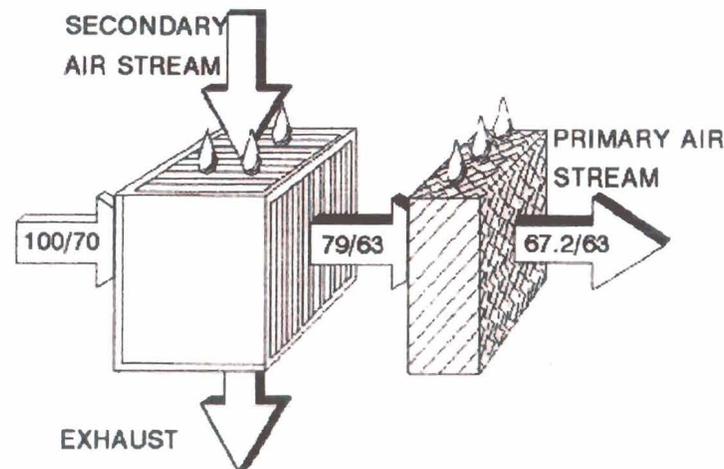
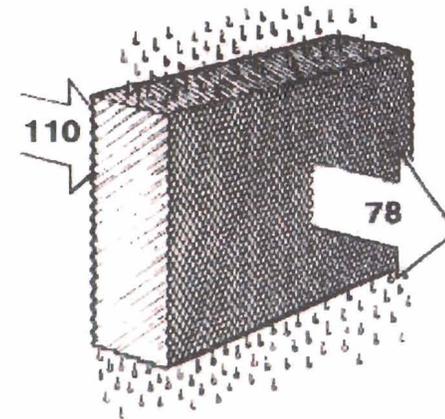
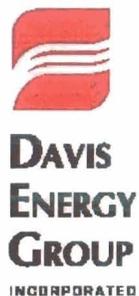


Residential Evaporative Cooling

CASE Study commissioned by the Southern California Gas Company and San Diego Gas and Electric



$$Eff = \frac{T_{db} - T_{sup}}{T_{db} - T_{wb}}$$



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07-BSTD-1	
DATE	_____
RECD	APR 29 2008

Technology Potential

- RASS: ~ 5% saturation statewide
- ~100,000 sales/year in CA (95+% direct)
- Field monitoring has shown cooling season “SEER’s” ranging from ~20 to nearly 50.
- Significant untapped potential in new construction when coupled with spectrally selective glazing and attic radiant barrier/cool roof technologies.



Current Title 24 Status

- Direct evaporative coolers modeled with 11 SEER, indirect/direct with 13 SEER
- Unfortunately, hourly efficiency degraded similar to air conditioners. Not realistic!!



Title 20 Status (Effective Jan 2006)

Evaporative Coolers	Evaporative Media Saturation Effectiveness (%)	For direct evaporative coolers only
	Cooling Effectiveness (%)	For indirect and two-stage evaporative coolers only
	Total Power (Watts)	
	Airflow Rate (CFM)	
	ECER*	
	Media Type	<ul style="list-style-type: none"> -Expanded Paper -Woven Plastic -Aspenwood -Rigid Cellulose -Other

“*” Evaporative Cooler Efficiency Ratio



2008 Proposal

- Only Title 20 listed equipment
- Strict eligibility criteria

Two compliance options.....

- 13 SEER for direct, 15 SEER for indirect/direct
- Alternative compliance option
 - Hourly performance modeling using Title 20 inputs
 - If insufficient hourly cooling capacity, algorithm defaults to 13 SEER air conditioning



Preliminary Performance Projections

