

MEFEMS

Movable, earthquake, fire, electric magnetic mitigating, modular and scalable
HOMES

THE HOUSING CRISIS

The "Housing Crisis" is not solvable if we continue to think of it in standard housing terms. That is housing that relies on land as an underlying basis for housing. It is only if we can take land out the equation that it becomes manageable and solvable.

This is one part of the solution that does just that.

After much deliberation, planning and plan implementation the housing crisis/homeless problem only grows. With the coming chaos brought on by this pandemic, climate change, immigration exacerbated by war, upheaval from the changing climate (flooding, fires, storms not seen before in our history)

CONFRONTING AND SOLVING THE HOUSING CRISIS FOR THE HOMELESS AND THE MAJORITY OF BC ITES, WHILE DEVELOPING A MUCH NEEDED NEW ENTERPRISE SOLUTION TO HELP THE WORLD

This paper will address homelessness and the housing crisis. It will also offer one possible part of the solution to joblessness, the like of which we have never seen.

Whether we approach the problem from a charitable perspective or purely from an economic, rational one, the conclusions are the same. Doing nothing or little to solve the problem costs our society now, and will cost more in the future, not only in simple dollars, but in the negative impacts to our society.

LAND

Why has the solving of homelessness and the housing crisis proven unsolvable. The simple reason is land acquisition costs. With the building of standard housing, when we place the cost of land in the equation, costs are simply too high. And will continue to escalate, making the building of standard housing at best a meager part of the solution.

Land acquisition costs are the underlying issue for home affordability. The land acquisition component of standard housing vary between 30 to 70% of the cost in the construction of a home. The land itself makes the housing non affordable. And of course there is just not enough land available for affordable housing. We have been encroaching on our arable land base as it is and soon much of this land will no longer be available anyway (due to climate change, rising sea waters etc.)

People are having to commute farther and farther from their places of work as land to build standard housing is unavailable and too costly when made available where it is required.

An ancillary problem that goes hand in glove with land is the zoning and permit acquisition. It can take a year or much more, as zoning for the needed development for housing is approved and the necessary permits acquired. Much of this time is needed in order to get the approval from all stakeholders. Home owners in the area, developers, land owners, underlying issue interest holders, such as indigenous groups etc., all must be consulted and have input in order to move forward with any development. (see apendage for further information)

IMMIGRATION

The metro Vancouver area, and BC in general is a goldilocks destination for immigration, not only for the world, but from all of Canada.

Many of the immigrants coming here to live, are coming with a large asset base. They are buying homes that many BCites see as expensive, but much of the world sees these homes as somewhat affordable, and even if they don't, because they have the means, and because Canada is seen as being a safe place to live and raise their children, they purchase them anyway. This of course puts pressure on lower priced homes for the upward escalation of home prices.

And Canada offers one of the best countries to immigrate to, even without means, a safe haven to offer respite from all of the tense situations happening in the world, (see apendage for further information) including,

CLIMATE CHANGE

Protection from, and fleeing because of, fires, flooding, storms, and for security are some of the reasons why we are about to be inundated with new immigrants to this area.

Due to climate change, lower lying areas of the lower mainland may also be flooded, and no longer able to support housing.

Dikes that have allowed homes to be built may no longer offer protection from the rising seas. (apendage for further information to be available in coming iterations)

JOBLESSNESS

With the escalation of automation and the implementation of robotics the increase in joblessness will be precipitous. (Just think of how many self serve cashier stations are now increasing in all stores. Although the cashier, still a major form of employment, these jobs will all but disappear.)

This, in light of the escalation in rents, mortgage rates and costs of living, will give rise to more homelessness, and what I call homelistsness. Where the ability to pay for a home is such a burden that life becomes almost unbearable. Where more than 50 60 and 70% of a persons income is spend on a home, a livable space to live, someplace that simply keeps you out of the weather, but which you can't enjoy because you no longer have the means, or you are working so much to pay for it that your never there. No relaxing, little sleeping, no enjoyment. (see apendage for further information)

PANDEMIC

Appendage, pandemic!

In light of the current situation, housing that is affordabe, safe, and self contained, is now more important than ever. How can we ask the most vulnerable among us to self quartine when they don't have the space to do so? Now if we were to couple this with a sizable earthquake the outcome is almost unimaginable.

SO!!!

The problem is numbing. But, here is the solution. This program involves using non standard housing, that can be used on readily available land, currently used as single purpose for electrical power transfer, power lines and dual purposing it to also accomodate the aforementioned housing. This land has many attributes that make it ideal for this housing concept. It is land solely owned by BC Hydro, a solely owned corporation by the government and people of BC, or by others parties that have ceded the right of way to BC Hydro.

