

The Cost of Quality: It's in the Details

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Denis Leonard



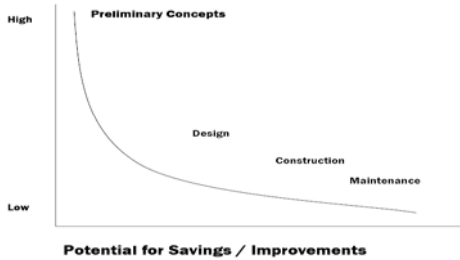




QUALITY MANAGEMENT

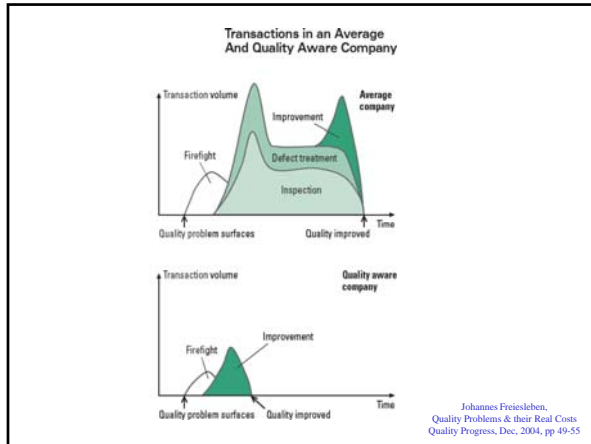
Quality Management provides effective and efficient management methods, tools and techniques to plan, implement and manage while creating consistency and reducing costs in achieving those building methods

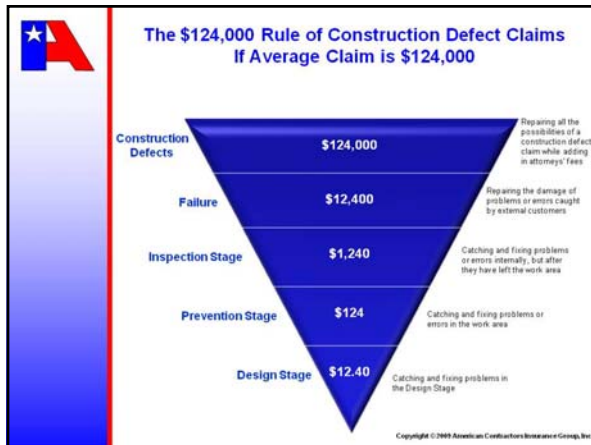
Opportunity Curve





"We need to cut down on productivity, quality and customer service to save money."





Construction Quality

(Zimak, 2000)

- Failure costs usually constitute 65–70% of corporation's quality costs
- Whereas appraisal is normally 20–25% and prevention is 5%.

Defects in Homes

- Data captured by Quality Built field inspectors on 31,995 completed homes and condominiums across 27 U.S. states for the 12-month period ending October 1, 2005.
- Single-family homes averaged \$5,398 in corrected defects per home in 2005
- Multi-family homes and mixed commercial use construction averaged \$4,556 in corrected defects.

Nation's Leading Risk Management Company Releases Top Builder Defect Data for Construction Industry
Quality Built® Data Shows Builder Top Risk Issues Are Preventable Media Kit : Orlando, Fla., Jan. 11, 2006 --- (International Builders' Show)

Cost of Quality (P.A.F.) Prevention, Appraisal and Failure

CONFORMANCE

↙ ↘

Prevention Appraisal
(Cost of Good Quality)

NON-CONFORMANCE

↙ ↘

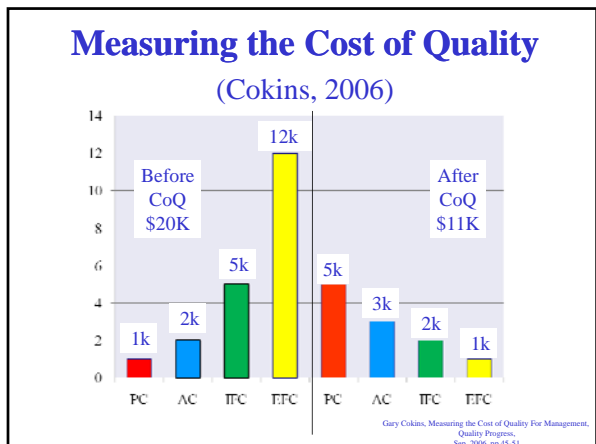
Internal Failure External Failure
(Cost of POOR Quality)

