

Excelior Springs, MO Workshop  
November 2, 2015

# Preservation Doesn't Cost



It Pays!!

***Preservation* is about  
maintaining or preserving  
our built environment. It's as  
much about community &  
positive economics as it is  
about saving our  
architectural heritage.**

***Preservation* is an  
Outstanding  
economic tool for  
rehabbing houses  
and buildings**

***Preservation* is the strategic ingredient in the revitalization of historic neighborhoods and downtowns.**

***Preservation* almost  
always costs less than  
new construction &  
keeps more money in  
your community than  
new construction.**

# ***Preservation Creates Jobs***

**The Federal Historic Rehab Tax Credit alone has created 1.8 million jobs since it was enacted in 1976 - including 58,000 in 2008, at an average cost of \$9,000 per job - compared to \$248,000 cost per job created by the recent stimulus bill.**

***Preservation* jobs are the  
Ultimate Green Jobs,  
jobs that help make  
our existing buildings  
more energy efficient and  
contribute to more  
sustainable communities**

***Preservation* takes  
advantage of  
existing  
infrastructure like  
streets, sewers etc.**



***Preservation* increases  
property values.**

***Preservation* increases  
a community's  
property tax base.**

***Preservation***

**brings new  
businesses &  
people to  
communities**

***Preservation* has  
been at the  
forefront of the  
“green movement”  
for 50 years**

# **REHABILITATION VS NEW CONSTRUCTION**

**Rehabilitation keeps more money  
in the community than new  
construction.**

**The U.S. Department of Commerce  
tracks the impact of production  
within a given industry three ways:**

**1) The number of jobs that are created.**

**2) Increase in local household income.**

**3) Impact on other Industries.**

**The growing statistics in state-after-state, show that rehabilitation of existing structures outperforms new construction in all three of these measurements.**

**If you take a \$1,000,000 renovation of a historic building and compare that investment to a \$1,000,000 new construction project what would the differences in economic impact be?**

**\$120,000 more  
dollars will initially  
stay in the community  
with rehab than with  
new construction**



**Five to nine more  
construction jobs will  
be created with rehab  
than with new  
construction**

**4.7 more new jobs will  
be created elsewhere  
in the community with  
rehab than with new  
construction**

**Household incomes in  
the community will  
increase \$107,000  
more with rehab than  
with new construction**

**Retail sales in the  
community will  
increase \$142,000 with  
the \$1,000,000 in rehab  
\$34,000 more than with  
the \$1,000,000 in new  
construction**

**Realtors, bankers, personal service vendors as well as restaurants and drinking establishments will receive more direct monetary benefit from \$1,000,000 in rehab than from \$1,000,000 in new construction**

Some of this information is from, “The Economics of Historic Preservation” by Donovan Ripkema

# Let the Numbers Convince You: Do the Math

U-Value = A measure of air-to-air heat transmission (loss or gain) due to thermal conductance and the difference in indoor and outdoor temperatures



TUNE-UP STRATEGIES  
**Storm window over single-pane original window**

ANNUAL ENERGY SAVINGS

**722,218 Btu**

ANNUAL SAVINGS PER WINDOW\*\*

**\$13.20**

SIMPLE PAYBACK

**4.5  
Years**

$\$50/\$13.20 =$



**Double-pane thermal replacement of single-pane window**

**625,922 Btu**

**\$11.07**

**40.5  
Years**

$\$450/\$11.07 =$



**Low-e glass double-pane thermal replacement of single-pane window**

**902,772 Btu**

**\$16.10**

**34  
Years**

$\$550/\$16.10 =$



**Low-e glass double-pane thermal replacement of single-pane window with storm window**

**132,407 Btu**

**\$2.29**

**240  
Years**

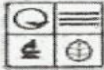
$\$550/\$2.29 =$

JOHN VAN PELT

\*Cost of 3' x 5' window, installed  
 \*\*Assuming gas heat at \$1.09/therm

U-Value = A measure of air-to-air heat transmission (loss or gain) due to thermal conductance and the difference in indoor and outdoor temperatures.

Source: Keith Habernern P.E., R.A.  
 Collingswood Historic District Commission



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
ENERGY CENTER - ENERGY LOAN PROGRAM  
WINDOW REPLACEMENT WORKSHEET

BUILDING Main Street	LOCATION USA	DATE 6-11
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To estimate the savings of replacing existing windows with efficiency upgrades, the following information must be known:

- The U-Factor of the existing window (See U-Value table below).
- The U-Factor of the replacement window (See U-Value table below).
- The total area of the windows being replaced (square feet).
- The heating energy cost (\$/million Btu).
- The heating plant efficiency (in percent).

