Mikilvægi orkunýtingar þegar horft er til sjálfbærni og hringrásarhagkerfið

Katarzyna Jagodzinska, Grænni Byggð

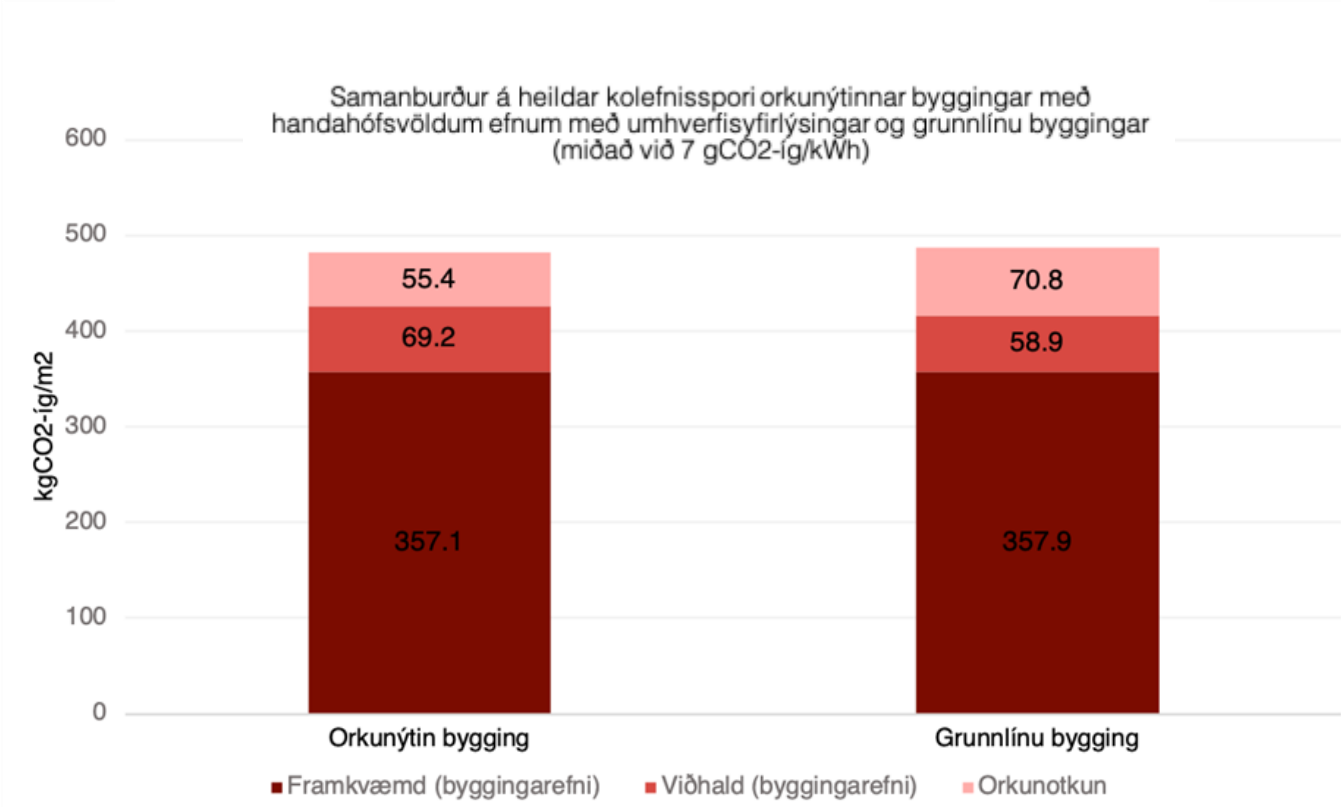
Energy efficiency – why?

- Lowering carbonfootprint and other emissions (main focus on OE);
- Long-term cost savings (OE);
- Better thermal comfort of users;
- Improved well-being of users;
- Higher value of the building itself.

Energy efficiency in Iceland – the big questions

- Er orkusparnaður í byggingum á Íslandi nauðsynlegur?
- Höfum við aðgang að nægjanlegri orku til að byggja upp 35.000 íbúðir fyrir 2030 eins og áætlað er?
- Getum við nýtt orkuna betur í byggingum?
- Hvernig getum við bætt nýtinguna?

