

Was Your Home Built to Last?

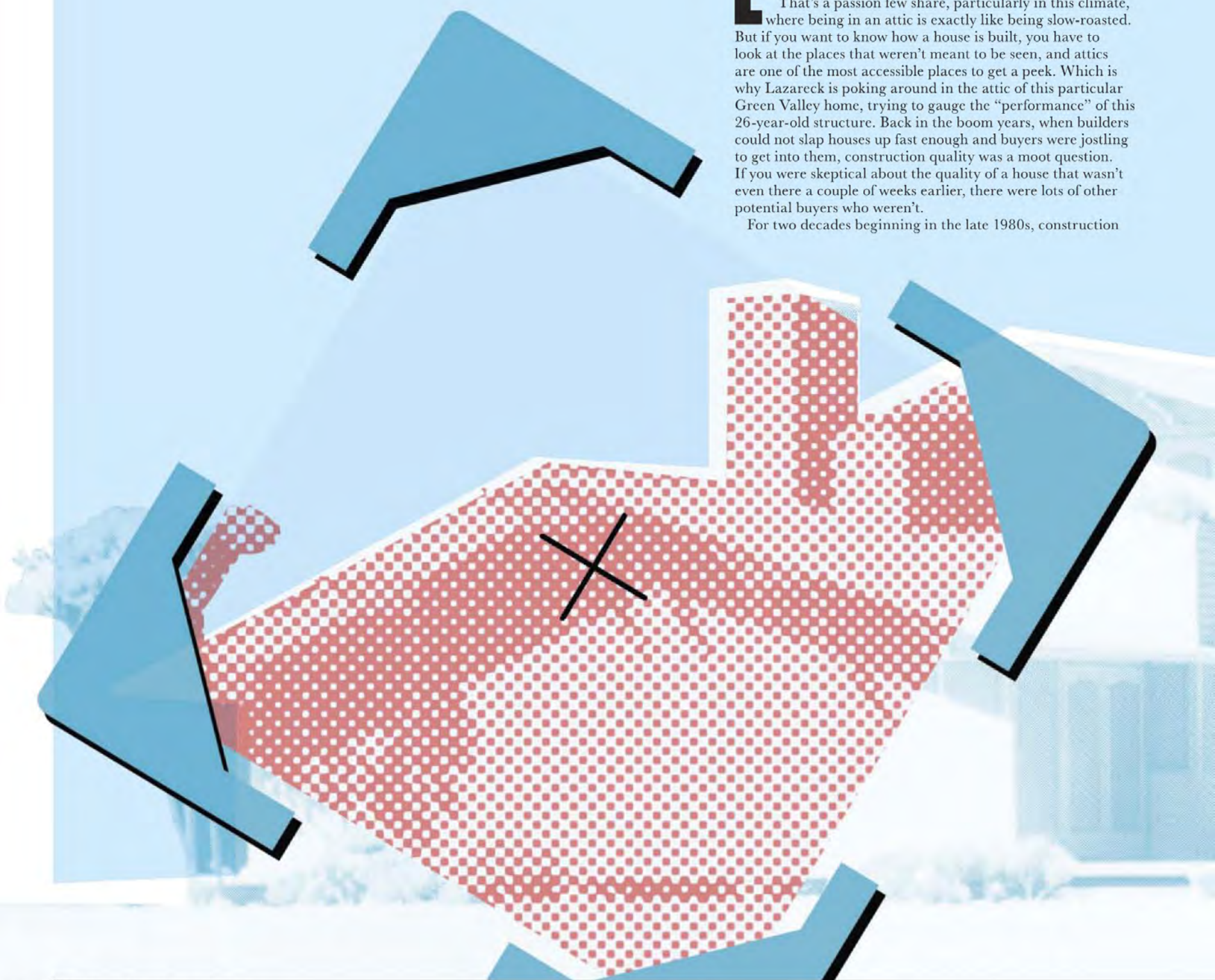
Our team of experts inspected one of Las Vegas' boomtown houses to see how it's weathering the years

BY BOB WHITBY · ILLUSTRATIONS BY KEITH SCHARWATH

Les Lazareck has the laconic manner of someone who knows his work, and a boyish fascination with doing it. "I'm the attic guy," he says. "I love to be in attics."

