In Praise of Sturdy Buildings

A Consolidated Wyndford Response

… to Reports, commissioned by the Wheatley Group, that advocate the wasting of 47,000 tonnes of carbon and the associated loss of social homes.

On behalf of the Wyndford Residents Union

By
Fraser/Livingstone Architects
EALA Impacts
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… with VAT Consultant input

FRASER / LIVINGSTONE ARCHITECTS

NARRO

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for

Wyndford Residents Union

Contents

Other Contributions:
. Prof. Alan Dunlop (incl cover)
. Kate Mackintosh, Architect
. Miles Glendinning, Professor of Conservation Studies, University of Edinburgh
. Carmen Lean and other students
. Chris Leslie: photographs

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1. Introduction and Executive Summary

We are waking up to overlapping climate, carbon, housing and social emergencies: as a result the world has turned and the Wheatley Group's Wyndford "Regeneration" proposals, to *dynamite 47,000 tonnes of carbon and 600 social homes*, are on the ***wrong side of history*** – shamefully so in a city that proudly hosted COP26 and proudly proclaims its Retrofit credentials. Wheatley's recent stream of supportive Reports, responding to the community's defence of its home, are entirely to be expected from an organisation with immense **power, patronage and *financial muscle***, but they all seem built on an instruction to find for waste, so ignore evidence, manipulate data and steadfastly refuse to apply the least, teeny bit of imagination. They are, here, carefully demolished.

The briefest summary of the Carbon Dynamiters' Reports is that the 4 towers can't be retrofitted ***because they are too sturdy***. But sturdy building is the bedrock of sustainability, for they can be here in a hundred years, still providing sturdy and useful homes, while the new homes that Wheatley now propose will have long been slated by them for demolition *again*, without even the possibility of their fabric being recycled, it most likely being suffused by the toxic rot treatments and retardants we use today.

The Intergovernmental Panel on Climate Change's report, of 20 March 2023 – the definitive, comprehensive and "last chance" international final word, says that Retrofit is key to avoiding climate disaster. Here is Glasgow and Scotland's chance to live up to its responsibilities.

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2. Structure: the AJ Balfour Associates “Refurbishment Proposals – Feasibility Study” and Narro Consulting and Structural Engineers’ Response

This “Feasibility Study”, of 30 November 2020, is the foundation document upon which all other Wheatley Reports are based. As such it infects all those following. We note, first, that the construction is described by Balfour as standard, ordinary cast-insitu reinforced-concrete (RC), with nothing unusual about it. We also note the towers, as built by the national body, the Scottish Special Housing Association, were a little better-built than Corporation blocks, and that they each have two escape stairs – as best contemporary practice and, post-Grenfell, required on all blocks over 30m. In summary they are standard and sturdy, and ahead of the game in safety.

The Basic Issue the Balfour Report finds, to justify demolition, is its plan to combine the existing, single bedroom flats with Studio ones, to create larger double flats, proposing door openings through the structural concrete in identical locations up the building. Though there is no detail given and calculations offered, of whether the remaining wall can still brace the towers, even in the most conservative analysis, of a vertical cut made up the height of the building, there are two alternative layouts that would avoid such potential instability:

1. The structural openings might be offset from floor-to-floor, so that on one floor they are made in the position now proposed, then on the next they are on the opposite side of the plan, behind the lifts; or

2. Alternate floors could have the proposed layouts, with four bigger flats, then refurbed versions of the existing layout, with four one bed flats and the existing 2 Studio flats. The Studio flats are, at 38sqm, small, but not smaller than new flats beiing built elsewhere in Glasgow at 30sqm, and would suit the sort of student, elderly and refugee communities currently suffering housing crises in Glasgow.

Both layouts – as in the “Layout” Appendix – also provide an enhanced variety of flats, allowing a mix of layout and different tenant options.

