



# DOMINICK STREET FLATS: CLIMATE RESILIENT PLACEMAKING

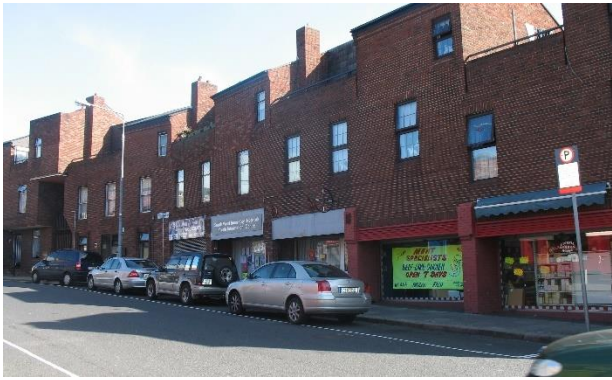
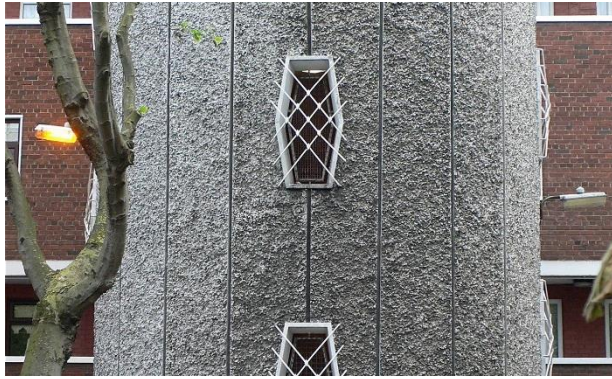
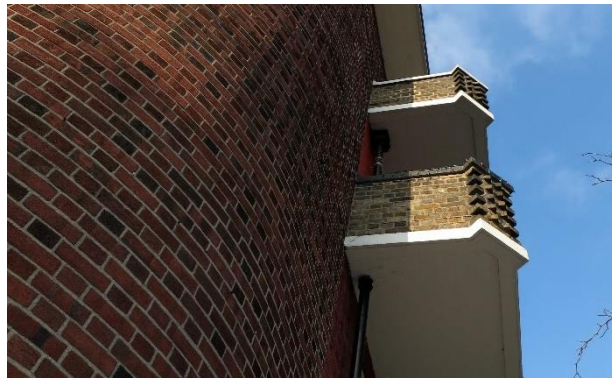
Ali Grehan Dublin City Architect



DUBLIN CITY COUNCIL FLAT COMPLEX REGENERATION

# **OVERVIEW & APPROACHES**







# ST BRICINS SCD NZEB+ PILOT

- ❑ Three blocks of 22 one-room homes in each
- ❑ Phased renovation and amalgamation to create 11 one-bedroom homes
- ❑ Block 1 renovated in 2016 (B3 BER).
- ❑ Block 3 renovated in 2018 (B2 BER)
- ❑ **Block 2 (NZEB+ pilot) completed March 2019.**
- ❑ Renovated to Certified EnerPHit Standard (E2 to A3 BER)
- ❑ Contract included training for contractor and DCC maintenance staff





# DOLPHIN HOUSE FLATS

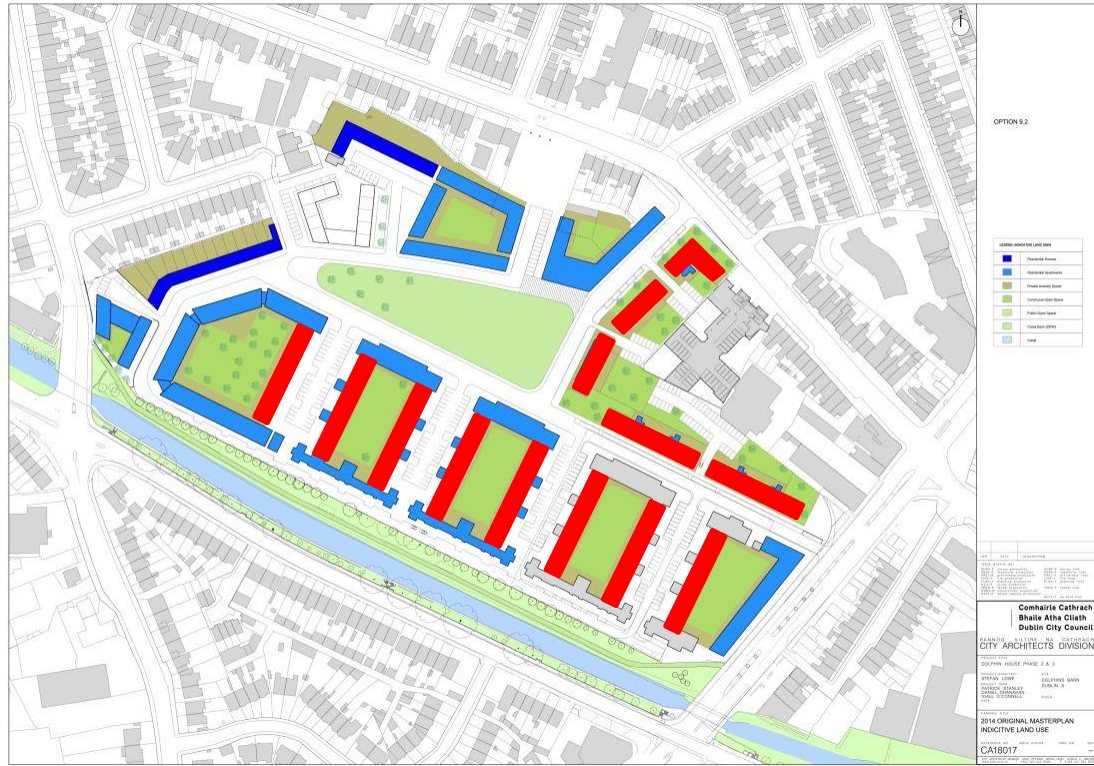
- ❑ 400 Flats in twenty 3 & 4-storey blocks built in 1957
- ❑ Phase 1 - completed in 2018
- ❑ 63 flats deep renovated and 37 new homes