That's a passion few share, particularly in this climate, where being in an attic is exactly like being slow-roasted. But if you want to know how a house is built, you have to look at the places that weren't meant to be seen, and attics are one of the most accessible places to get a peek. Which is why Lazareck is poking around in the attic of this particular Green Valley home, trying to gauge the "performance" of this 26-year-old structure. Back in the boom years, when builders could not slap houses up fast enough and buyers were jostling to get into them, construction quality was a moot question. If you were skeptical about the quality of a house that wasn't even there a couple of weeks earlier, there were lots of other potential buyers who weren't.

For two decades beginning in the late 1980s, construction



in the Valley took on an assembly-line model, with developers buying huge tracts of land and covering them with as many houses as possible. About 65 percent of the total housing units in Clark County were built between 1988 and 2007. Many of those houses were variations on floor plans imported from Orange County, Calif.

The problem with that model, says Las Vegas architect and author Bob Fielden, is that Orange County is not the desert. In cooler climates, issues like exposure to the sun aren't as much of a consideration. Exposure causes a building's materials to heat and cool, expand and contract; "thermal cycling" in the lingo. Common building materials such as wood and concrete move at different rates. Over time, they pull apart, resulting in gaps and spaces that allow hot air to rise in the walls, damaging paint and speeding the deterioration of insulation. Large, west-facing walls that catch the brunt of the sun's energy during the day act as heat-sinks, radiating heat into the structure long after the sun goes down.

All of this can shorten a house's lifespan.

"Where something will last 30 to 40 years in Orange County," Fielden says. "Here it will last 10 to 20 years."

It's not that the boomtown houses are falling down—at least not yet. Our housing stock is still relatively young, and houses here don't have to deal with heavy precipitation. The issue is whether they are performing as well as they could in an era of higher energy costs. When air infiltrates a building, the equipment

that heats or cools it has to work harder to maintain a comfortable temperature. The house consumes more energy, and systems wear out.

Now that the real estate market has been turned on its head, these mass-produced houses are a bargain, provided they'll stand the test of time. We wanted to see how they're holding up after two-plus decades in the sun, heat, cold, wind and occasional rain. So we sent two teams of inspectors into the nooks and crannies of a typical Green Valley home to find out how it's doing. Of course, examining a single older house when the Valley is carpeted with them is by no means a definitive study. Maintenance is perhaps the single biggest factor in home longevity, and there is no way to control for that. Your results will vary.

On the other hand, all homes are products of the time they were built, conforming to standards that continually evolve. Thus, our 1985 home is a snapshot of the prevailing construction standards and market conditions at the time it was built. The good news is that, barring calamity or apathetic owners, there's no reason an older house can't be a sturdy, comfortable home for decades. The bad news is it might take work and money to get it there.

Our test house, built by Collins Brothers Corp., is your average Las Vegas home: a two-story, three-bedroom, two-and-one-half bath, single-family unit of 1,650 square feet. The exterior is beige stucco with Tudor-style wood accents on the front. The roof is concrete tile, except for the asphalt section under the combination air-conditioning and heating unit,

mounted there as was the practice in the mid-'80s. It's got an oversize one-car garage and concrete-block walls along the property line. It sits on one-tenth of an acre, enough space for a pool should the owner want to install one someday. A mature pine tree shades the front.

It last sold in 2001 for \$136,000. According to the real estate website Zillow, it's worth \$122,000 today. But it isn't for sale. The person who bought it 10 years ago still lives there.

Inspection No. 1: A Tight Seal

Lazareck looks at homes with an eye to the efficiency of the mechanical systems rather than their structural soundness. In addition to his business—Home Energy Connection—he teaches other inspectors how to do energy audits. If you want to know why your electric bill is nearly \$300 a month in the summer, like our homeowner's, Lazareck is the guy to ask.

Before poking his head into the attic, he points an infrared camera at the second-floor ceiling of our test home and sees something interesting. The camera, familiar to fans of TV ghost-hunter shows, detects temperature variations; cooler temperatures register on the blue end of the color spectrum while warmer temperatures register as yellows or reds. Training it on an area adjacent to a

beam, he notices that one side appears purple while the other shows yellowish-orange streaks that resemble sunbursts.