**SAVINGS CALCULATIONS**

1.	Enter the U-Factor of the existing windows.....	1.11	_____
2.	Enter the U-Factor of the replacement windows.....	.55	_____
3.	Subtract line 2 from line 1.....	-0.11	_____
4.	Add 0.86 to line 3.....	.75	_____
5.	Enter the total area of the windows to be replaced.....	21 s.f.	_____
6.	Multiply line 4 by line 5.....	15.75	_____
7.	Multiply 0.1 by line 6.....	1.58	_____
8.	Enter the heating plant efficiency (percent divided by 100).....	.93	_____
9.	Divide line 7 by line 8.....	1.69	_____
10.	Enter the energy cost (\$/million Btu).....	4.63	_____

**YEARLY SAVINGS**

11.	Multiply line 9 by line 10.....	\$ 7.84	/year
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**PROJECT COST**

12.	Enter the total cost of the window replacement including material, labor and design.....	\$ 1,600	_____
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**SIMPLE PAYBACK**

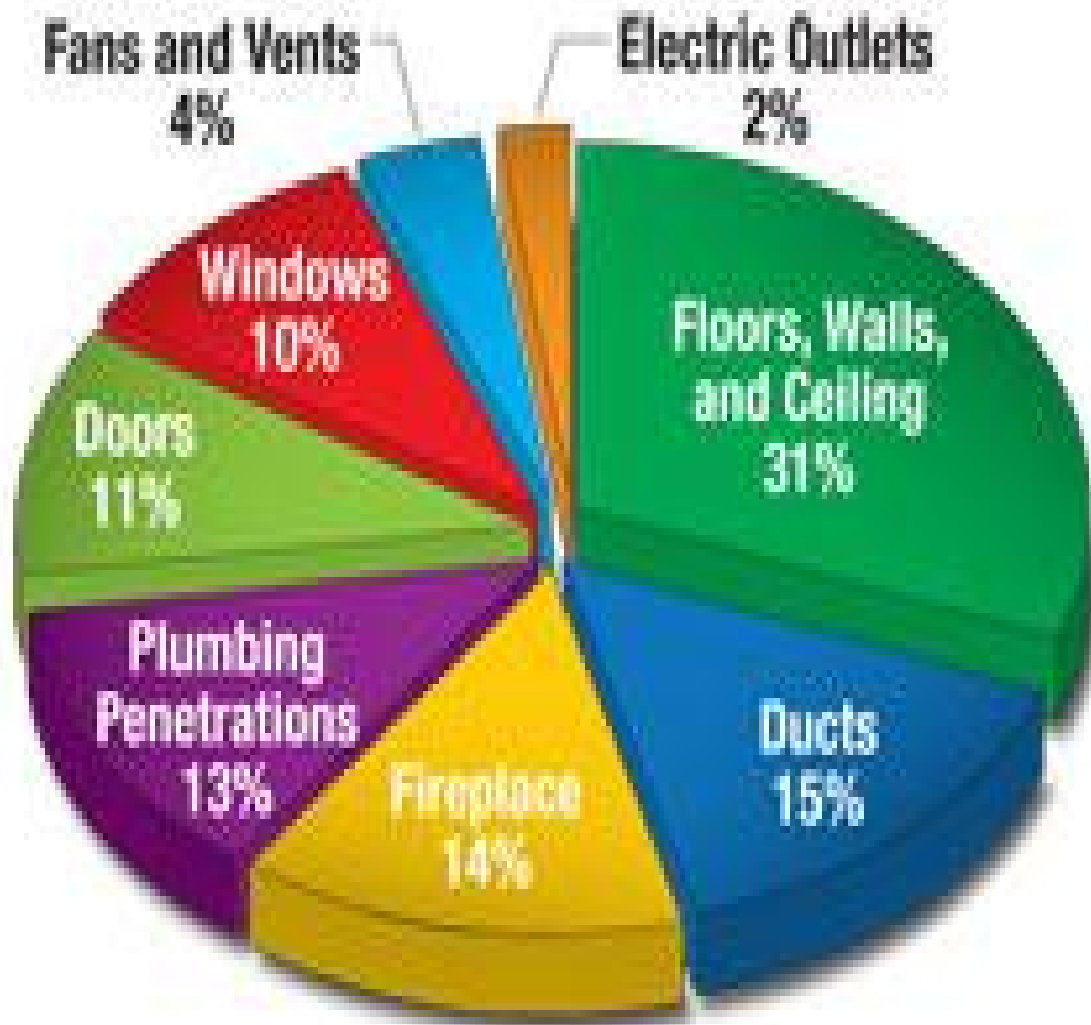
13.	Divide line 12 by line 11.....	204.08	years
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**WINDOW U-VALUE TABLE**

Window System Type	U-Factor*
Single Glass.....	1.10
Single Glass with storm window.....	0.50
Single Glass, low E coating.....	0.91
Single Glass, low E coating with storm window.....	0.44
Insulating Glass (double glass).....	0.55
Insulating Glass (double glass) with storm window.....	0.35
Insulating Glass (double glass), low E coating.....	0.38
Insulating Glass (double glass), low E coating with storm window.....	0.32
Insulating Glass (triple glass).....	0.35
Insulating glass (triple glass) with storm window.....	0.25

\* U-Factor values adapted from the 1985 ASHRAE Fundamentals Handbook.

Fig. 2. Many excellent worksheets are available for calculating payback of replacement windows; this one is produced by the Missouri Department of Natural Resources. Results of payback calculations often reveal grossly overstated claims. Courtesy of the Missouri Department of Natural Resources.





# Energy Retrofit Case Study

Window restoration, \$350 each x 42		\$14,700
Insulation, weather stripping & plugging air infiltration		\$3750
Cost of Geothermal system after <u>30% federal tax credit</u>		<u>\$29,400</u>
Total energy retrofit costs		\$47,850
Original Gas & Electric annual cost	\$19,452	
<u>Current Gas &amp; Electric annual cost</u>	<u>\$6,960</u>	
Gas & electric annual savings	\$12,492	

**Total years to payback energy retrofit investment 3.83**