It is land that has been cleared and therefore offers ready positioning of these homes. It is in tracts that are, for the most part, straight and therefore are easily useable for the purpose of placment of needed utilties.

Much of this land is not flat, and that makes it useable by these homes utilizing floating foundation posts.

Now to speak to the needed attributes of these home units.

As these lands are used for power line electrical transfer and its required towers, the housing that can be placed on this land base must have the following attributes:

MOBILITY, this is not trivial, these homes must be able to moved out of the way if an immediate need arises, eg the power lines, towers need to be worked on, or around. (* note: homes that are referred to as "mobile homes", in todays parlance, are simply prefabricated, wood frame base structures, that are built on two large metal rails, which can be moved and placed on a foundation or blocks.

After 10 years of permanent placement they are considered no longer stable enough to allow them to be moved.) Having said this, having lived and worked in much of BC,

I have yet to see work being done on these lines or towers after they have been placed.

ROBUSTNESS, because of the need for mobility, these homes need to have unitary strength. A single unit or multiple units configured to form a single home and broken down into their component parts, must be able to be moved aside to enable the work. This is also the reason that they are the most earthquake proof of all structures.

Made of material which will dampen the ELECTRIC AND MAGNETIC fields set up by the power lines and the proximity to the lines so that the field strength in the home would be reduced to levels that are equivalent to those found in homes which are not proximate to the lines. ie. in essence a faraday cage. (A cage or shield, made of conductive material, that blocks electric magnetic fields from reaching inside the enclosure. ie A container, if properly designed and built, makes such a cage)

WHY IS THIS SOLUTION RIGHT FOR THIS TIME?

It solves the immediate problem, homelesses/housing crisis, in the least amount of time, for the greatest number of people, on land that requires little to no permitting, zoning, or approval by anyone not connected to the land itself, ie. minimal stakeholders. This housing, with the aforementioned attributes, is the only housing that will work with this land base.

Yes, there may be some issue with NIMBY's (Not In My Back Yard persons, but this is something the government will have to be strong on. Indigenous groups may want input, but as stated, (following statements) these groups may have opportunities brought forward with the building, use, and development of this plan. Also as stated later, many of these NIMBY's may have issues of their own with reference to illegal suites etc.

Because we are fortunate to live in a part of the world where we have abundant, clean sources of power, there is a great deal of land available for this dual purposing. In every municipality and in most parts of the province there are acres upon acres of land underneath power lines. Literally thousands of acres. Land which can be purposed not only for the carrying of power lines by towers but which can also be used for homes. It also as it happens to be cleared land, already, ready.

Although phases are laid out here, they can be brought forward in any order, or even if decided, all at once. There are reasons for doing this. The main reason to do them as outlined is to focus on containing one problem before moving on to the next. However for cash flow purposes, it would be expedient to look at the 3rd phase first.

1st phase

HOMELESSNESS

"Being homeless is one of the most vulnerable of helplessnesses"

It only takes a moment to imagine homelessness to understand in a small way how it takes away almost all hope in ones life. Without hope there is little to live for. This may be a very real factor in why the homeless die so young.

Not having a home not only means you have to brave the elements, and a dozen other things but also that you, and all you possess, are never secure. Anything that you have, must be carted around with you. Or it is lost. And of course everything has been lost and is lost over and over again.

WORSE THAN YOU THINK

Far worse than most of us can imagine living on the streets is high a burden for anyone, but it is even worse than one can imagine. without a home there is no security, you have to carry everything with you, for fear of loss. And yet what is there that one can carry about, you cannot leave it. So this is why they use the carriages and shopping carts.

And this of course does not get to the real problems of suffering in the cold and harsh weather, extremely uncomfortable sleeping situations, the lack of cooking facilities.

This not only limits to what you have, but where you can go, how you are accepted, and how you travel.

Having worked as a volunteer at a food bank, I understand that the homeless are not even able to have access to this availment. One needs an address for this service. Of course this is logical, where is one to cook or store the food given. The cost to our society in the waste of tax dollars supporting these individuals far outways the cost to put them in a home, as has been proven in a number of studies. And of course their is just the human waste to us all.

Focusing on a municipality will help to see the problem and the solution in the most illumined manner.

In Surrey there are some 600 homeless as of 2017(1). Surrey has allocated 45,000,000 to aleviate this crisis, with the building 340 units.

But the problem is growing, from 2014 to 2017, it is has been determined that the crisis has grown by 49%.

A single 20x8, 162 sq ft., or full 40x8, 320 sq ft. ,container is enough to form a very comfortable, cozy living unit. Homes that have little or no land acquisition costs, that have a very small footprint for infrastructure costs, that can be built for about

\$25,000(see section on costing) and that can be built in as little as 2 weeks, placed in position in 1 day, this is the most viable solution.

