

The Ruth Lewin Griffin Place

LEED Gold Multi-Family Housing for Working People

Barb and Greg Whitchurch

The Ruth Lewin Griffin Place, affectionately known by locals as “Ruth’s Place,” was the vision of its namesake, who recently retired from the Portsmouth Housing Authority Board, where she served as a board member and commissioner since 1978. When it opened last year, “Ruth’s Place” received the New Hampshire “Building of the Year” award from the U.S. Green Building Council.



The Ruth Lewin Griffin Place in Portsmouth, NH. The photovoltaic and the ERV systems are located on the roof. (Images from Eckman Construction)

Now in her nineties, Lewin refers to the building as “affordable workforce housing.” Her vision was to provide affordable housing to “the men and women who made Portsmouth what it is today,” by providing income-adjusted rent pricing for those who have been forced into long commutes by the lack of affordable housing within the city (<https://bit.ly/sco-rlg>).

Those who meet the income eligibility guidelines get a one-bedroom apartment starting at \$950 per month or a two-bedroom starting at \$1,200 per month. The four-story structure contains 64 units and features a rooftop deck with panoramic views of historic downtown Portland.

Although the design and build team is capable of reaching much higher standards, a cost-and-benefit analysis led to the choice of LEED Gold as the certification standard they would shoot for.



A finished apartment unit in the Ruth Lewin Griffin Place.

The tug-of-war between developer and owner, or, in the case of private homes, between bankers and homeowners, pits the up-front costs of environmental damage and out-of-pocket expense against responsible building design and operational costs. Outdated local zoning

restrictions and unrecognized embodied-carbon dangers also often conspire to dampen the good intentions of the architects and builders.

How did this project achieve the LEED Gold Standard? We spoke with Carla Goodnight, NCARB, AIA, President of CJ Architects (<https://bit.ly/cja-rlg>) and Jon Krygeris of Eckman Construction (<https://bit.ly/eck-rlg>). The sustainability consultants and the LEED administrators as well as the final commissioning were all provided by Resilient Buildings Group (www.ResilientBuildingsGroup.com).

Krygeris, the project manager for this project, explained that the owner, designers and builders used a tightly collaborative approach, which is common in high-performance building. As project manager, he was on site at least once a week, working with the project superintendent on scheduling and contracts. Together, they had to be

aware of all the pieces and parts of the project, however minor those details might seem to an untrained observer.

For the concrete foundation walls and footings, they chose slag to replace some of the cement, thus lessening its environmental harm.

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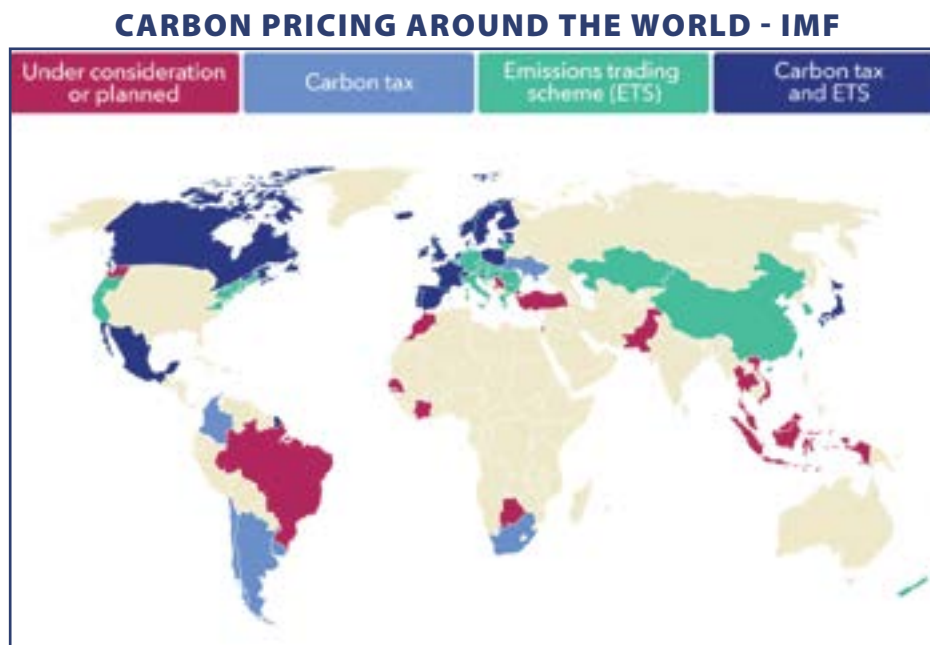
THE PROVE IT ACT AND CLIMATE SYSTEM LEVERAGE POINTS

