Relationship Between Interior Problems and Exterior Problems- City of San Jose, CA

Based on the American Housing Survey - 2011 San Jose, CA MSA Data for Occupied Non-Multiunit Housing

Exterior Problem	Homes (000s)	Likelihood of Finding an Interior Problem if an Exterior Problem is Reported Compared to the Likelihood of Finding an Interior Problem if an Exterior Problem is Not Reported*									
		Leaks		Rodents		Heating		Structural			Resident Dissatisfied
		From Interior	From Exterior	Rats	Mice	Heating Problem	Fire/CO Danger	Cracks in Walls	Holes in Floors	Paint/ plaster	
Sagging roof	7.8	1.8	9.2			3.4		8.7	1.3	2.0	
Missing roofing material	5.2	1.6	8.3					2.4	2.0	28.0	
Hole in roof	4.1	1.2	21.2	2.5	12.1				2.4		4.4
Sloping outside walls	1.3	5.0			3.4	4.7		9.9	16.0	8.1	14.0
Missing bricks, siding, other outside wall material	2.4				9.3	2.1		31.9	4.3	4.5	7.8
Broken windows	3.0					3.3	13.4	4.6	3.4	7.6	
Boarded up windows	0.7					4.8	22.4	9.6			29.4
Foundation crumbling or has open crack or hole	6.6					4.5		4.7		20.6	13.0
One or more ext. problem	20.7	1.5	8.9		6.2	5.4	2.8	7.1		9.4	7.3
Two or more ext. problem	7.0	1.4	5.7		6.7	3.9	2.1	11.9	1.4	20.6	
Three or more ext. problem	2.7	2.5	13.6			2.3	5.5	4.7	3.9	6.3	7.0
Four or more ext. problem	0.4	9.4		12.7			20.2	17.6	28.8	15.2	51.8
Five or more ext. problem	0.3	12.4	5.5					23.3	38.0	20.1	68.4
Six or more ext. problem	0.1					11.4		34.5	111.1	58.8	200.0
Seven or more ext. problem	0.1					11.4		34.5	111.1	58.8	200.0
Eight or more ext. problem	<0.1										

* A home is L times as likely to have a specific interior problem (column heading) if the exterior problem is reported (row heading) than if the exterior problem is not reported. For example, a home is 1.8 times as likely to have a leak from the interior if it has a sagging roof than if it does not have a sagging roof. Only statistically significant likelihoods are presented (p-value < 0.05).

Relationship Between Interior Problems and Exterior Problems

The National Center for Healthy Housing developed the table to help communities make homes healthier by giving them a better understanding of the direct relationship between exterior problems such as a sloping outside wall and interior problems such as rats, large holes in the floor, and water damage that can impact resident health and safety. With this understanding, communities can more effectively and efficiently identify homes with serious health and safety threats and set priorities for assessments of the interior. The table is based on the American Housing Survey (AHS). The AHS tracks some but not all items related to health. For example, it does not track cockroaches, radon, lead-based paint, and carbon monoxide levels.

Background on American Housing Survey

The AHS is conducted by the Bureau of the Census for the Department of Housing and Urban Development (HUD) to describe the condition of the Nation's housing. The AHS includes apartments, single-family homes, mobile homes, and vacant housing units. It describes household characteristics, income, housing and neighborhood quality, housing costs, equipment and fuels, size of housing unit, and recent movers. National data are collected in odd numbered years, and data for each of 47 selected Metropolitan Statistical Areas (MSA) are collected currently about every six years. The national sample covers an average 55,000 housing units. Each metropolitan area sample covers 4,100 or more housing units. The AHS returns to the same housing units year after year to gather data; therefore, this survey is ideal for analyzing the flow of households through housing. For more information, go to http://www.census.gov/programs-surveys/ahs/.

Key Definitions Related to Healthy Homes

• **Leaks – Interior or Exterior:** Resident reported leakage that occurred in the 12 months prior to the interview or while the household was living in the unit if less than 12 months. Housing units with water leakage are classified by whether the water leaked in from outside the building (roof, basement, walls, closed windows, or doors) or inside of the building (fixtures backed up or over-flowed or pipes leaked).