This is not only possible, but in fact much of the world lives in homes that are about this size. Homes, like this, are currently being built in many areas of the world, primarily in the US. Using these homes under power lines, jurisdictions which prescribe singular purpose of use, is this project papers approach, which is novel.

Standard housing, single or multiple units, take at least 3 months, and that, after some period. In most cases it takes up to 1 year to obtain all permits and execute necessary protocols, such as surveying, plotting, developing and clearing the land on which the home is to rest.

To get people out of the weather, it may be desirable to place cleaned, painted containers in place, furnish with temporary electrical, and include lighting, heat, ventilation, which could be done in a day or two, and swap them out for completed homes as they are made available.

A five person team could do a full container home in 2 weeks or less.

With this in mind 607 homeless persons could be housed, in their own individual unit for about \$25,000,000 (which includes infrastructure) in as little as 1 year with 120 workers, ie. 24 teams. Allowing for a rampup time of 3 months, Surrey's homeless problem could be solved in about 1 year, and, with more focus, much less.

This solution allows for scalability and with the almost limitless need, that this type of housing, (MEFEMS) "movable, earthquake, fire, electric and magnetic field mitigating, modular, and scalable", addresses, these jobs will not be going away.

These are, of course, no palaces. With square footages between 162 and 320, they can be made to be very comfortable, with most of the amenities that make a home a home. Cooking, sleeping, visiting, relaxing, all are accomodated.

Homes that offer the best in secure living, protection from storms, fire and life changes. Homes that can go were the owner goes.

Homes that can be taken and placed anywhere in the world, literally. Through all stages of life. Through the working years, they can be placed close to your workplace, at least closer than most affordable homes.

And then through the retirement years, they can be broken down into their component parts and moved, for relatively little, to a place that is more amenable to a quieter lifestyle. Perhaps on a lake, in a retirement community, or on a hillside or mountainside. Right of ways are in quiet, remote areas. Areas that may be perfect for retirement communities, if the necessary services can be provided.

With a focus on violence against women and families, 19,000 of them are turned away each year in BC due to lack of housing.

2nd phase

HOMELISTNESS

Housing and affordable space is, I believe, the salient cause of the wealth divide or, if addressed, will ameliorate the unrest and tension and in fact if used correctly can change much in helping to rebuild the middle class, and redirect the whole of the wealth divide.

This, in light of the escalation in rents, mortgage rates and costs of living, will give rise to more homelessness, and what I call "homelistness". Where the ability to pay for a home is such a burden that life becomes almost unbearable. Where more than 50 60 and 70% of a persons income is spend on a home, a livable space to live, someplace that simply keeps you out of the weather, but which you can't enjoy because you no longer have the means, or you are working so much to pay for it that your never there. No relaxing, little sleeping, no enjoyment.

As the aforementioned conditions give rise to a precipitous increase in homelessness, they will also give rise to more homelistness. As rents, mortgages and in general living costs increase, it will cause the dissolution of families, communities, and lives. This will only become worse as conditions for those who have marginal jobs, disintegrate. As jobs, in many industries, but in particular those in the retail sector, which offers so many low wage, marginal positions, are lost. Due in large part to technological implementation, the trend toward a larger and larger number of those individuals, families, and communities becoming homeless or trending that way, are growing exponentially. And we have yet to see the major impact of climate change, land loss because of it, immigration due to climate change, unrest due to wars etc. and automation.

So, with at least one third of households being renters (this is, and will become much higher) how does this program address that?

As shown in the apendage of costs, this form of housing is by far the most economical to build. It also is by far the safest, (see attributes) most secure, most adept at fostering community.

All of which, if a society is missing, contributes to great unrest, poverty and the ensuing crime, use of drugs, alcohol, and other forms of self harm to escape ones reality.

Everything of course is politics, but here comes the blatant political promulgation. The party that can use this approach as a back bone to their political pact with the electorate, the party that will run with ideas like this, (yes a full proof of concept needs to be done to satisfy all parties) is the party that will hold the hearts of the majority of that electorate for a long time.

The plan would be to not only solve homelessness but also to simply offer a home (yes the homes would be owned, not the land, as in standard housing) to anyone who

wishes it, at a much lower out of pocket cost than they are currently putting out for housing.

Of the current 1,000,000 households in BC, approximately 1/3, or some 350,000 home units, rent. The party that addresses their need for affordable housing, perhaps reducing their budgets used for a place to live by up to 70%, (again see costs per unit apendage) will go along way to garnering their respect and their vote. Many will have the opportunity to live much closer to their place of work. Many will be able to start a small business and live in the same unit, above or on level with their business. (see phase 3)

Phase 3

RECREATIONAL, BUSINESS, EDUCATIONAL, COMMUNITY FACILITIES

These containers can be put out for the use of storage units with minimal refurbishment.