Judy Davis

I was driving back from a camping trip on Mount Desert Island (the trip cut short by hurricane Lee), Maine, and I started listening to Kim Stanley Robinson's speculative novel *The Ministry for the Future*. When the book starts it is the mid-2020s and there is a devastating heatwave in India which kills 20 million people. The world has not been meeting its goals of carbon reduction or putting the amount of money that was pledged into the fund to help developing nations decarbonize. The developed countries are somewhat concerned about all those deaths, but even more concerned that India spends seven months making high-altitude flights to geo-engineer some heat reduction by adding sulfur dioxide particles into the atmosphere. India calls it a double Pinatubo, referring to the 1991 volcanic eruption that cooled the planet for a few years. Meanwhile, in Switzerland, a small think tank called the Ministry for the Future is trying to identify policies or actions that can quickly effect large reductions in greenhouse gasses. They are looking for the leverage points.

I am a volunteer with Citizens Climate Lobby (CCL), a non-profit that organizes volunteers to actively lobby our members of Congress, in person if possible, to pass bi-partisan legislation to address climate change. CCL is all about leverage points. Scientists and economists and the United Nations Intergovernmental Panel on Climate Change (UN IPCC) all agree that a carbon fee is one of the most effective leverage points - charging the fossil fuel industry a fee for carbon pollution will result in less of it. CCL's preferred policy is to return all fees to households, thus mitigating any cost increases that arise from putting a carbon fee on fossil fuels. In the 2022 omnibus spending bill, which became the Inflation Reduction Act (IRA), Democrats had approval from the House, 49 Senators, and from Vice President Harris as a 50th vote, to add a carbon fee to that bill. They were one vote short.

Senators Sheldon Whitehouse and Brian Schatz had introduced comprehensive climate legislation, the Save Our Future Act of 2021, that included a carbon



Source: WBG, IMF staff calculations and national sources. Note: The boundaries and other information shown on any maps do not imply on the part of the IMF any judgement on the legal status of any territory or any endorsement or acceptance of such boundaries.

fee, a methane fee, a host of renewable energy incentives, and robust protections for energy communities and low-income communities (<https://bit.ly/3PLTs8f>). Much of that bill was included in the IRA - but not the carbon fee. Senator Whitehouse and his colleagues also introduced the Clean Competition Act of 2022, which would place a fee on carbon-intensive imports like steel or aluminum. As part of a Carbon Border Adjustment Mechanism (CBAM), a fee would be charged on imports which have a higher carbon intensity than comparable U.S. products, and the fee would be based on the differential between the carbon emissions created by the manufacture of the imported product and those of products made in the U.S. A discount payment could be made to U.S. manufacturers who export lower carbon intensity products.

How do we know what that carbon intensity differential is? That's where the PROVE IT Act comes in. Introduced by Senators Chris Coons and Kevin Cra-

mer, the bipartisan Providing Reliable, Objective, Verifiable Emissions Intensity and Transparency (PROVE IT) Act would collect the data to establish the relative carbon intensities of products made in different countries or by different manufacturers. The data would be updated every five years and could be used as part of a CBAM. The products that would be studied include, steel, aluminum, cement, hydrogen, solar cells and panels, wind turbines, lithium-ion batteries, plastics, crude oil, and more. Read further at (<https://bit.ly/3ENo4jo>).

The U.S. is somewhat behind the rest of the world on carbon emissions legislation. Canada and the E.U. have had carbon fees in place for several years. The Canadian system is customized by each province, but many return the revenue from the carbon fee to households in a quarterly cash payment. "Through these payments, the majority of Canadian families receive more money back than they pay, with low-income Canadians benefit-

ting the most" (<https://bit.ly/3Rs82my>). The E.U. has also approved and begun to implement a CBAM. The recent Africa Climate Summit 2023 ended with a unanimous call for a global carbon tax. To find out more, the World Bank has a website that tracks various carbon pricing initiatives around the world (<https://bit.ly/3RxtKtB>).

