Very few if any of us give much thought to walls – their function, their design, and the extent to which they contribute to what we define as a single-family dwelling. Much of the structural and functional identity they have with us is based in the way hundreds of years of building convention has led us to believe that a wall begins and ends with a right angle. It is a concept that is firmly in place as a part of humankind's understanding of "sound" building practice and principles and our aesthetic predispositions further entrench it there.

Is it now time, however, to reconsider our inflexibility on building homes with the "stick-frame" model of 90-degree angled components and the use of trusses as load-bearing structures? A host of trends in today's world are certainly suggesting so, but it was some 60 years ago that the first individual to question the advisability of building homes the way we do.

Buckminster Fuller was an American systems theorist and designer, and in the early 1950s he was living in the postwar-boom of American society that saw the advent of "Suburbia." He was well before his time in seeing the shortcomings of the types of homes that were being built en-masse across the entire country. In 1954 he introduced the world's first geodesic dome and with it the possibility of a radical departure from the norm of building homes.

The geodesic dome was a spherical or partial-spherical shell structure based on a network of circles (geodesics) on the surface of a sphere. The structural elements created by the dome provided specific and significant benefits that the box homes popping up nation-wide could not, most notably:

- Maximized space efficiency – the geodesic dome provided a volume of interior space to surface area ratio that made the conventional homes a decidedly inferior choice based on logical design principles.

- Incomparable strength and rigidity – Serving as one unified load-bearing structure standing without external or internal right angles, the geodesic dome was a veritable titan in comparison to those same conventional homes where any aggressive energies were directed fully and immediately into the home's trusses.

- Climate control efficiency – the natural convection provided by the curved walls of the geodesic dome meant much less energy was required to heat and cool the home.

- Cost-effectiveness – Despite offering considerably more sq. footage interior living space, the geodesic dome required much less building material for its construction. Naturally, less material meant less cost for both the builder and buyer

Versions of Fuller's original geodesic dome were not without their drawbacks, both functional and ideal-specific. Plumbing and chimney impracticalities, external sealing

difficulties, window fitting and privacy per-room limitations were issues early on. Difficulties placing similarly right-angled furniture and fittings into the spaces of the home contributed to their being seen more negatively as well. Sadly, however, the primary reason geodesic dome homes were quickly dismissed was that they didn't meet what the aesthetic ideal of a "modern family home" had been for centuries.

And so, at a pivotal time when the embracing of stick-frame single-family dwellings might have been countered to some extent, it was the *appearance* of the dome home that was the primary reason dwellings based on Fuller's model were dismissed as undesirable.

And yet here we are today with those conventional stick-frame dwellings being shown to be inferior housing, particularly with 21st century global environmental realities meaning more adverse and destructive forces of nature being imposed on them. Look no further than "tornado alley" in the American Midwest and internationally in Haiti and Indonesia to see how there is a need to build homes that are designed to be structurally resilient in the face of seismic activity, catastrophic winds and heavy snowfalls.

Rebuilding parts of the American Midwest that have been recently ravaged by tornados with dome homes would make so much sense, with both the affordability of the homes and the fact infinitely more of them would remain sufficiently intact and habitable after successive catastrophic events. The same way of thinking can be extended to communities on the west coast of the continent with increasing seismic activity along the Pacific Rim raising real concerns. Much of the First Nations housing in the Canadian North is in dire need of replacement and dome homes would be ideal there as well as a cost-effective long term housing solution.

Then there is the need to foster sustainable living areas of the world that have extreme population densities and are faced with the prospect of increasingly frequent natural disasters. Population densities in the developed world are creating problems as it is and the trend of international migration to more stable geographical locations will be pronounced if means of making peoples' homelands "livable" are not in place. Strong, durable and smart-designed housing can be a VERY big part of meeting that need, and the technology exists to provide it.