As an example to enable cash flow and give a way to have ready units for buildouts, 25,000 units could be purchased at a time for \$1,000 to \$1,500/ ie. a price of 25,000,000, bearing an interest premium at 5% ie.\$1,250,000. They could be rented out for \$200 (this is much under market value) each per month, this would bring in a income stream of \$5,000,000, or net revenue of \$3,750,000 per month. These funds could be used to build these homes, in effect making this program self funding. Of course this would only allow some 150 homes per month, ie. 1,800 home units per year. Not enough to solve the homelessness problem in 1 year but far and away more than any other program that will cost the government multiple millions. It will take some premarketing to accually rent these units out but this should not prove much of a difficulty.

**Note, see section communities, small business

These homes can be configured modularly to enclose as many square feet as the owner wishes to accomodate. And, in as many profiles as any other small, or large home could be built into, with any roof line, surface area, cladding, (that is exterior surface), as any other home could have installed, as well as offering great deck surfaces.

These homes will offer a real green solution. Although steel requires a masive expenditure of energy to produce it lasts for a very long time, particulary with the modifications that could be used, such as anti-corrosion, insulating paint. And, more importantly for the immediate implementation of this program there are well over 1,000,000 useable containers in the world that are available for these MEFEMS homes.

These homes solve the immediate problem, homelesses/housing crisis in the least amount of time, for the greatest number of people, on land that will only allow this type of housing.

ATTRIBUTES - MEFEMS, Movable, earthquake, fire, electric magnetic mitigating, modular, and scalable HOMES

MOVABLE - As previously stated, mobility, is not a trivial attribute. There is no other form of housing that offers this attribute other than perhaps a recreational or business trailer and the costs to produce those on scale are staggering. Because they can be moved anywhere, at any time, with any vehicle that can tow 10,000 lbs, ie even a large pickup, by using dollies, or cranes, etc. these scaleable homes offer the only method for taking advantage of placement of these homes in hydro right of ways.

Even homes that are comprised of multiple units will be designed in such a way as to be broken down in a manner of 1 to 2 hrs and moved as required.

EARTHQUAKE MITIGATING - If any structure could be earthquake proof, solid steel container homes, because of their unified state offer the easiest path to get to earthquake prepared structures for the immediate future.

These homes will be more robust than any other living space. In the event of a large earthquake or other disaster having a container handy will be a life saving blessing. We are trying to have our schools earthquake mitigating as soon as possible, recognizing that if such an occurrence were to happen many of them would simple collapse, while running short of space and using portables (again simple frame structures on a steel bed), to enable the functioning of our educational program(s). What if we simply swapped these structures out for MEFEM units.

At least these units would offer the best protection should such a need arise. It would be a good idea to have as many of these units readied, at least to the point of offering emergency shelter capabilities as possible. These units can then be swapped out and used to build actual housing.

FIRE MITIGATING – In light of the disasters that have occurred in California and Australia a fire mitigating structure may indeed be a good thing. Especially with the proper coating and choice of furnishings, These homes will offer the best in emergency sheltering and for those in such areas, prone to fire spread they may be the only choice for homeowners, once they are an option of course.

ELECTRO-MAGNETIC FIELD (Electric and magnetic field)MITIGATING-

As previously stated, if designed properly these structures will have all the properties of a Faraday cage, safer than homes that are miles away from power lines, shielded from electro magnetic pulse attack – the only structure that would be.

Because the impacts of large field (electrical, magnetic, cellular, microwave) penetration have only been around for a generation or two at most, and because the studies have not been done, or recognized. Because of market demands or lack of information about these fields and the downsides to health, protection from such fields, may be the most salient attribute of these structures. Many people may wish to live in such structures for this reason alone.

The fields used in the transmission of cellular signals have yet to be addressed. We have yet to fully study the impact on these signals to health, again this radiation cannot be fully discussed or analyzed simply because they have been around for less than a generation, and many of the real impacts, cellular degradation, cancer, and much more, will not show up for several generations.

And as stated due to market demands it is too easy to turn a blind eye to these implications, without looking too closely.

A faraday cage fully mitigates these challenges, making these homes, in fact, more safe than any other.

MODULAR - scalable/modular, built to any size from 160 sq ft to 20,000 sq ft, and beyond, and in any configuration, (except circular, as they are rectangular, just in standard construction), built anywhere and moved to where they are required. Using cladding (exterior siding) of any material that a regular home can be given, roofed in any fashion that any home would have, or used as a deck surface moved and used in any environment They also offer the ability to build, modularly, that is, they can be combined with any number of other units to build out as much space as required by the end user, ie

SCALABLE, which goes without saying, (we did say modular) but just for impact. They can be built from the base unit of 8x20, 162 sq ft, or 5x40, 320 sq ft for a standard sized container, to the usual 2,000 sq ft bungalow, to multiple stories and any square footage desired.