Energy efficiency vs carbon footprint in Iceland



GBCI, Áhrif byggingarefna og orkunýtingar á kolefnisspor bygginga - Report

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Gretar Ívarsson, The Nesjavellir Geothermal Power Plant in Þingvellir, Iceland

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Circular buidling

A CIRCULAR BUILDING IS A BUILDING THAT, THROUGHOUT ITS LIFE CYCLE, DOES NOT DEPLETE THE EARTH"S NON-RENEWABLE RESOURCES AND DOES NOT DEGRADE THE ECOSYSTEM

To achieve this, the building should:

- be designed, operated, and dismantled following the above principle
- be made entirely of materials that were already in use
- be energy efficient in the construction and use phases, and be based on renewable energy that does not deplete the Earth's non-renewable resources over its entire life cycle
- minimize waste generation during the construction and use phases
- allow for its flexible use and expansion
- allow its reuse in whole, in parts, or as individual materials.

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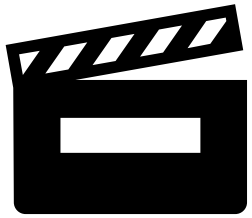
Energy efficiency in Iceland – Action plan



Byggjum grænni framtíð

HMS Húsnæðis- og mannvirkjastofnun

Iceland Renewable Energy Cluster 10 YEARS

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Energy efficiency vs carbon footprint in Iceland

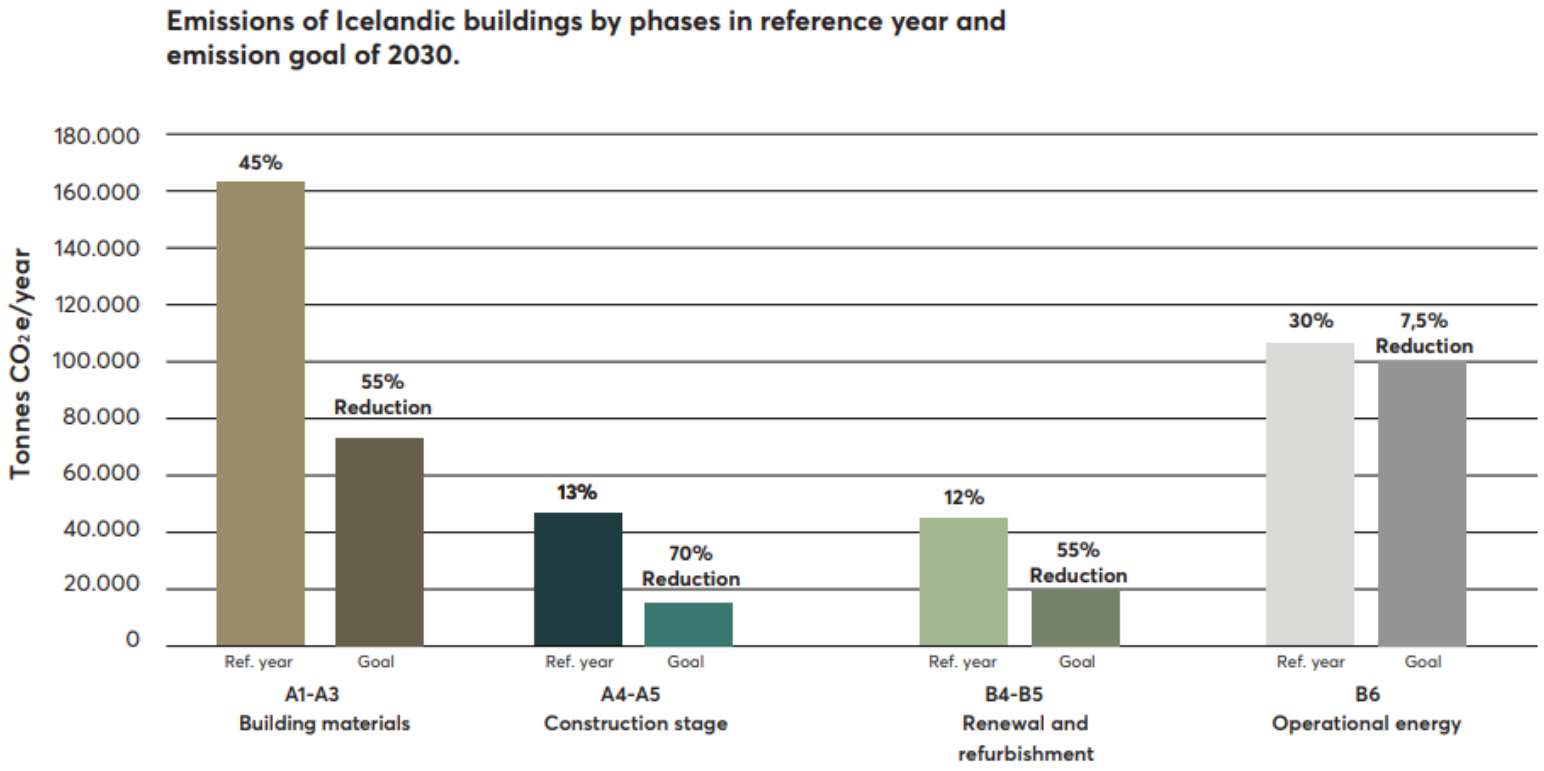

Figure 2: Emissions of Icelandic buildings by phases in reference year and emission goal of 2030.