Sadly, however, Port Au Prince is already in the process of being rebuilt with the same easy-prey dwellings that will almost certainly come down without much resistance the next time a massive seismic event occurs. The same foolhardy decisions are also being made in areas of Japan and Turkey. The Canadian government has just decided they will support the First Nations community of Attawapiskat by providing them with modular homes that will likely be hopelessly dilapidated within 10 – 15 years time. On and on it goes, one poor decision after another.

The smart alternative is there, and it is an indisputable fact that single unified load-bearing structure design principle of the dome home is the key to truly sustainable housing – but for whatever reason humanity as a whole continues to be unreceptive to it.

“Our product is directly in line with 21st century sustainable housing ideals – inexpensive to build with less material and waste and superbly energy efficient and strong. In time I think it’s inevitable that there will be a shift to these types of building technologies out of necessity. We have the technology to do it now and it’s more a case of when it will start to progress. Curved walls should be the way of the future for dwellings and there’s a lot of fact behind that. ”

Axel Tischbein is the president of Lexa Dome Homes, a manufacturer of technologically advanced dome homes in Vancouver, BC. While there are a good number of dome home builders across North America, Lexa in particular is making headway in stemming these negative predispositions and enlightening people to the propriety of their homes in many different environments. They differ from standard geodesic domes in that they are built as spherical or elliptical domes and, more importantly, do not have any of the same aforementioned drawbacks that disadvantage the geodesic domes.

“It’s important to be aware right away this is not a Buckminster Fuller dome or like any type of dwelling most people will automatically associate when they hear ‘dome home.’ The Lexa dome has its own curved panel design and the frame of our domes is stronger. They are more conducive to energy efficiency in the home and are compatible with any number of green technologies as well. Then you should see what we’re able to do with the interior of the home, people shouldn’t imagine a hunting cabin when they think about what the interiors of our domes. “

“The Lexa dome home should have more appeal with people who want a well-built, priced right home that’s going to be standing there 50, 60 years from now and providing a home for you, or the next owner of the home. Let’s build homes to last.”

The facts are behind Tischbein’s insistence that this is a better home for your buck and one that makes real sense for both rural and more urban housing. They cost less than conventional housing of the same square footage and amenities, are significantly more energy efficient with the convection provided by the curved wall structure and vastly stronger and durable in comparison. The fact they are erected and complete to lock in as little as 2 weeks and require so much less wood and other building materials caps off a rather convincing argument as to the superiority of these homes.

Lexa like to promote themselves with what they refer to as their “30/30/30” Promise. Approximately 30% savings as compared to the price of building a matching conventional home, 30% less material usage in the construction of the home and 30% increased energy efficiency savings over each year. All in a home that’s solid as a rock. And it is important to remember as well that the dome itself only needs to constitute the central structure of the home, Lexa can design a dome home that features unique architectural designs around the central dome to distinguish it stylishly and functionally.

From residential applications in established urban communities to supplying affordable and sustainable housing in under-developed areas of the world, it makes so much sense to begin utilizing the types of building technologies companies like Lexa Dome Homes and others are making available. The company's primary focus right now is to increase the visibility they have with any and all who may be receptive to their message and the product they can provide. One of the things they stress is their ability to offer even more competitive pricing when building at volume and they are eager to work with international aid organizations that are working to rebuild communities around the globe.

"Interest in our product has been slow to come around, but we're seeing it increase markedly now and we're confident we'll see a market for these types of homes and multi-purpose dwellings develop over time. We're steering the course as a company with a firm belief in what we're doing." Tischbein says.

The dome home may have had its inception with the work of Buckminster Fuller all those years ago, but it is a much better and much more refined version now. The principle of the curved wall structure he put on the map, however, remains the same. It distributes and disperses energy more effectively and the convection provided by the design makes for a more efficiently climate controlled structure. It would appear however that we might still be some years away from overcoming the design tastes that were firmly cemented in the middle part of the last century. It will be interesting to see how those preferences will have changed when we come to the halfway mark of the 21st century, as it is most likely that they will be changed and aesthetic tastes will have had little to do with it.