"Look at that," he says, excited about the find. "I've never seen anything like it!"

A shot of the walls in the master bedroom reveals more yellow-orange streaks, extending downward from where the walls and ceiling meet. Hot air from the attic is seeping into the uninsulated wall cavities, heating the walls themselves, which heats the room. Building tightly sealed houses wasn't a priority 26 years ago, when codes were more lax and energy was cheaper.

A peek into the attic confirms his theory: The insulation is missing in spots, probably the result of someone working up there. Or maybe it was never installed in the first place.

"Sloppy work," Lazareck says. "That's what drives me nuts."

The best bang for your buck when trying to make older houses perform is to "seal the envelope." Small leaks around doors and windows, in ductwork, through chimney flues and baseboards and even in the walls themselves add up to big air leaks. It's not possible to have an energy-efficient house if it leaks air like a punctured bike tire. The goal: Build it tight, vent it right.

To assess the tightness of our home, Lazareck and coworker Glenn Spatt first seal all the air vents with clear plastic. Then they place a nylon cover with a circular opening in the front door. A large fan blowing outward goes in the opening. When switched on, the fan cre-



ates a vacuum in the house, sucking in air from any leaks in exterior walls or from the attic via the second-floor ceiling. With a gauge on the cold-air intake for the air conditioner and the infrared camera, they can tell whether the ducts are leaking and see where hot air is coming into the house.

Spatt sets the fan speed high enough to simulate the pressure of a 20-mph wind on exterior surfaces of the house, and switches it on. The home is in a vacuum, and there is air leaking into the interior around wall sockets, switches and ductwork. Lazareck opens the medicine cabinet in the second-floor Jack-and-Jill bathroom; you can feel the air moving there on your hand.

"The cabinet was just set into the wall," Lazareck surmises. "It wasn't sealed at all."

He lectures the homeowner about the doggie door that lets the cat move from the garage to the kitchen. "It's a hazard in case you get carbon monoxide in the garage," he says. "It also lets hot air in from the garage."

In the garage proper, he spends almost 30 minutes assessing the health of the gas-fired water heater, checking the temperature of the flue, the combustion

chamber and running what looks like a pocket-size Geiger counter over the gas lines. There's an old refrigerator in the garage. Lazareck doesn't approve.

"People always buy a new, energy-efficient refrigerator and put it inside where it's cool," he says. "They take the old one and put it in the hottest room in the house where it has to work twice as hard to keep cool. Want to know how to turn Miller into a \$15 bottle of beer? Put it in an old fridge in the garage."

Lazareck and Spatt spend more than four hours evaluating the house. A similar test on a house about the same size costs about \$550. It's money well spent if you do something with the information gathered. And the odds are most houses of the same age will have the same problems: air gaps, missing insulation and leaking ductwork.

"Contractors do things the same way for decades," Lazareck says. "The science behind what they do is never addressed. Oftentimes what they do is the opposite of what they should be doing."

The verdict: Our test house has some minor performance issues. The attic insulation has been disturbed over the years, or wasn't installed correctly in

the first place, causing air leaks into the walls. The air-conditioning unit is original to the house and, while functional, is probably very inefficient. The ductwork shows about 10 percent air leakage, which is the point at which you'd want to do something about it. No ductwork is 100 percent airtight, Lazareck says; ideally it should leak 6 percent of the air or less. The old refrigerator in the garage is sucking up a lot of juice—about \$130 annually, he estimates. The double-pane windows, original to the house, appear to be in good shape. Contrary to popular belief, windows aren't a huge source of leaks, he says. Unless broken or inoperable, they aren't worth replacing from a performance standpoint.