https://byggjumgraennframtid.is/

Byggjum grænni framtíð

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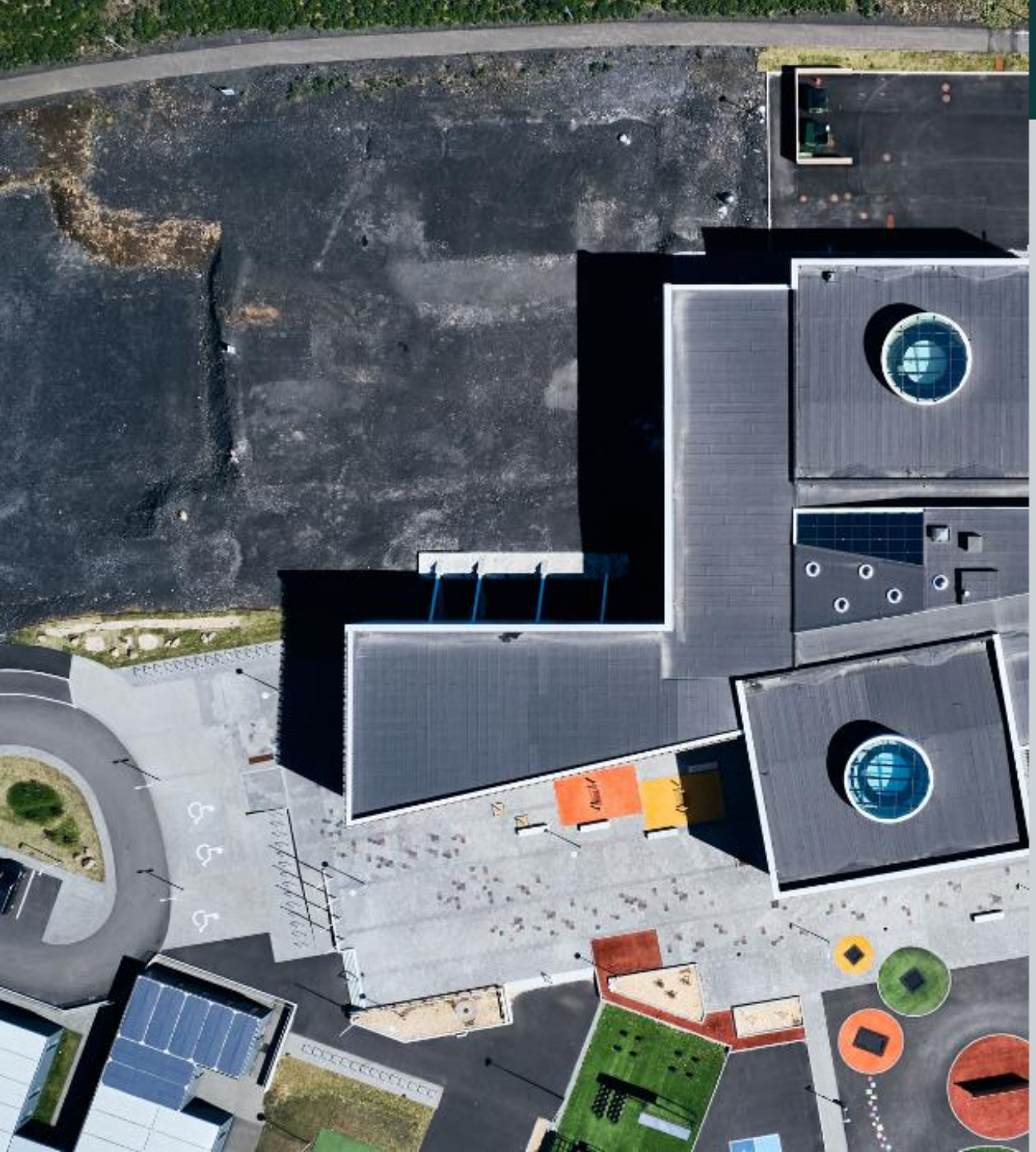

3.2. Samræma aðferðafræði við gerð orkuútreikninga mannvirkja og gefa út viðmið fyrir orkuflokka bygginga

Upplýsingar um aðgerð skv. II. hluta Vegvísis að vistvænni mannvirkjagerð, útg. í júní 2022:

