Civile e Ambientale – Università degli Studi di Firenze - Italy

Submitted by: **Marta BALDI (University of Florence, IT), ID: 1432**

Topics: Building design and operation

Keywords: Building, Energy Performance, Exergy, Performance index, Efficiency

Abstract

The currently European procedures for building assessment is structured only by first principle energy balance.

Energy Performance (EP) of building is expressed by indices. They are representative of primary energy use, or final energy use, or carbon dioxide equivalent emissions.

The criterions of indices determination, currently used in calculation procedures, don't seem to effectively meet the needs of check energy resources and related environmental impacts. They only measure the quantitative aspects.

In practical application we observed a margin of uncertainty in calculation procedures. It result both from political decisions rather than technical: the relevance on results is greater the more extensive are the boundaries system take in account.

Exergy use as building performance assessment can be an attractive alternative respect to conventional procedures of EP determination. The aim is to give strength and uniqueness to calculation and results. Like EP expression, Exergy Performance can be expressed by an index too.

Exergy analysis enables to evaluate the reduction of energy carriers quality levels. The proposal method of building evaluation is based on minimization in primis of building energy needs, then of quality level of related energy resources.