Lazareck recommends tackling the easy stuff first, like sealing all leaks around interior vents with expanding foam that comes in a can. The next step is to fill gaps in the attic insulation, which is also a project a homeowner could tackle. Replacing an air-conditioner is not cheap—\$4,000 to \$7,000 on our house, depending on how efficient the new model is and how much ductwork needs to be done—so

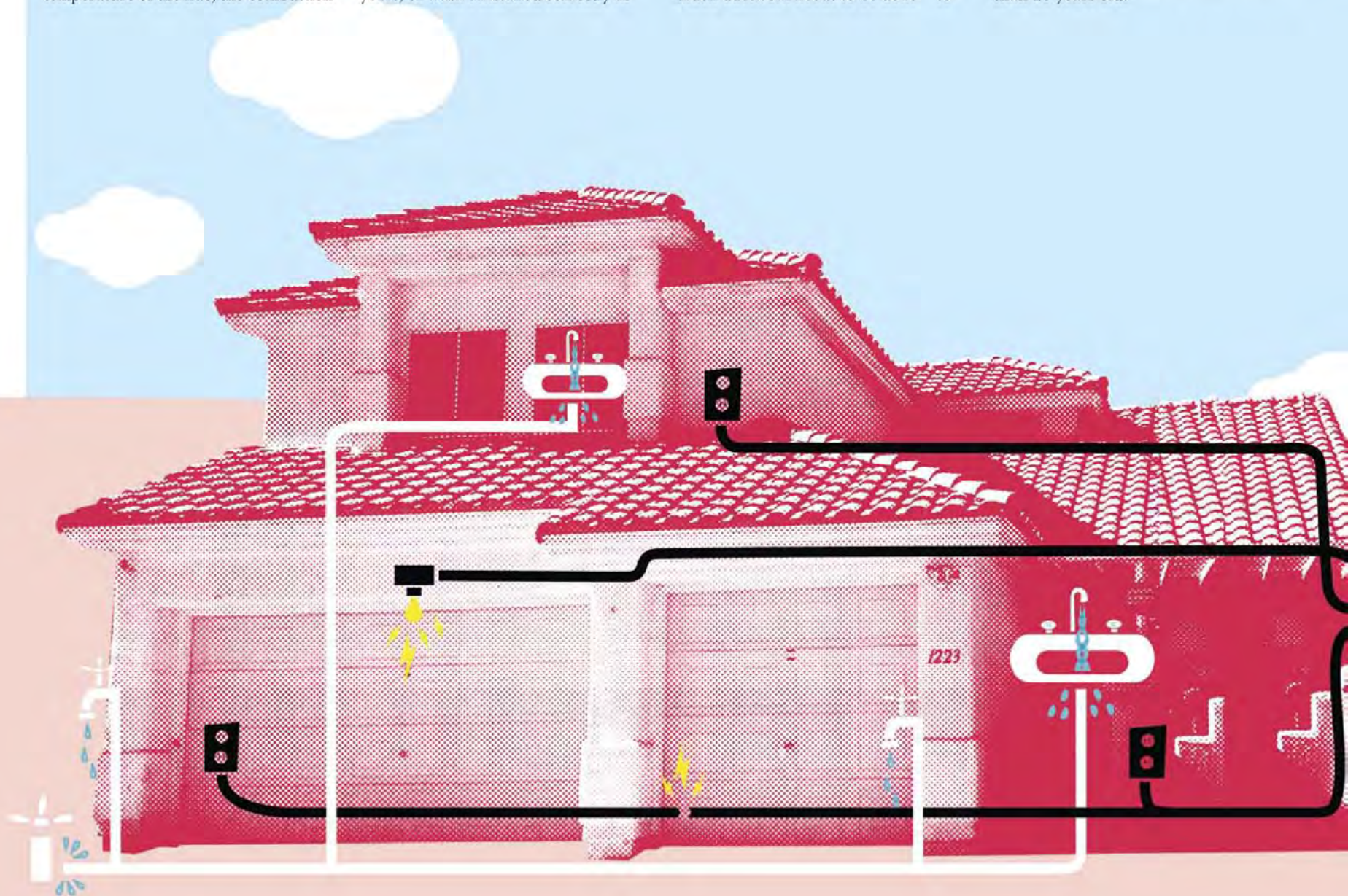
it's cost-effective to fix the small things first then watch your power bill.

Inspection No. 2: How's it Holding Up?

The other thing we wanted to know about our Green Valley test mule: How is it withstanding the elements? Is it still structurally sound after a quarter-century of sun and wind?

Richard Cummins and Chris Mounger from Associated Inspectors show up to do the dirty work. They poke and prod, open the electrical box and take pictures of the plumbing, lean against the concrete block walls in the yard and walk on the floors to see if they could find squeaks (they did). Cummins and Mounger do more than 60 inspections a month, though they'd like to do twice that, and they've seen it all when it comes to the Valley's housing stock.