Skilgreind verði aðferðarfræði fyrir orkuútreikninga mannvirkja. Þar verði sett fram viðmið fyrir orkuflokka bygginga fyrir íslenskar aðstæður. Hægt væri að nota sambærilega flokkun og finna má í EPBD-tilskipun Evrópusambandsins. Lagt er til að viðmið um ásættanlega orkunotkun bygginga fari lækkandi milli ára með því markmiði að árið 2030 sé orkunotkun allra nýbygginga orðin 40% lægri en orkunotkun sambærilegra bygginga frá árinu 2020. Í viðauka verði einnig sett fram kolefnisspor ýmissa orkugjafa. Staðlaráð Íslands tekur þátt í umræðu um hvort úrlausn aðgerðarinnar passi inn í mögulega staðlagerð. Þegar þetta er ritað er verið að skoða hvort gera eigi staðla um lágorkuhús, sem nýst getur í þessu sambandi.

Markmið: Að draga úr orkunotkun og losun vegna hennar, með lækkandi viðmiðum um ásættanlega orkunotkun.

Ábyrgð: Óljóst að svo stöddu.

Staðan í maí 2022: Undirbúningur á aðgerð hafinn.

Tími: 2022-2024.

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Nearly Zero-Energy Buildings definitons

Main points of the national NZEB definition (as reported by the CA EPBD delegates)

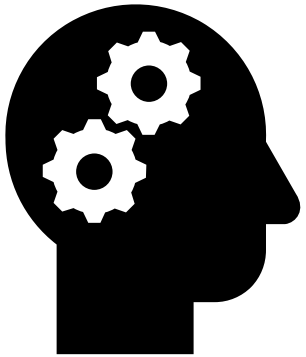
			Country: Belgium																															
			Austria	Brussels	Flanders	Walloon	Bulgaria	Croatia	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg *	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovak Republic	Slovenia	Spain	Sweden	United Kingdom
Detailed definition	Included in a legal document	Governmental decree/law		■	■	■	■		■				■				■		■	■		■		■			■			■	■		■	
		Technical regulation						■		■	■	■		■				■	■		■								■					
		National NZEB plan	■					■																				■		■				
	Not yet included in a legal document														■	■						■		■	■		■				■		■
	Draft available														X							X		X							X		
Very high energy performance	Tighter requirements compared to current values for	General												■												■					X		
		Mean U-value of building envelope								■																								
		Reference technologies								■																			■					
		Heating energy demand																												■				
		Final energy	■																															
		Primary energy				■	■	■		■			■						■										■	■	■				
		(Primary) energy performance coefficient			■	■																		X										
	Top building class						■		■			■					■	■		■	■	■	X	■						■				X
	Specific new building class										■																							
	Passive house (building envelope) level			■																														
	KfW efficiency house 55/70														X																			
Nearly zero or very low amount of energy required. Limits on:	Component U-values				■	■			■								■	■	■					X		■			■	■	X			
	Thermal bridges																	■																
	Mean U-value of building envelope				■	■	■			■					X									X						■		■		
	Heat transfer coefficient/heat loss of building envelope																		■		■													
	Air permeability																	■																
	(Net) heat demand		■	■					■						X		■					X												
	Installed lighting power								■																									
	System efficiencies						■										■	■	■															
	Heating energy demand																		■	■											■	X		
	Cooling energy demand																		■													X		
	Total energy efficiency		■																															
	Electrical input																															■		
	Final energy (total or divided into energy uses)		■							■																■			■				X
	Primary energy			■	■	■	■	■	■	■	■	■	■	■	X		■	■	■	■	■	X	■	X		■		■	■	■	X	■	
	CO_2 emissions		■															■										■					X
	Summer overheating																■		■															
Very significant extent of renewable energy	Direct	Minimum share in %	■		■		■	■	■						X		■	■	■	■	■		■					■	■	■				
		Minimum contribution in kWh/m².year			■									■				■																
		(Choice of) exemplary RES measures	■		■						■								■															
	Indirect **			■		■				■	■	■	■									■	X	■	X		■				■	■	X
Primary energy indicator in kWh/m².year	Included		■	■		■	■	■	■	■	■	■	■	■	X		■		■	■	■	■	X	■		■		■	■	■	■	■		
	Other main indicator, but PE as additional/interim result. Main indicator:	CO_2																																X
		Primary EP coefficient			■	■												■							X									

* At the time of the factsheet Luxembourg had a national NZEB definition for residential buildings in place, but not yet a NZEB definition for non-residential buildings.

** Indirect: RES contribution required in order to achieve the minimum energy performance requirements.

Heike Erhorn-Kluttig, Hans Erhorn, Fraunhofer Institute for Building Physics, Germany, *National applications of the NZEB definition – The complete overview – Status February 2018*

Changing our mindset



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Thank you for your attention!

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