As soon as I started thinking about the PROVE IT Act, I started to see articles about new low-carbon or carbon-neutral technologies for some of the products that now produce the most carbon. In Sweden, a company called H2 Green Steel is set to produce low-carbon steel in 2025, using sustainably produced hydrogen and electric arc furnaces instead of coal- and coke-fired blast furnaces, reducing the carbon emissions by more than 95% (<https://bit.ly/3PN2QbY>). In the U.S., a research group has demonstrated carbon-neutral cement, where the necessary limestone is made by microalgae in the same way coral reefs are formed, and a start-up company is already testing the product (<https://bit.ly/3PikAu0>).

Enacting the bi-partisan PROVE IT Act might just provide the necessary leverage that leads to creating a Carbon Border Adjustment Mechanism, and the CBAM might provide the leverage to pass a Carbon Fee and Dividend bill - and then the U.S. will be catching up to the rest of the world.

If you want to play with a well-validated interactive model to see where the policy leverage points are in the climate system, Climate Interactive has an easy-to-use simulator to test to your heart's content (climateinteractive.org).

Judy Davis is the volunteer state coordinator for CCL Vermont who lives in Craftsbury Common. After a career in information technology, Davis went back to school for a master's degree in environmental management and sustainability. As a board member of the Federation of Vermont Lakes and Ponds for many years, she advocated for nature-based solutions for lake health and climate change mitigation.

Source links appear on-line. ♻️

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Substituting fly ash or slag does retard the setting time just a bit, but the final product is stronger, and scheduling is done up front anyway.

As Krygeris points out, both LEED and Energy Star standards require effective air sealing, so they practiced their air sealing with sectional mockups. Then each "block" of two apartments was sealed separately, and mid-construction blower door tests were conducted. This is a common approach, since it allows for fixes before final layers and finishes are applied, while also teaching the crew where to be especially vigilant as they continue along with the build.

The exterior walls were standard two feet by three feet wood framing stud walls with batts and two inches of spray foam to neutralize the thermal bridging. They used Zip sheathing and tapes to achieve an R-32 wall. The flat roof employs four inches of polyisocyanurate board and closed cell under-sheathing spray foam to achieve a R-49 rating.

The historic district designation of the site limited their window options, So

Marvin double-pane, low-E, argon-filled units. Every unit has operable windows were used.

The indoor air quality (IAQ) was handled by a GreenHeck ERV (<https://bit.ly/gh-erv-rlg>) mounted on the roof. This model does allow for monitoring of IAQ, if the building owner wishes to do so.

Partly because of the poisonous gasses injected into spray foam and the board insulations they used, a whole-building flush-out was performed to address the off-gassing.

Fossil fuels are used to run the building's boilers and the clothes dryers; but those threats are pretty much confined to the utility room and laundry area, as they avoided piping it throughout the building. A set temperature range keeps the thermostats in individual apartments (which have baseboard heaters) from being abused. Each apartment has an electric range and oven.

Shared spaces have their own heating in the ceilings: for example, the communal laundry with four washers and



Roof deck on the Ruth Lewin Griffin Place apartment housing in Portsmouth, NH. (Eckman Construction)

dryers, and the community room just inside the entrance to the building. As yet, there is no electric vehicle charging or renewable energy offsets.

Krygeris emphasizes that when you plan everything out early on, in collaborative meetings with all contributors (especially for air sealing), it greatly simplifies processes, avoids correcting mistakes, and so saves time and money. Establishing a protocol of how, who and when to seal penetrations is of great importance.

While many opportunities to make the project more efficient were not taken, this building does outperform, out-save, and meet higher efficiency standards, while providing better occupant health and comfort levels than most homes and other buildings being built right now! It also serves a very important need for immediate and improved housing for real working people with low to moderate incomes -- right now!

More urban infill and moderately-priced housing is desperately needed almost everywhere --- the climate and air pollution issues involved can be addressed and improved upon incrementally, as vigorously as we wish, as we go along.

This project represents the innovative, inclusive and forward-thinking interests of the City of Portsmouth.

The Whitchurches live cheaply and securely with their EVs, heat pumps and induction range at their solar-powered Net Zero+ Passive House. For related articles, see www.bit.ly/get-w-ev. ♻️