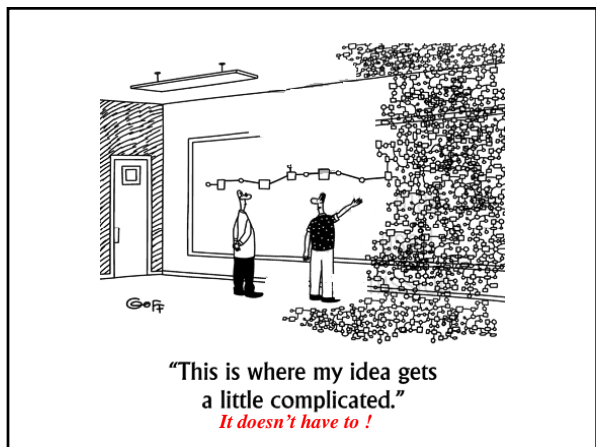
Gary Cokins, Measuring the Cost of Quality For Management, Quality Progress, Sep. 2006, pp.45-51

Quality Costs In Manufacturing Small & Medium Sized Organizations (Rodchua, 2009)

Category	Percentage
Internal Failure Costs	47 %
External Failure Costs	26 %
Appraisal Costs	17 %
Preventive Costs	10 %

Sulaksana Rodchua, Comparative Analysis of Quality Costs and Organization Sized in the Manufacturing Environment, Quality Management Journal, Vol. 16, No.2, 2006, pp.34-43

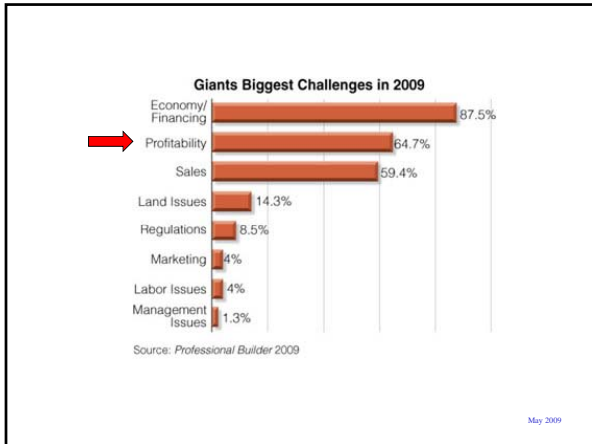


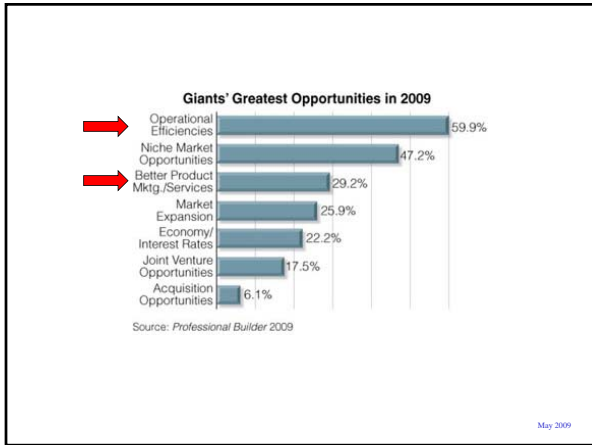


% of Average Home Sales Price

	2008	2007	% Change
Land/Entitlement/ Financing Expenses			
Raw Land	9.97%	9.92%	0.50%
Land Improvement	4.15%	3.77%	10.08%
Improved Lot Costs	7.99%	7.46%	7.10%
Fees	2.09%	2.04%	2.45%
Financing Costs	3.41%	3.19%	6.90%
Hard Costs			
Materials	28.93%	27.57%	4.93%
Construction Labor	23.12%	22.97%	0.65%
Indirect Construction Costs	3.96%	3.58%	10.61%
Sales and Marketing Costs			
Advertising	1.45%	1.20%	20.83%
Marketing	1.50%	1.50%	0.00%
Model Merchandising	0.95%	0.85%	11.76%
Sales Commissions	3.25%	3.13%	3.83%
Overhead/Profit/Misc.			
Overhead Expenses	6.21%	5.56%	11.69%
Profit	1.22%	6.15%	-80.16%
Miscellaneous	1.80%	1.11%	62.16%
Total	100%	100%	