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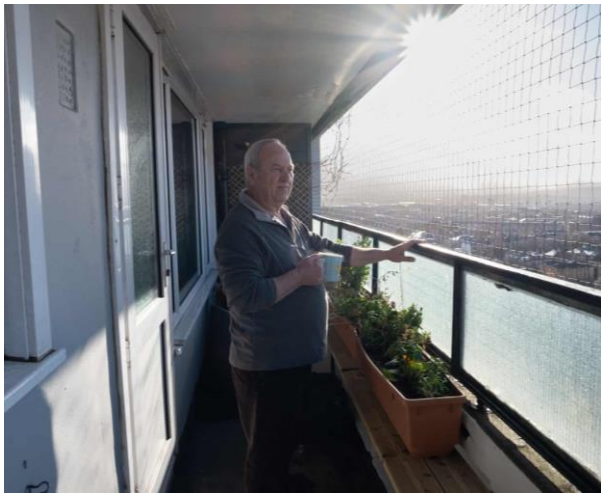
2. cont. Structure: the AJ Balfour Associates “Refurbishment Proposals – Feasibility Study” and Narro Consulting and Structural Engineers’ Response

Other Issues raised:
. Door widening for accessibility issues – ie wheelchair access to flats: the steel “goalpost” structure the Balfour Report proposes around enlarged front door openings is expensive and intrusive, and there is no analysis why this unusual remedy is required in a situation where the enlargement of openings in a RC wall is generally achieved in a much more straightforward fashion. At the very least the “rebar scanning” – investigation of the RC’s reinforcement – that the Report mentions should have been carried-out before a much more simple and cost-effective widening was ruled-out.
. The need to decant: clearly this is not now an issue, as Wheatley has cleared many residents the remaining ones can be housed in one block while the first three are retrofitted, before they move into completed ones.
. Other utilities and parking issues: all surmountable.

The Balfour Report concludes the alterations it proposes are “particularly challenging”, but this is a self-imposed challenge, caused by a failure to apply a little effort and imagination. And it goes on to then declare the work “not feasible” which is a leap that is not proven or justified by the paltry and partisan analysis.

In short, the structural and architectural Report is far too superficial, failing to examine alternative options, and failing to carry-out simple and necessary analysis. It in no way justifies the loss of 47,000 embodied tonnes of carbon and the replacement of 600 social homes. In addition, should this work be done properly, it would also enhance the variety and layouts of the homes a retrofit could provide.

Note: Narro https://www.narroassociates.com/ are highly regarded, including in the analysis of existing and historic buildings, having recently being announced as the UK’s “Best Small/Medium Engineer” by the Association for Consultancy and Engineering https://www.acenet.co.uk/ For further detailed analysis see Narro accompanying comments on the Balfour Report.



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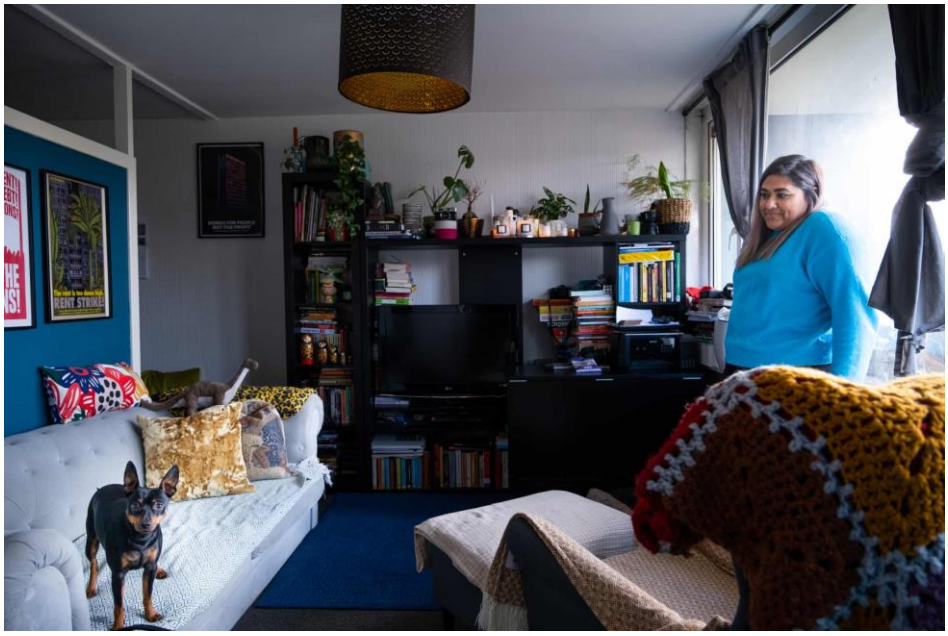
3. Costs: the AJ Balfour Associates “Feasibility Study” Cost Comment and our VAT Expert Response