With these attributes they can not only be used as a modest or, luxury living space, but for classrooms, office spaces, storage spaces.

Some other attributes which will only be mentioned cursorily are:

SECURE – no other structure, other than a reinforced concrete structure offers the security of a fully formed steel structure, no cutting and entering, with steel doors that swing outward for maximum strength.

ZERO ENVIRONMENTAL FOOTPRINT - because of the integrity of the structure, it is very easy to control environmental factors and create a home with a zero environmental footprint.

All inputs and outputs can be controlled much more ease than a standard home, as a properly constructed MEFEM home will have no air ingress/exgress other than that which is completely monitorable/controlable. This can even include complete air filtration. If, for instance, the surrounding air contains an inordinate amount of smoke this can be filtered and scrubbed (in necessary) so that the incoming air is pure.

Light can also be easily regulated. Incoming and outgoing water can also be filtered (as with any standard home). This will occur much more in iterations of these homes when exports of these homes has been reached.

FLOATABLE HOMES - Again due to the underlying integrity of these homes, they may very well be made, when deemed necessary to become so, floating structures. This may at first blush seem unimaginable, but ships are made of steel, and these homes could be designed likewise. A concrete hull could also be designed for the use with these floatable homes.

CLADDING, as stated, but to reiterate, for those among us who cannot imagine these units looking like a standard home, a MEFEMS home could incorporate any cladding (siding) so that in outward appearance these homes, if also designed with a truss system of choice could be made to look like any other home, any configuration, any profile(including roofline, roofed in any fashion that any home would be, or used as a deck surface.

GENERATIONAL - due primarily financial factors, many children are tending to stay in under their parents roof. Post secondary school costs, along with living costs are the main reasons cited for this trend.

As in Europe, these homes, as they are fully modular/scalable, can easily be configured to accomodate any family/community structure. Upsizing or down sizing as required. And because of these attributes may well be held in a family for generations.

Parts of the MEFEMS home may be parted out as one family member leaves the area, to live in another local. Perhaps in another region of the globe.

MOVED AND USED IN ANY ENVIRONMENT - this speaks to a completely new industry for our climate change era. These homes can be manufactured by anyone, anywhere. (see below)

CLIMATE CHANGE READY - because of their mobility these homes will be able to be moved out of the way of fires, floods and can be cabled down to withstand even the harshest STORMS/HURRICANES.

Why would anyone continue to rebuild standard homes (including mobile homes, here referrence is made to the frame structure on rails), when a MEFEMS HOME, could be employed. When properly cabled to terra firma, think of a

bridge cabled to each side of river, these homes due to their structural integrity would be able to withstand the harshest of storms that we have seen to date. And if things are really bad these homes can be fitted with dollies and moved anywhere deemed safe.

SHIPPING - these MEFEM homes can act as their own shipping containers. The entire home, along with all homeowner's possessions would simply be shipped, anywhere in the world. Things would simply have to be made secure inside and out.

HIGHRISE LIVING - although this has yet to be determined, there may be no reason, with proper design/structuring that these MEFEMS homes could not be placed in position to create towers up to perhaps 10 stories. Along with the proper cabling these homes would be the most earthquake proof any any structure.

LOCAL MARKET, LOCAL MANUFACTURING - because the need is so great, most of the production of these homes will be for the use of a regions local population. It is hoped that only when such demand has been satisfied, that export issues will arise.

It is also envisioned that no imports of these homes will occur unless the demand in a region cannot be met within that region. Yes we are talking regional command of imports and exports.

Note: We have been informing this approach by referring to land which is being used for BC Hydro right of ways. Now and much more so in the future, as automation, autonomous vehicles and virtual online living gain traction, there is other land which is available and which will become available in the future.

Parking lots for malls or large box stores are increasingly empty and unused.

A MEFEMS community could make ready use of these areas.

Particularly when a zero environmental footprint home is used.

All water inputs and outputs would be contained, as well as all waste. Composite toilet systems, grey water recapture/reuse systems, complete self contained electrical production with the use of solar and wind structures, all would be self contained.

There are also many plots of land around each municipality that sit idle. The owners are waiting for the right time to develop or sell. But with some form of incentive these plots could be available for temporary usage of a MEFEMS home.

Certain restrictions or agreements must be in place which allows the owner of the plot to retain control of it and so the owner can use the plot for a deemed purpose in the future.

