

# ProMark Capital Cost Savings Estimate from Reduced Outside Air

Project: **Example for office building, 100k cfm-Midwest, USA**

This estimates the reduction in capital cost from the smaller cooling equipment needed to condition a reduced volume of outside air in new equipment installations. The estimate is based on the reduced outside air load from the lower volume of outside air to be cooled under peak design conditions.

<b>Basis for Estimate:</b>		<u>Case 1:</u>	<u>Case 2:</u>	<u>Case 3:</u>	<u>Case 4:</u>
Location:	Design DB (degF)	<b>92</b>	<b>90</b>	<b>87</b>	<b>92</b>
	Design MCWB (degF)	<b>75</b>	<b>75</b>	<b>75</b>	<b>75</b>
	Altitude (ft)	<b>617</b>	<b>617</b>	<b>617</b>	<b>617</b>
Original Design CFM of Outside Air:		<b>33,333</b>	<b>33,333</b>	<b>33,333</b>	<b>33,333</b>
Reduction in Outside Air Installed:		<b>50%</b>	<b>45%</b>	<b>20%</b>	<b>10%</b>
Capital Cost for Cooling Equipment per Ton:		<b>\$1,200</b>	<b>\$1,200</b>	<b>\$1,200</b>	<b>\$1,200</b>
<b>Results:</b>					
Reduction in Installed Outside Air CFM =		16,667	15,000	6,667	3,333
Reduced Tonnage =		68	61	27	14
Capital Cost Savings =		<b>\$81,363</b>	<b>\$73,563</b>	<b>\$32,921</b>	<b>\$16,273</b>

Notes: Outside air load equipment savings is for reduction of outside air that has to be taken to the following interior conditions:

**72 degF Interior Design Conditions (DBi)**

**50% RH Interior Design Conditions**

*26.6022618 BTU/Lb Interior Design Enthalpy (based on Interior Design Conditions at Case 1 Altitude)*

*0.008428571 Lb/Lb Interior Design Moisture (Wi) (based on Interior Design Conditions at Case 1 Altitude)*

*No System Effects - Savings from reduced sensible and latent Outside Air Load Only, no reheat.*

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