VAT: is applied, within the Balfour Report, at 20%, the standard rate should you be upgrading your house. However the Wyndford Tenants Union has commissioned a private report from a VAT expert surveyor, recently retired from a senior position with a business advisory firm that is a major UK provider of audit, tax, and consulting services. He notes:

“There is scope within VAT legislation as it applies to social landlords, to either pay VAT on expenditure at 5% or 0%. Thus by not paying VAT at 20%, it can secure some real cash savings. The different VAT rates are determined by different circumstances and may or may not require VAT certification being agreed between supplier and social housing provider. Other factors to determine the correct VAT rate to be incurred on expenditure will include: the history of the development; and its previous, current and intended future use. So, it’s too “crude” an assumption in this case to assume that VAT will be incurred at 20% on any, and all, expenditure.

Wheatley will have a good understanding of its VAT profile and the available VAT reliefs to it, to secure either or both VAT on expenditure at 5% or 0% (and indeed 20%). It, Wheatley, should therefore be perfectly able to work with its advisers to refine any analysis of projected expenditure to better quantify any irrecoverable VAT cost that has to be budgeted for by it, before the project commences.”

In short, imposition of VAT at 20% inflates the costs and is unlikely to all be required, so that up to £9.257 million is at large. No detail is given of the other cost workings, but if the VAT issue is not justifiable this might cast doubt on the reliability of all costs.



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4. Carbon: Dr. Richard Atkins' "CO2(e) Emissions Report" and EALA Impacts' Response

We prepared a holistic Carbon Benefit Analysis report, based on alternative architectural proposals, looking at the triple bottom line, with carbon calculation based on the industry standard RICS Professional Statement to give a balanced assessment. Richard Atkins' Wheatley report accepts without question the **AJ Balfour Associates "Feasibility Study",** flawed as others have shown it to be elsewhere. The Atkins Report notes, as the opening line of the executive summary, that "*Best practice favours the retention and reuse of building as the starting point for any comparative study",* but signally fails to follow its own advice: it has not considered embodied, useful carbon, or questioned unfounded recycling statistics or the quality, integrity, longevity, recyclability and healthiness of the likely replacements. In short, it is not a holistic architectural assessment based on standard practice.

1. The document is just a carbon report, excluding any other value or benefit of either option considered. It is therefore not a balanced report.

2. It is vague throughout, not showing the full workings and changing the units of measurement between statements thereby blocking direct comparison between them.

3. It says "The structure now has little or no embodied CO2e emissions value", ignoring the fact that the emissions from constructing the buildings now standing (at least 47,000 tonnes of CO2e based on LETI research) is providing 1200 bedspaces and a home for a community right now.

4. It doesn't handle the two options equally in its analysis. It claims the efficiency of the new builds will be significantly more than a Passivhaus to run. It downplays how good retrofitting the towers could be, ignoring the fact the towers could be taken to enerPHit standard (equivalent to Passivhaus). It doesn't account for the benefits of long-life buildings, and assumes that the new builds will be given more than the 60 years the towers are being allowed. It assumes the new builds will be of the highest quality, whereas standard mass housing uses insulation foamed with cyanide, and timber dipped in deleterious rot treatments, so will not themselves be recycleable, and will have to be sent to toxic landfill.

5. The embodied carbon calculation does not follow any accepted methodology such as the RICS Whole Life Carbon Professional Statement, so doesn't include for emissions from transport and the construction process itself. The calculation used is unrecognisable in the industry.

6. The embodied carbon numbers in it differ wildly from accepted industry norms published by LETI and iStructE amongst others, reflecting the non-standard methodology behind the calculation.