Any costing presented must be viewed as offering a pro forma general approach. Costs may vary within regions etc. As the manufacture of these homes is scaled up, costs in all probability can be greatly contained.

SECTION COMMUNITY AND SMALL BUSINESS SOLUTIONS

In every area of society there are increasing pressures.

Many revolve around the financial. As stated above the use of MEFEMS housing could go a long way to ameliorate those pressures. But there is another side to this that may be harvested for the development of small business.

As the baby boomer (the largest generation in history, post world war 2) generation ages pressure mounts, and will soon run out of control, for the need for elder care. Smaller seniors homes may offer the best approach to a resolution of this problem. It has long been known that the best modality for senior care, health, well being and longevity has been the aiding of seniors to remain living in their own homes/quarters with intervention as required, providing meals for, cleaning of the home, bathing, help in exercise or outdoor activity.

With the use of MEFEMS living, given the much reduced structural cost, this could be realized to a much greater extent.

While involved with a home support agency for stay at home senior care. One of the projects we were investigating was the use of satellite communities. A care aid worker could work with seniors that are housed in their own home that is adjacent to other seniors homes. This would also involve, food preparation, meal service etc. One can readily imagine a small community of senior living in MEFEM units, easily serviced by an aid or team of aids.

Many aid workers are savagely underpaid. Many would wish to start their own businesses.

Most of the Canadian population does not have the means to retire so most are working extended years. Some, with the implementation of MEFEMS living, could retire, if so desired, and leave a opening for younger workers. Some, if given a doable plan, would love to become foster parents. Indeed, with the use of satellite community living in MEFEMS housing, a major increase in foster parenting, the building of communities of families with disabled members is much more easily imagined. And as noted, with the staggering need for the sheltering of woman, where violence is involved, MEFEMS, offers the only hope of meeting this overwhelming need.

PALEOLITHIC COMMUNITY LIVING

For the vast time of human existence we have lived in community.

Indeed it is only in the last few thousand years that we have lived with only our extended families. And in the last two hundred years, as we have become much more nomadic, moving where are work or opportunity takes us, the extended family has broken down to the nuclear family.

But, as shown in broken nuclear family statistics, family can not withstand the pressure of this type of living.

The lack of social support, working together at chores, meal preparation, interaction, lack of financial support, in the event of job loss, business downturn, parents aging, etc., the lack of psychological support, for children, when one parent is not able to provide the needed support, for parents when children are not supportive, non-communicative, or otherwise separated by rifts, all are causes for the breakdown in the nuclear family.

Perhaps we have not evolved past our paleolithic roots, perhaps this is not in our dna. A return, in some part, to "paleolithic living" may be the best of things that MEFEMS homes can introduce, or rather if we look back in time, to reintroduce. (note: there are communities (communes) in California and elsewhere that have realized the need for such support and are welcoming of any that choose to become a member. These have been shown to offer support for every human condition)

PRODUCTION OF SMALL BUSINESSES - other small businesses may also take root. One of the greatest hurdles of small business inception are the costs revolving around space. Costs for lease or rental arrangements, the space payment as well as costs for common areas, and leasehold improvements, are in most regions, but especially in larger metropolitan areas, prohibitive. A good deal of the land that is referenced here is found in the urban regions surrounding cities.

MEFEMS structures may well provide a renaissance in small business.

Small craft producers, sales of used goods of all kinds, many, if not all of our charities, collectors, recyclers, all need their own individual space. Space that is not only separate, enough for their needs, but that can grow or shrink as required. Space that has reasonable initial costs, but as the structure, if purchased (see financing) lessens over time.

Close to where they need to be, does not impact their neighbours, all may be available to them.

And due to the long stretches of land spoken of here, it can be readily seen how this lends itself to separate business and residential sectors as required.

REVENUE STREAMS - for government, as the land is neither commpromised or assigned, rather rented/leased, every plot will bring in monies, (unless it is used for the homeless, or charities, although rents may still form a part of this as municipalities or the charity's supporters may pick it up)

RESIDENTIAL -If one understands that the numer of these plots can encompass 100s of thousands, they come to realize that the revenues from this rental income can be in the billions, per year. Eg. \$200 per month at 100,000 = \$20,000,000 per month.

And, as stated, there are some 350,000, potential homeowners, now, in BC
SMALL BUSINESS - again as the rents for space have a great deal of appeal to small business due to its reasonableness. In light of this, and that these business can be

placed closer to their customer base, if required, will enable many nascent businesses to have a raison d'être.

Projections are always a mixed bag, but, due to the non 10% having been held down for so long, immigration, and lack of real opportunity inputs, there may well be a pent up desire to build a small business. So with that in mind we can expect this emergence to be of a pretty significant number.

