LIST OF PROBLEMS WITH USING CONTAINERS FOR HOUSES AND FARM BUILDINGS:

This is a response to the previously submitted proposal (to Stantec) for the use of old ocean shipping containers as houses (fundamental structure, walls, roof, floors) or as service buildings (in particular for agriculture). The proposal is not a sensible option to choose in our climate, our economy, our DNA.... cost, carbon footprint, labour, environmental impact, health risks all add up to containers needing to stay on the oceans and not in our neighbourhoods or farmland.

My submission is a request to refuse such a change to our Urbanism laws concerning containers!

1-The most important point: The proposal to permit shipping containers is not "recycling" shipping containers at all. Their use and general acceptance are actually wasting the energy and materials that went into making the container. The proposal to tie up so much energy and materials in a house or farm building is no environmentally sound. These structure do NOT require such amounts of energy in the form of steel! Architects think they are "recycling" and are fascinated with the idea of modularity, but here's the nature of steel: you can and should melt that container back down again and make it into a hundred thousand steel screws or a car or siding or another container. An immense amount of energy went into making the steel for that container, far more than should be incorporated into a house or farm building. This is why we return steel and aluminum cans! This is why we recycling cars. When you use those screws made from one container you can build ten or twenty or fifty timber frame houses or farm sheds. That's how you maximise recycling steel. Not by hiding it inside a house or defacing the landscape as it sits and rusts into the soil. This is what we see in Sutton and what the Stantec proposer feels is appropriate! It is neither appropriate nor smart.

2-Steel is 5,000 times more thermally conductive than timber or brick. This means shipping containers will get exceptionally hot in summer, and they have zero ventilation unless you drill holes into the sides. Insulation will still be needed, along with the appropriate framing. Special labour will be needed to accommodate working with and modifying the steel of a container.

3-If you drill holes into the walls, then they're going to be exceptionally cold. In winter the steel walls will be incredibly cold, way colder than the dewpoint for condensation to occur. Warm, moist internal air will cause water to run down the inside walls. This is the reason we don't ever, ever, ever use steel as the fabric wall element of houses. Steel as structural beam: yes. Steel as structural shell: no way.

4-The average height of a shipping container is between 2.59m to 2.89m. If you're converting it you're going to need a ceiling void for lighting, plumbing and ventilation and a floor void so you're not walking on bare, cold steel or long contaminated wood. For that you'll lose 300mm top and bottom, so now you're in a long, thin room that's barely 2m high. Container floors are contaminated with all manner of pesticides (international law) as well as all manner of cargoes carried. While you can find out where a container has travelled, you have no way of knowing what it carried! You have no way of knowing what accidents it endured.

5-Because shipping containers are designed for the rough, salty air of the high seas they are painted in highly durable and highly caustic paints containing things like chromium and

phosphorus, and other carcinogens. This is why the Canadian Organic Gardening organization specifically forbids food within 8 ft of such a structure. If you don't want to kill your future inhabitants you'll have to scrape off this dangerous paint (more prep work, more wastage, more costs). You'll also have to repair any rust that's occurred from a lifetime being sprayed by seawater.

6-Shipping containers are designed to stack. The actual walls are paper thin, designed to protect the internally-stabilised shipping products from the weather. They carry products, not people. As such, the walls cannot take any weight for windows or doors to be hung from – you'll need to reinforce them with lintels for that (more work, more steel, more excess).

7-Also, shipping containers are designed structurally only to stack on top of one another at their four corners ONLY. They are designed as a system. If you're an architect that likes pushing the envelope you'll have to reinforce the points where you want to stack another shipping container (even more work, more steel).

8-You're now adding steel to something you were attempting to recycle to save steel because it wasn't designed for what you thought it was. That is not smart design, it's not "DIY living", or "modular" construction.

9-Cutting into an old shipping container that is decades-old, chemical-treated steel is tough, dirty, dangerous work. That's not a nice thing to force the builders actually making your project to do, so why make them? Transporting and handling the containers to the building site requires excessive energy, specialized equipment and labour! Why do this?

10-It's at least as expensive to retrofit a shipping container as it is to build a timber frame home – so why bother? We are not in a disaster area (that could rightly benefit from containers as shelters) and we are not suffering a shortage of our vernacular building materials.

11. Finally, there are serious safety issues with explosion risks of containers. They must be fully ventialed when used as storage buildings. The doors must be removed (not done on containers in Sutton) because the doors cannot be opened from the inside. One only needs to read reports of fatal accidents from explosion of containers that housed farm equipment without adequate ventilation. This issue is currently totally ignored in the Town of Sutton, aside from the contravention of having containers all over the town, in all manner of applications.

12. The container house on Wilson Road was called a "projet pilote". I see no record of any follow up or assessment or review! Is that how a projet pilote is handled? Give the permission contrary to public objections and then never take another look! Some projet pilote!

To sum up, using shipping containers to make any sort of liveable or functioning farm space is not the best choice for the environment or the economy. Time to keep container based houses and buildings out of Sutton's DNA!

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