

Ireland has guidelines to stop destructive minerals from getting into new homes. Those rules aren't perfect. But they beat anything that Connecticut has. This state has yet to come up with plans to prevent a future concrete disaster.

CAROLYN LUMSDEN PHOTO

A house is being repaired north of Dublin, Ireland. Pyrite in the crushed-stone fill has caused floor slabs to break in thousands of new homes in the area. Pyrite is similar to pyrrhotite, a mineral that is causing many Connecticut foundations to crack and crumble.

HOUSING TIPS FROM IRELAND

Connecticut can learn a few things about saving cracking homes from nation's response to pyrite damage

BY CAROLYN LUMSDEN

Thousands of homes are cracking in Ireland and Connecticut because of the failure of their governments to pay heed to the materials used to build them.

This negligence on both sides of the Atlantic is costing many families their savings, their security in the one place where they can feel safe and their trust in the institutions that are supposed to protect them.

This negligence is also costing Connecticut taxpayers at least \$100 million, for now. That price tag could easily climb — all because the state doesn't require quarry testing for home construction.

"It's an entire state problem, even though people outside of this area don't want to recognize it," says Steve Werbner, town manager of Tolland, where one school has to be replaced at a cost of \$46 million.

"It's also costing the state in the lost value of homes," he says. A buyer for his own house backed out after reading about the region's problems.

But Ireland is ahead of Connecticut in fixing its failure.

Ireland has remediated at least 1,600 homes damaged by pyrite, a sister of the mineral pyrrhotite

that's ruining homes in Connecticut. Connecticut has just started its own remediation program.

Most important, Ireland has guidelines to stop destructive minerals from getting into new homes. Those rules aren't perfect. But they beat anything that Connecticut has. This state has yet to come up with plans to prevent a future concrete disaster.

Connecticut has identified one quarry as the source of the pyrrhotite that is damaging homes: Becker's in Willington. But it isn't the only quarry in pyrrhotite zones.

A map by state Geologist Margaret Thomas shows quarries snuggling close to pyrrhotite areas east of the Connecticut River.

And pyrrhotite isn't the only mineral that can ravage homes, as Ireland found to its sorrow.

In 2014, Ireland was preparing to fix pyrite-damaged homes in the Dublin area when it learned about houses crumbling in County Donegal from muscovite mica.

Connecticut has pyrite zones along its eastern border and southeastern shore, as the state geologist's map shows. It is rich in mica too. Wherever there is problem mineral, there is a quarry close by.

Connecticut has to take a more thorough look at its geology and start monitoring the material going into new homes while it is fixing those with pyrrhotite. This state must demand more accountability, as Ireland has done.

Ireland's Timeline

Alan Farrell is now a member of Ireland's Parliament. In 2007, he was a county councilor and living in Kinsealy, north of Dublin, when he got a call from a neighbor saying a TV crew was outside. "It was the first I had heard of pyrite," he said.

Ireland, like the U.S., was enjoying a building boom. Home prices were soaring. But news of this strange mineral suddenly made houses toxic. It also explained his home's mysterious cracks.

Pyrite is an iron sulfide, like pyrrhotite. It can take years and even decades for sulfides to do their damage on buildings. Mortgage companies have long refused to lend for older homes with pyrite in the Cornwall and Devon counties of England — including those that have survived two world wars.

Even so, Ireland's building industry was dumbfounded by the discovery that pyrite had gotten under thousands of new homes in the Dublin area. The mineral was causing the crushed-stone fill

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beneath floor slabs to swell and break. The pyrite had come from local quarries.

“You have to remember that at that time, building materials and labor were in short supply,” said Orla Hegarty, an assistant professor of architecture at University College Dublin. “So if somebody could bring in gravel to a site tomorrow morning and it was cheap, they weren’t going to be questioned too much.”

“When output doubles, quality halves,” says Lorcan Sirr, a lecturer on housing at the Technological University Dublin.

At the time, there wasn’t an effective testing regime for sulfides in place. That has since changed in Ireland.

Connecticut, however, still has no quarry-testing regime for sulfides.

Alan Farrell says the news of pyrite in his house was a devastating blow. “I would have started a family sooner,” he said. “We put our lives on hold for several years.”

Lawsuits began. A large one was settled against a builder in 2011. A 25 million Euro trust fund was created to fix 670 homes, including Mr. Farrell’s.

Ireland’s highest court later found a quarry company responsible, saying its crushed stone was simply not fit for the job.

In Connecticut, only one lawsuit against a quarry has gone to judgment. The quarry won in 2003, in part because the state building code is lax concerning concrete in homes.

“The only requirements of the code relate to the compressive strength of the concrete, and the concrete in the plaintiffs’ foundation met that standard,” the judge wrote.



Rocks containing pyrrhotite were found in the areas in white across eastern Connecticut. Rocks containing pyrite were found in the darker gray areas, in the southeast. The dots indicate active quarries in 2014-2015.

“Compression tests won’t do it,” says Mel Reynolds, an architect in Dublin. They might not indicate whether pyrite or pyrrhotite lurks within. Only sulfide tests will do that. There is no mention in the Connecticut building code about testing for sulfides.

In 2011, Ireland’s environmental minister set up a panel to find solutions to the pyrite problem — because the nation’s largest new-home warranty company refused to

cover the damage.

“HomeBond walked away, just said, ‘No, we’re not paying.’ And the government let them get away with this,” said Darragh O’Brien, the housing spokesman for the opposition party in Ireland’s Parliament.

Two years later, the Irish government launched the Pyrite Remediation Scheme to fix the worst-off homes that weren’t covered by court rulings, legal settlements or warranties.

‘The Key Question’

The building industry in both Ireland and Connecticut might be forgiven for not knowing about pyrite and pyrrhotite before the disaster, Mr. Farrell says.

But there’s no excuse for letting any deleterious materials into new homes again.

“What are you doing to prevent this from happening again? That is the key question,” he said. “If the Connecticut legislature doesn’t have an answer to that, I

would advocate that they should be replaced with people who do recognize the nature and scope of the problem.”

Monday: How Ireland Protects Homeowners

Carolyn Lumsden, the Society of Professional Journalists’ 2018 Pulliam Editorial Writing Fellow, is working in partnership with The Courant to continue to examine Connecticut’s crumbling concrete problem. Lumsden retired in December as The Courant’s opinion editor.