Here the duo keep a sharp eye out for water damage, one of the most common problems they find in houses more than 20 years old.



"Most people just don't maintain the plumbing," Cummins says. "Who goes and looks under their kitchen sink?"

Faucets wear out, pipes corrode, drains overflow, etc. Uncorrected, even small leaks cause big problems. Leaking plumbing is one of the biggest causes of mold in Southern Nevada, he says, not to mention the damage it causes. About 30,000 houses in the Valley, most of them 10 to 15 years younger than our test house, have a potential problem with a certain brand of pipes called Kitec, which can cause brass fittings to corrode and leak after exposure to hard water. Houses like ours, however, are more likely to contain copper pipes.

They walk on the roof—only on asphalt shingles, never on concrete or clay tiles—note that the presence of wood in the back yard could attract insects, and pop the lid on the water meter. (A tip: If you can't remember the last time you closed the valve on the main water shutoff, don't do it now. They tend to break after not being used for years.) The inspection, which typically costs \$400-\$600, is over in an hour.

The verdict: Encouraging. The roof on our house is original and in good shape. Concrete or clay tiles can last 50

years or more, Cummins says, though the tar paper under it can dry out and tear if exposed due to cracked or missing tiles, eventually causing the roof to leak. The stucco has a few small cracks, primarily around the windows, and could use a touch-up in a few spots where the water from the sprinklers has hit it over the years. There's some damage to the drywall in the garage that should be repaired, and the wiring is out of date but up to code at the time it was built and safe. The windows are in good shape.

Overall, the news is good. While building codes have changed, primarily to make houses more energy-efficient, older homes are not hopeless. None of our home experts, who've seen thousands of these places, could recall problems endemic to every home of the era. Wear and tear, yes; damage from badly handled repairs and vindictive homeowners, certainly. But nothing that would categorically rule out the purchase of an older home.

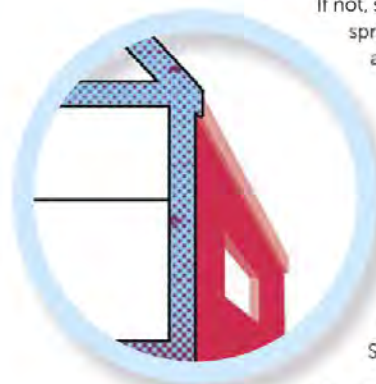
As home-repair experts will tell you, moisture is the enemy of longevity when it comes to housing, so score one for living in the desert, where houses will still be standing long after they've become inefficient, uncomfortable and ugly. 7

7 Maintenance Tips You Shouldn't Ignore

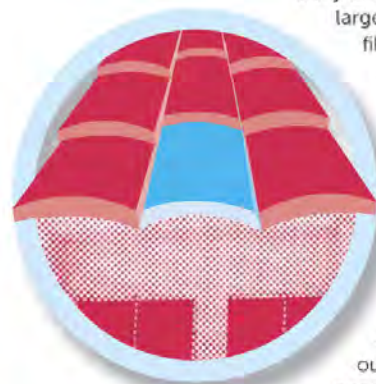


◀ **WATER HEATERS:** Gas heaters last 8-12 years (10-15 for electric) if properly maintained. To do so, drain 1-3 gallons monthly to remove sediment, which reduces capacity and efficiency. Drain completely at least once a year (2-3 times a year if you have hard water).

GARAGE-DOOR OPENER: Expect 10-12 years of service. Spray hinges and steel rollers with silicone oil annually, but do not lubricate plastic rollers or metal tracks (as dirt will accumulate). Spray springs with WD-40 every few months. Door should stay up halfway when the opener is disconnected and the door is lifted by hand. If not, see a professional to have the torsion spring adjusted. A tune-up typically costs about \$100, but check for coupons.

