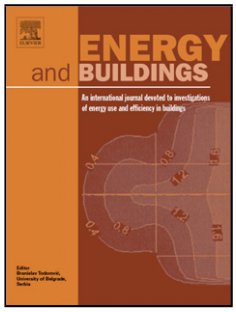

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Performance assessment of an ice rink refrigeration system through advanced exergoeconomic analysis method

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Highlights

- Advanced exergy analysis is applied to an ice rink refrigeration system first time.
- Advanced exergy and exergoeconomic analysis are combined.
- Refrigeration system is investigated comprehensively in economic aspect.

Abstract

Advanced exergy analysis has gained great importance as a comprehensive evaluation tool for energy conversion systems in recent years. In this regard, splitting the exergy destruction into avoidable/unavoidable parts has enabled us to identify the improvement potential of component while endogenous/exogenous parts of the exergy destruction have been detailed studied to get more information about interactions among the components. An ice rink refrigeration system was investigated using both conventional and advanced exergoeconomic analyses in this paper. The ice rink refrigeration system has a cooling load of 300 kW and ammonia was chosen as refrigerant.