7. It relies heavily on sequestration to make its argument, when the wood products are chipboard, OSB, and quickly grown softwood. RICS discourages sequestration since there's no guarantee how long it'll stay sequestered. The calculation is so wildly different to industry methods and norms we can't accept the conclusions even with sequestration.

8. It states we can fully recycle concrete. However keeping 1kg of concrete in place avoids 3kg of carbon emissions in making a new kilo of concrete; recycling 1kg of concrete and using it as aggregate avoids 0.005kg of carbon emitted in making new aggregate. Recycling therefore loses 99.85% of the avoided carbon impact.

In Conclusion: the Atkins Report overplays the performance of the new build, downplays the performance of retrofitting, calculates embodied carbon incorrectly, and stays silent on every other facet of this debate.

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5. Heritage and Protection: The Historic Environment Scotland "Designation Decision" and Fraser/Livingstone Architects Response

Historic Environment Scotland's decision of 31 January 2023 and ref. 300061248 turned the building down for Listing protection. We are of the view that HES's vulnerability to powerful interests, and susceptibility to funding pressure, might raise the bar for listing extraordinary high. We also note the Decision states: "We are also aware that there are development proposals affecting the site, which we consider to be at an advanced stage... In this circumstance we would not proceed with listing if the buildings met the criteria." – so *even if they would list them, they wouldn't*.

Note: Malcolm Fraser, and Fraser/Livingstone Architects, are lauded for their work in rescuing, repurposing and retrofitting existing and historic buildings in Scotland, including the first Listed Building in the U.K. to receive the top "BREEAM Outstanding" Sustainability Award https://fraserlivingstone.com/work/edinburgh-centre-for-carbon-innovation Malcolm is also commissioned co-author of HES's Policy Guidance "New Design in Historic Settings" https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=9b50b83c-1e60-4831-bc81-a60500ac5b29

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6. MAST Architects and EALA and Fraser/Livingstone Architects' Response

The Wyndford Residents Union are only able to view Reports following F.O.I. requests, despite polite enquiries to the Wheatley Group. As the timeline for a response has not expired we can only respond to media reports on MAST Architects, but note:

MAST repeat the mistaken belief that because new buildings can be (but not necessarily are) more energy efficient in use, that building new buildings is the best thing to do for the environment. Note that the Intergovernmental Panel on Climate Change vehemently disagrees. Plus, new construction is so polluting that any marginal efficiency of new buildings over existing takes decades to 'earn' the carbon back. Decades that the Committee on Climate Change calls 'critical' in our fight against climate change. It's a belief that needs to be corrected.

They've also clearly taken the Atkins report at face value despite the fact it followed no recognised method in its analysis and the numbers are an order of magnitude away from all industry benchmarks.

They also decry the existing apartments' space requirements as "very poor" so, by implication, justifying demolition, but have not noticed that they are considerably larger than others being built anew in Glasgow, for instance at Anderson Quay, with bedsits 30sqm compared to 38 at the Wyndford, and one-beds at 45sqm compared to the Wyndford's 47. These arguments hold no water and are, once again, partial and misinformed.

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7. “Support”

The Wheatley Group claims “overwhelming support” from residents. As clear evidence that this is not the case we note:

1. The Wheatley Group have sent glossy offers to 1,500 households, promising £73 million – £73 MILLION! – to them, and around 262 (according to their information) or 17.5% have said yes. Of course no response does not mean “no”; however, at the very least, 17.5% represents an extraordinary lack of enthusiasm to an offer of £73 million; and

2. The sustained, vocal, imaginative and well-supported campaign led by the Wyndford Residents Union – and amongst all the claims by other folks, that they are “climate champions”, and Glasgow’s claims of leadership in “retrofit”, we should note that it is these Wyndford Residents that are our true Climate Champions.

