

## **ABSTRACT**

### **DETERMINATION AND DEVELOPMENT OF COLD STORAGE BUILDINGS IN AYDIN PROVINCE IN TERMS OF CONSTRUCTION PRACTICES**

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Aim of this study is to determine general and structural properties of cold storage structures which is use for fruit and vegetable storage in Aydın Province. For this purpose 20 cold storage firms were detected by data collected from Aydın provincial directorate of food, agriculture and livestock. This study was undertaken with 19 firms in Aydın province which shared their data. It was determined that 58% of these storages were operated by private companies and 42% were operated by rural development cooperatives. It was determined that in 32% of the enterprises total storage capacity was less than 500 tons, in 37% it was 500–1000 tons and in 31% it was over 1000 tons. While usage of steel structural system for cold storage structures is the most common system with 47%, conventional reinforced concrete (32%), and precast concrete (21%) are following that. In 58% of enterprises PU panel is used as wall insulation material, in 69% of enterprises PU panel is used as ceiling insulation material and in 63% of enterprises PU foam is used as flooring insulating material. It is determined that, cold storages which operated by private companies were better than storages which operated by rural development cooperatives in terms of preferred insulating materials. It is identified that, 68% of the cold storages were preferred cooling system with freon gas. Also statistically significant relationships between infrastructure and equipment with condition of the property were found. Technical and

operational problems were discussed with the owners and all of the owners denote that electricity costs were very high and state supports were insufficient. Problems caused by designing faults were following that with the 42% and the shortage of qualified staff with 26%.

When product prices before and after storage is examined, it is revealed that product prices are rising and storage provides economic benefits. Nevertheless, it is determined that 79% of storages worked with a capacity of less than 60%. High electricity costs and consequently increase of the operation cost could be the most important reason of that.

**Key words:** cold storage, construction, insulation