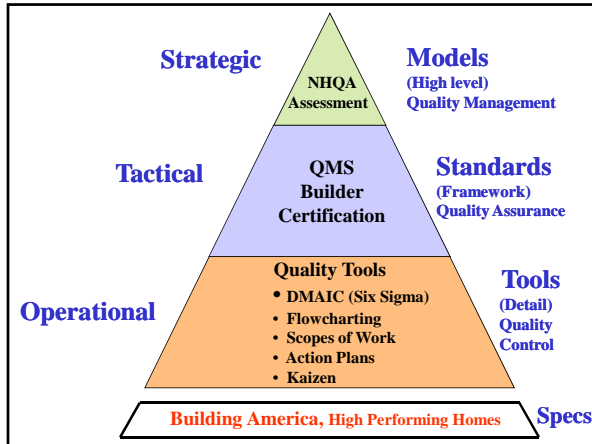
Source: Professional Builder 2008, 2009





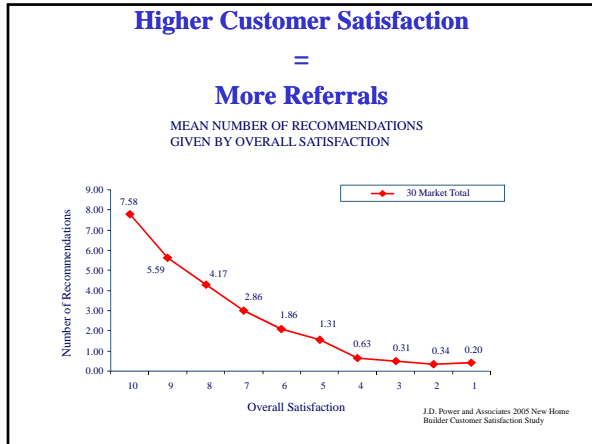
Cost of Quality (PAF) Impacts

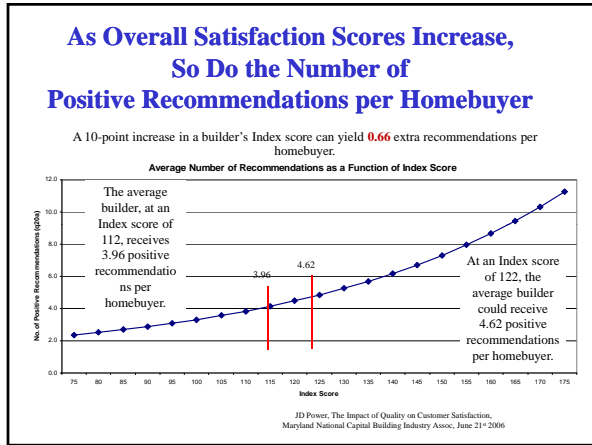
- 3.5% of revenue is cost of quality
- 75% of cost of quality is failure costs
- = 2.62 % is failure cost
- \$150k home = \$3930 failure cost
- \$150k home profit at 1.22% = \$1830
- 50 homes per year = \$589,500 failure cost per year
- 4 homes per year of failure costs



- Cost of Quality Metrics (PAF)**
- Customer Satisfaction
 - Construction Manager Customer Rating
 - Warranty Customer Rating
 - Employee Satisfaction
 - Trade/Supplier Satisfaction
 - Warranty Costs
 - Inspection Costs
 - On Time Delivery
 - Number of Warranty Calls
 - Time to Complete Warranty Calls
 - Walk Through Pre Punch Defects
 - Customer Walk Through Defects

- Cost of Quality Metrics (PAF)**
- HERS
 - Air Change Rates
 - Referral Rates
 - Units Built per Employee/Trade
 - Sales per Employee
 - Gross Margin
 - Net Margin
 - Training & Development





	128		84		12
0.66 Additional Recommendation per Buyer	×	Average Number of Returned Questionnaires per Builder	=	Potential Customers	×
					15% Convert to Sales
					=
					\$292,000 Average Sale Price
					=
					\$3,504,000 Revenue
					×
					5% Average Profit Margin
					=
					\$175,000 Additional profit from additional recommendations

JD Power, The Impact of Quality on Customer Satisfaction, Maryland National Capital Building Industry Assoc, June 21st 2006

NHQA IMPACTS

- Grayson Homes, MD, 98% homes zero defects at closing, net profit increased 9%
- Pringle Homes, FL, reduced cycle time by 15%
- Estes Homes, WA, 95% of trades list them as the best builder to work for.
- TS Lewis, AZ, 33% of homebuyer referral rate. (Homeowner direct recommendation resulted in a homesale).

Professional Builder Magazine,
2009, NHQA Website

NHQ Certification IMPACTS

- 70 % of NHQ Certified builders improved their bottom line
- 75 % reported a reduction in callbacks and improved relationships with trades.

NAHB Research Center,
NHQ Program Achieving Positive Results for
Certified Builders and Trade,
2007 Media Releases and Alert

CONTACT INFORMATION

Denis Leonard
(406) 451-9124
DenisLeonard@BusinessExcellenceConsulting.net