Using a low value of 2,000 we come up with the following:

$\$400 \times 2,000 = \$800,000$ to a high of $10,000 \times \$400 = \$4,000,000$ per month, this is for simple land rent revenues, not accounting for tax revenues generated from these businesses. If we also allow for the extra revenues for the purchase or rent of the actual structures themselves (subtracting the costs of these structures) we have as an example, $400 \times 2,000 = \$800,000$ ie. $\$1,600,000$ monthly revenues, (see costing for an breakdown) to $10,000 \times 400 = \$4,000,000$ as a possible high.

STORAGE UNITS - a real demand is readily seen. Most storage facilities have a list of persons/businesses who wish to get a storage space.

And these are not reasonable standalone units. Again these units function not only as prescribed but also as available units that if remaining unused can be built into actual MEFEMS homes.

10,000 of these units would bring in a monthly revenue of $\$250 = \$2,500,000$. These projections do not by any means bring in an overwhelming amount of funding for the government (how many things actually bring in revenue besides taxes) but they definitely can be self funding, building, and increasing.

This could be the means to enable the government to take back some power from the big banks (if that is a goal), allow the smaller community credit unions to come forward and really promote small business.

INFRASTRUCTURE COSTS - The costs as shown can be easily contained. By and large the population of these MEFEMS homes will not be owners of vehicles.

Little infrastructure will be required for parking or road work.

The little road work, or paths that are required, can be accommodated using crushed rock, and a formula which will hold the rock in place. This is not only inexpensive to lay down, has little cost to allow for foundational requirements, and requires little for upkeep. All will entail as small a footprint as possible, and perhaps special services could be developed, eg rickshaw or cycling services, paid for under the cost of infrastructure ongoing costs. With regard to water, sewer, power, natural gas services, all can be easily placed for minimal cost if placed above ground, wrapped for insulation or with trickle electrical placement, and covered with soil (berm). This will allow for easy placement, and protection from the cold.

MARKETING - because of demand for this type of housing, much reduced in cost to any other, with the high profile solution it offers for the homeless crisis, the marketing of this offering for homes, space for business and storage seems pretty

straight forward. Word of mouth will do most of the advertising. The `normal channels, google, facebook et al, can be accessed as well as simple ads placed in local papers etc can do a great deal. The offering of storage may be the most difficult to bring to the front but this is overcome with a normal straight forward course.

Do not misconstrue the lack of depth related in this marketing strategy for lack of belief in the importance of marketing in a business/project plan. Marketing is not simply a facet of business, it is the preeminent requirement for a business to thrive. This project, because it relies so much on government backing (not financing, although, as shown that would be a great advantage and win for the public), and because it represents a real move forward for solving the housing crisis, will require little in the way of direct marketing costs.

JOBS - We have entered an age of great upheaval. Joblessness, on the rise now, will become rampant in the near future. We have pushed the planet to the point where it is pushing back. We may have reached the point of the tipping point for climate change.

Storms worse than have occurred previously, will be found in places that we have not seen them, and where they occur now will ramp up to the point that living conditions, unless there are these MEFEM homes, will be untenable.

These homes are the homes of the future, made anywhere, with materials that are safe, affordable, (or not, as the owner decides) and moved anywhere that a container can be moved to, assembled onsite with easily available equipment currently the dead weight of a container comes in below 10,000 lbs., in the future materials such as aluminum and other lighter weight materials will be used, allowing these homes to retain the desired characteristics but losing the dead weight.

Anyplace on the planet that has a fire storm exposure, which is almost anywhere, or anywhere on the planet, eg china's major cities, will require a home that allows no uncontrolled air ingress due to air quality, ie. all air will have to be filtered, will require some type of MEFEMS home.

Some types of concrete homes also allow for this, but are costly, may not be truly earthquake mitigating, not movable etc. Because these homes can be built almost anywhere, the manufacture of these MEFEMS homes may palliate the forestry crisis in BC.

The jobs created by the building of these essential homes, would be high quality, reasonably high paying, and hopefully fully unionized. There is a dearth of well trained personnel for the building of anything, and yet there is also a dearth of well paying, interesting jobs.

The building of the majority of these units will be "cookie cutter", that is anyone who wants to learn, will be able to learn, with proper oversight, easily and quickly.

They would offer long term (as shown, climate change is just beginning to break), little training for the bulk of the work (power tool usage, laying of electrical wire, placement of solid foam insulation board, painting etc., all under the supervision of

qualified red seal jourman plumbers, electricians and carpenters) The government could rampup the development of this industry in a matter of months, once the proof of concept stage is satisfied. And the number of these jobs is large, especially if this plan is reviewed and some form of it is implemented before any other region in the world has taken root with this type of construction. China is already offering this construction without the refinements seen here, mainly for the use in camp environments. Along with jobs in the forest sector, major changes will be demanded in carbon acquistiion sector (oil and gas) ie. job loss will occur and is already occuring.