• **Rodents – Rats or Mice:** Resident reported mice or rats if they saw mice or rats or signs of mice or rats inside the house or building during the 3 months prior to interview or while the household was living in the unit if less than 3 months. Signs of mice or rats include droppings, holes in the wall, or ripped, or torn food containers.

• **Heating – Heating Problems:** Resident reported that the home was uncomfortably cold for 24 hours or more during the winter prior to the interview for any reason.

• **Heating – Fire / CO Danger:** Resident reported using as primary heating source either room heater without flue (i.e., any room heater that burns kerosene, gas, or oil, and that does not connect to flue, vent, or chimney or a stove or oven for heat), portable electric heater, stove, cooking stove, fireplace without insert or no heat.

• **Structural – Cracks in Walls:** The resident reported open cracks or holes in the interior wall or ceilings of the housing unit. Included are cracks or holes that do not go all the way through to the next room or to the exterior of the housing unit. Hairline cracks or cracks that appear in the walls or ceilings but are not large enough to insert the edge of a dime, are not counted. Very small holes caused by nails or other similar objects are also not counted.

• **Structural – Holes in Floors:** The resident reported holes in the interior floors of the unit. The holes may or may not go all the way through to a lower floor or to the exterior of the unit. The holes are only counted if large enough for someone to trip in.

• **Structural – Paint / Plaster:** The resident reported peeling paint or broken plaster. The area of peeling paint or broken plaster must be on the inside walls or ceilings and at least one area of broken plaster or peeling paint must be larger than 8 inches by 11 inches.

• **Resident Dissatisfied:** The resident rated structure based on a scale from 1 to 10, where 10 is the best and 1 is the worst. Resident is dissatisfied if the structure is rated 1, 2 or 3.

Relationship Between Interior Problems and Exterior Problems- San Jose, CA MSA

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Exterior Problem	Homes (000s)	Likelihood of Finding an Interior Problem if an Exterior Problem is Reported Compared to the Likelihood of Finding an Interior Problem if an Exterior Problem is Not Reported*									
		Leaks		Rodents		Heating		Structural			Resident Dissatisfied
		From Interior	From Exterior	Rats	Mice	Heating Problem	Fire/CO Danger	Cracks in Walls	Holes in Floors	Paint/ plaster	
Sagging roof	10.5	1.4	8.8			2.5		7.2		2.1	
Missing roofing material	12.3		8.7			1.7	2.8	2.9	3.8	10.5	
Hole in roof	8.3	0.9	13.6	1.2	6.9	2.3		2.1	3.1	2.8	
Sloping outside walls	3.0	2.2	9.3		2.1	2.5		4.6	7.9	3.8	3.8
Missing bricks, siding, other outside wall material	2.9		1.5		10.3	1.4		28.8	16.2	7.9	4.1
Broken windows	6.3	2.2				3.6	7.5	4.6	4.8	5.3	
Boarded up windows	1.2					3.0	22.6	6.3			11.1
Foundation crumbling or has open crack or hole	13.3	4.0				2.3		3.7	4.8	10.3	50.0
One or more ext. problem	39.2	2.1	6.4		3.8	2.8	2.9	5.7	3.2	5.7	18.0
Two or more ext. problem	13.3	0.9	7.7		4.3	2.0	1.8	7.9	3.5	10.8	
Three or more ext. problem	4.4	2.1	13.6		6.4	1.3	3.3	4.8	7.0	5.1	2.6
Four or more ext. problem	0.4	10.5				3.8	16.3	15.3	29.9	12.3	26.1
Five or more ext. problem	0.3	11.3	5.2					25.1	48.9	20.1	42.8
Six or more ext. problem	0.1					9.4		38.5	142.9	58.8	125.0
Seven or more ext. problem	0.1					9.4		38.5	142.9	58.8	125.0
Eight or more ext. problem	<0.1										

* A home is L times as likely to have a specific interior problem (column heading) if the exterior problem is reported (row heading) than if the exterior problem is not reported. For example, a home is 1.4 times as likely to have a leak from the interior if it has a sagging roof than if it does not have a sagging roof. Only statistically significant likelihoods are presented (p-value < 0.05).

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