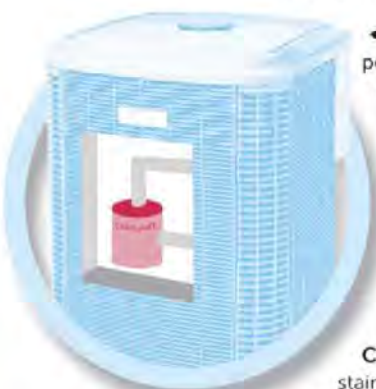


◀ **INSULATION:** A common problem here. Inadequate insulation results in hot air from the attic leaking into the living space. A home performance specialist can spot problem areas. Testing is free, but a thorough inspection can run 10-20 cents per square foot. Insulation older than 20 years (pre-Energy Star) should be evaluated.



SIDING: All stucco cracks eventually, especially on large walls exposed to the sun. Cracks larger than one-eighth inch should be filled and painted as they can accumulate water. Wood siding and fascia boards should be repainted about every five years to prevent water damage and dry rot.

◀ **ROOF:** Concrete or clay tiles can last 50 years or more, but if they are cracked or missing, the tar paper underneath them will dry out and tear, ultimately causing leaks. Lower-quality asphalt shingles may only last 10 years in our climate, though some newer products are rated for 30 years. Keep an eye on your roof and replace broken or missing tiles promptly.



◀ **AIR-CONDITIONER/FURNACE:** Expect to get 12-18 years out of a properly maintained air conditioner. A professional inspection, which costs about \$80 and checks everything from refrigerant level to the condition of the ductwork, should be done in the spring for the AC unit and the fall for the furnace. Change filters monthly; the cheapest, least-restrictive filters work just fine.

CONCRETE BLOCK WALLS: The white stains commonly seen on block walls are called efflorescence. They are caused by water seeping through the porous material, an aesthetic problem that can be tackled with a mild solution of muriatic acid and water. Make sure sprinklers are not spraying the walls.

Contributors



Les Lazareck, Richard Cummins and Chris Mounger

"This (Not-So) Old House," Page 36

When we decided to learn just what kind of shape Las Vegas' boomtown houses are in, we knew we had to turn to some wise home inspectors for advice. We found them.

Lazareck is a residential home performance expert, certified home energy rater, building analyst, professional trainer, green building verifier and owner of Home Energy Connection. He was also the original program manager of HomeFree Nevada, the state's Home Performance with Energy Star program. Lazareck—who focused on alternative energy design while earning his bachelor's degree in mechanical engineering from the University of California, Santa Barbara—is a founding member of Solar NV, the local chapter of the American Solar Energy Society. His own house is now a net-zero electric home.

Cummins, a certified master inspector, owns Associated Inspectors. He has lived in Las Vegas since 1963 and has worked in the construction and inspections industries for more than 40 years, beginning with his service in the U.S. Navy in a construction battalion. He is an instructor and board member with the Southern Nevada Association of Professional Property Inspectors and a certified building analyst with the Building Performance Institute.

Mounger, who works with Cummins at Associated Inspectors, is a member of the American Society of Civil Engineers, a board member of the Southern Nevada Association of Professional Property Inspectors and an intern with the Board of Professional Engineers and Land Surveyors. He holds a bachelor's degree in civil engineering from UNLV.

Correction

The featured dish at Strip House ("Dishing," June 16) should have been referred to as "Ripped Potatoes."

This Week @ WeeklySeven.com

Follow Our Experts

Vegas Seven's stable of nightlife experts will be all over the Electric Daisy Carnival scene, June 24-26. Look for #7EDC on Twitter. In the meantime, follow historian Michael Green on politics, food critic Max Jacobson on the latest restaurant discoveries, Green Felt Journal columnist David Schwartz on gaming news and shopping guru Laura Coronado on hot deals.



LUCKY

Join the Club!

And get the full VIP treatment, including special party access, restaurant deals of the week and special travel giveaways.



Follow Us!

facebook.com/VegasSeven
twitter.com/7Vegas

EAT UNDER THE STARS.

*Featuring Mario Batali
Chefs of Las Vegas*

UNCE Orchard, June 25 at 6:30pm

PROJECT
DINNER
table

PEOPLE. FOOD. PURPOSE.

TICKETS NOW ON SALE



Nevada Beverage
Company
Las Vegas



BACARDI

ICELANDIC
GLACIAL

seven

SHOCK-TOP
BELGIAN WHITE

Renaissance Catering
Elevating your event

PROJECTDINNERTABLE.COM