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8. Conclusion

We're not in touch with the upper, decision-making levels of the Wheatley, but we'd love to be. We think there is a huge good news retrofit story for them, which chimes with all the Retrofit rhetoric swirling around Glasgow. The Wyndford proposals are on the wrong side of history so stopping, taking stock and changing direction would be a magnificent piece of redemption. Wheatley could even directly challenge us, as architects and engineers, and carbon and VAT consultants, to prove the case we are making, and show how retrofit could really work. We could even look at whether we could weave some newbuild around the high blocks – healthy construction, with real carbon-lock – to reflect the urban pattern on the rest of Buteaux's design. (We note that some in the Resident's Union are currently resistant to this, but suggest that's bound up with their current distrust in the Wheatley Group's intentions.)

Should the Wheatley Group still not listen we would ask the Scottish Government, which is supplying £56 million of o*ur money* to pay for this madness, to take the money away.

But we trust that it will not come to this. We would like to talk.

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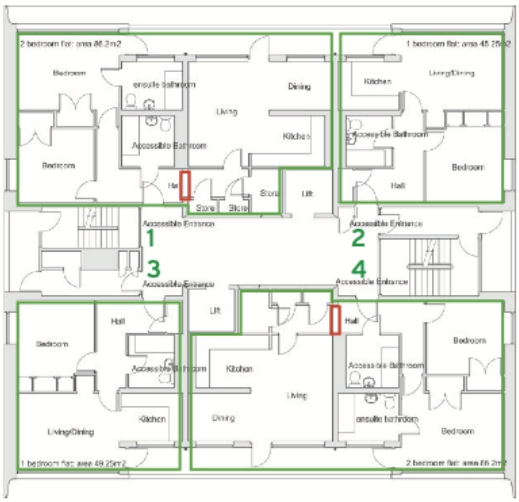
Appendix: Layout

Typical Upper Floor as existing



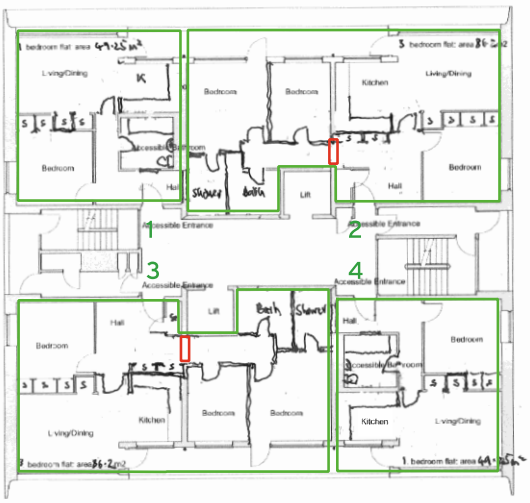
Balfour Report Plan as proposed, with openings ▯

Fraser/Livingstone Architects Option A

Alternating Floors, one with the existing layout refurbished, so as above with four x one-bed flats and two x studio flats, then the next floor with the Balfour Report two x one-bed and two x two-bed.

Fraser/Livingstone Architects Option B

Alternating Floors, one with the Balfour Report two x one-bed and two x two-bed – so as the top right image – and one with the structural wall openings ▯ behind the lift so two x one-bed and two x three-bed, so as the image to the right.



In these options the structural openings are either reduced to every second floor (Option A) or alternate between each side of the plan (Option B). Both are therefore simple to justify in structural terms, thus removing the underlying objection in the Balfour Report, that is blindly repeated in each subsequent Wheatley-commissioned one.

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Appendix: Carbon

Carbon Benefit White Paper
For Wyndford Residents' Union

Proposal:
Demoliton of 600 units to achieve 300 units; assumed mix 100x1bed, 100x2bed, 100x3bed

Current Situation
Total 600x1bed units
This is based on a floor plate of 23x25.5sqm, over 25 floors and 20x23sqm for the ground floor, in 4 towers. Source: Microsoft Word - Wyndford Report 2008.doc (gsa.ac.uk)

Retrofit and adapt
Total 400 units - 200x3bed and 200x1bed
Add a connecting door between the existing flats, to make 2x1bed, and 2x3bed per floor plate

ADD:Retrofit & operation of 200x1bed to accommodate the loss elsewhere.
* vs current situation

6 year carbon payback*, , though need for housing elsewhere.