JOURNEYMAN PLUMBERS, ELECTRICIANS AND CARPENTERS -

These trades will all be required in the building of these units. And because of the predominantly similar/same footprint in the construction of these homes, it can be seen that they offer a direct path to the apprenticeship development of these trades.

SMALL BUSINESS DEVELOPMENT - As these homes will require little investment (which is another area the government may wish to interpose) they can be built by small contractors, anywhere in BC, as these units are fully movable. Anyone who wishes to have work can have gainful employment.

FINANCING

PRIVATE/QUASI-PRIVATE/PUBLIC OWNERSHIP

This solution can easily pull in the necessary private investment, although on closer inspection, overseeing from a government body may be more amendable small business financing, small contractors can readily get financing, it is a home, and product that can be presold ie. owners can get financing before the home arrives, as in any other home, built by the owner.

Particularly if the government gives the nod (sorry mandate, in most cases when an emergent concept arises, business does not get on board, readily.)

MORTGAGE DEVELOPMENT

these homes will require financing more ackin to "mobile home" financing than standard home financing.

BUILDING CODES

some codes, such as those for foundation/slab requirements may need reviewing. It is forseen that floating footings/foundation will be used for the reduction of the carbon footprint in the construction of the MEFEMS home. As these homes are considered non permanent this should not present a problem.

Not only will the use of machinery, concrete placement, wood fibre (although, with the more customized {read expensive} homes wood products may form a large part) useage (all of which have a large carbon footprint) be minimalized, but there are well over 1,000,000 useable containers in the world. So do we call these homes recycled as well?

The main doors, once full cleanout, anti-corrosion work and painting, as well as the major cutout work has been done, can be removed and sold. As they entail some 15% of the overall weight, and as they are solid steel will bring a premium for their sale.

STEEL WORKS

the building of containers, will come in due course, as this gains momentum and then maturement, may require a renewalment of the steel industry.

HEATING

special note: in researching this particular aspect of building, it is readily provable that as heat is made up of 3 components, there may be methods of building to retain heat that are not being used, currently. There are ways to address this particular important aspect of building, that may well help to improve heating in building protocols, including standard buildings.

This will be addressed in following iterations.

CONVECTION, Convection is the transfer of heat by movement of liquids or gases. Its properties are:

Convection currents naturally rise as the hot medium (air in this case) expands and decreases in density and as the cool air increases in density and sinks. Convection in a central heating context therefore implies warm air rising to the ceiling and then circulating gradually to lower levels in the room, being at its coldest near the floor. This form of heating, eg. warm forced air, is the least effective of all forms of heat transfer.

It is used the most because of the cost factor. This does not address the comfort factor and in the future may be come to be the least used form.

CONDUCTION, physical transfer of heat from source to target by direct contact. This transfer, although, not addressed here, in the future may be the most important heating strategy. Because it is the most direct, if this method can be built into furniture or other solid object, eg. heated car seats, it may prove the best.

All furniture, in the future will have a connection for IOT, so perhaps certain pieces will have a plug for electricity as well.

RADIATION, A Radiant heater directly heats objects in an environment, not the air in between. So you are heating surface area of objects in an environment which warm up and turn the environment into a 360° radiator. This effect is felt less with heated air which transfers heat into objects poorly;

Objects retain heat better than air, so residual energy maintains temperature in the environment for longer e.g. if a door is opened to a colder room, or when the thermostat turns off the heat source

RADIATION AND CONDUCTION CAN BE USED WITH A NATURAL GAS COMPONENT IF NEW METHODS TO BUILD NON HOT RADIATORS ARE USED. EG. ZEOLITE BLOCKS ETC.

Final Note:

Together with building an entity that could support the many places in the world, where people are homeless due to storms, earthquakes, floods and unnatural disasters such as wars, this would solve homelessness in our region within a matter of a few years, and could form the basis for a new egalitarian economy and society.

Two living units per container could be made within a few weeks, growing from that point. (Yes as stated these spaces are small but very livable)

These MEFEMS homes could be produced to be state of the art, with full electrical generation, water remediation and procurement, sewage treatment with composting toilets, and grey water reclamation abilities. Very useful, in a changing world, in great upheaval. They could incorporate a unit that would offer water filtration/procurement, sewage treatment, and electrical generation capability, for multiple housing units.

These homes because of their robustness and configuration could be used to produce suites on current properties, just drop them in almost anywhere, because they are virtually earthquake proof some standard home owners may wish to have one in the back yard or car port, not only for a tenant but also for themselves.

Proper footnotes and citations will follow in the coming iterations of this plan.