Demolish and Rebuild
Total 300 units - 100x3bed, 100x2 bed, 100x1bed
1 bed x 48.5sqm, 2 bed x 79sqm, 3 bed x 97sqm
Areas taken from The Glasgow Standard, based on the Scottish Governments Housing Investment Guidance Notes HIGN 2008/06.
9 year carbon payback, though need for housing elsewhere.

ADD:Retrofit & operation of 300x1bed to accommodate the loss elsewhere.
* vs current situation

13 year carbon payback, though need for housing elsewhere.

Conclusions:
The carbon impacts of demolition and new build is calculated based on 'avoided impacts'. The new proposal sqm area is less than the existing sqm area, so the direct carbon impacts are not relative. We have to account for the additional required area in nearby existing housing.

To be making any carbon impact in the 'critical decade', the social benefit must be outstanding. As there is no drawn proposals, this exercise has presumed a mixed tenure is required and proposed. It is proposed this mixed tenure is achievable within the existing towers, with lower carbon impacts and positive social benefits by demonstratebly investing in the existing community.

Recommendations:
Wheatley Group to demonstrate their exceptional 40,000 affordable home portfolio can not achieve diversification of unit sizes before considering demolition and newbuild. Wheatley Group to demonstrate demolition is only considered after an asset whole life carbon audit and planned preventative maintenance scheme is in place.

"Tenants in these blocks would be given a choice of another home in the area or in another Wheatley community." - Evidence of vacant properties within Wheatley Group portfolio.

GHA launches plans for £54M regeneration of city community | Wheatley Homes Glasgow (wheatleyhomes-glasgow.com)

RIBA 1 LCA			
Current Situation			
GIFA	60,490	sq.m	
Operational			
CO2/sq.m/yr	51	kgCO2e/sq.m/yr	EPC C
CO2/yr	3,084,990	kgCO2e/yr	

Retrofit and adapt			
GIFA	60,490	sq.m	
Embodied			
CO2/sq.m	200	kgCO2e/sq.m	
CO2e	12,098,000	kgCO2e	
Operational			
CO2/yr	494,700	kgCO2e	EPC C
CO2/sq.m/yr	25	kgCO2e/sq.m/yr	EPC A
CO2/yr	1,512,250	kgCO2e/yr	
TOTAL			

Demolish and Rebuild			
GIFA	27,300	sq.m	
Embodied			
CO2/sq.m	800	kgCO2e/sq.m	
CO2e	22,465,003	kgCO2e	
Operational			
CO2/yr	742,050	kgCO2e	EPC C
CO2/sq.m/yr	25	kgCO2e/sq.m/yr	EPC A
CO2/yr	682,500	kgCO2e/yr	
TOTAL			

The 'Critical decade'** (TCO2e)											
2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**Total**
3,085	3,085	3,085	3,085	3,085	3,085	3,085	3,085	3,085	3,085	3,085	30,850

	6,049	6,049									
			495	495	495	495	495	495	495	495	
3,085			1,512	1,512	1,512	1,512	1,512	1,512	1,512	1,512	
3,085	**6,049**	**6,544**	**2,007**	**2,007**	**2,007**	**2,007**	**2,007**	**2,007**	**2,007**	**2,007**	**28,648**

	7,488	7,488	7,488								
		742	742	742	742	742	742	742	742	742	
3,085		228	455	683	683	683	683	683	683	683	
3,085	**7,488**	**8,458**	**8,685**	**1,425**	**1,425**	**1,425**	**1,425**	**1,425**	**1,425**	**1,425**	**34,603**

** https://www.theccc.org.uk/publication/progress-reducing-emissions-in-scotland-2021-report-to-parliament/

The above represents our overview of the benefits of retrofit over demolition, in carbon terms. The Atkins Report takes alternative views, but we have shown, in the Carbon Section 4, above, the fallacies behind these calculations.

But these disputations are over comparatively small amounts of carbon and, over-and-above these arguments, the Atkins Report fails entirely to give credit to the 47,000 tonnes of carbon embodied in the useful, existing towers – erroneously suggesting that it's demolition, crushing and reuse somewhere else is somehow virtuous, and carbon-neutral, when 99.85% or the carbon is lost.

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