Architect: Dublin City Architects

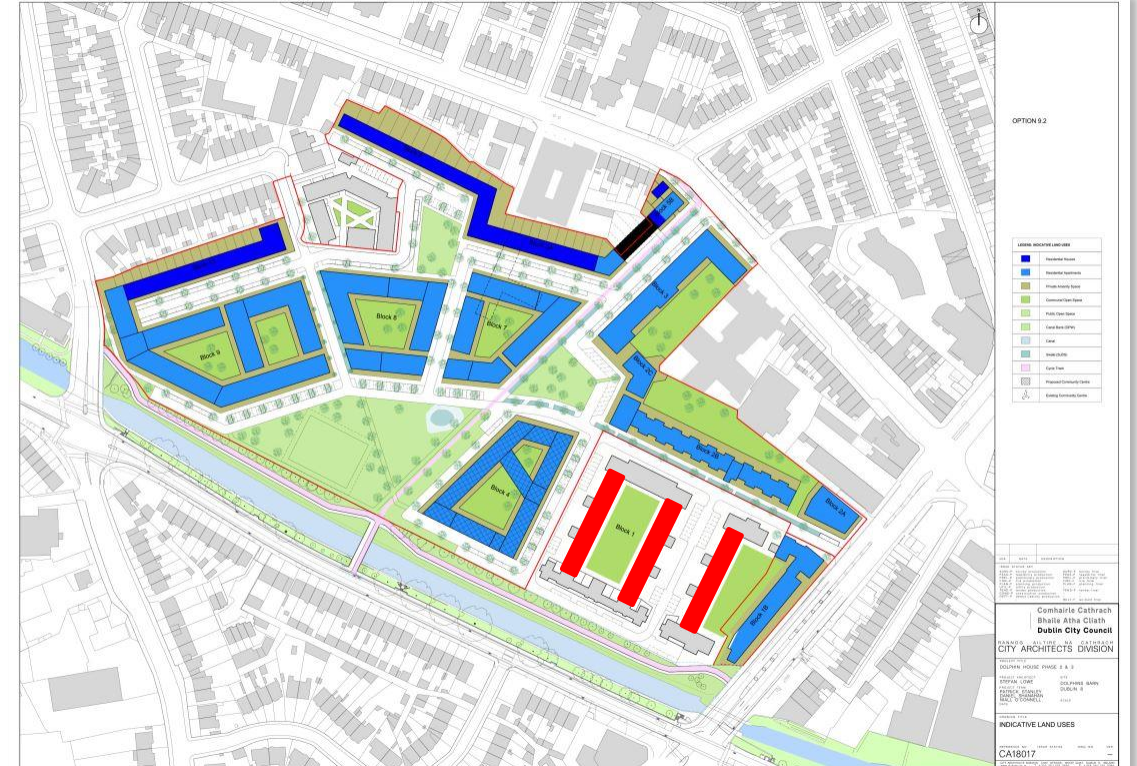


# DOLPHIN HOUSE FLATS



**2013 Masterplan**

- ❑ Urban design and building condition issues addressed
- ❑ Mix of retrofit and new build
- ❑ 0.5Ha public park
- ❑ Density @100 units per Ha



**2022 Masterplan**

- ❑ Urban design and building condition issues addressed
- ❑ Future blocks to be new build
- ❑ 1Ha combined public parks
- ❑ Density @140 units per Ha



# DORSET STREET FLATS

- ❑ 113 Flats in four 'gull-wing' type 5-storey flat blocks built in 1966. A bedsit block was demolished in @ 2015
- ❑ Decision to regenerate Estate through demolition and new build taken in 2017
- ❑ New build proposal provides 163 homes





# CONSTITUTION HILL FLATS

- ❑ 89 Flats in three 5-storey blocks built in 1968
- ❑ Proposal a mix of retrofit and new build to provide 124 homes
- ❑ First deep retrofit of this type of block
- ❑ Project will be phased to allow for decanting of tenants





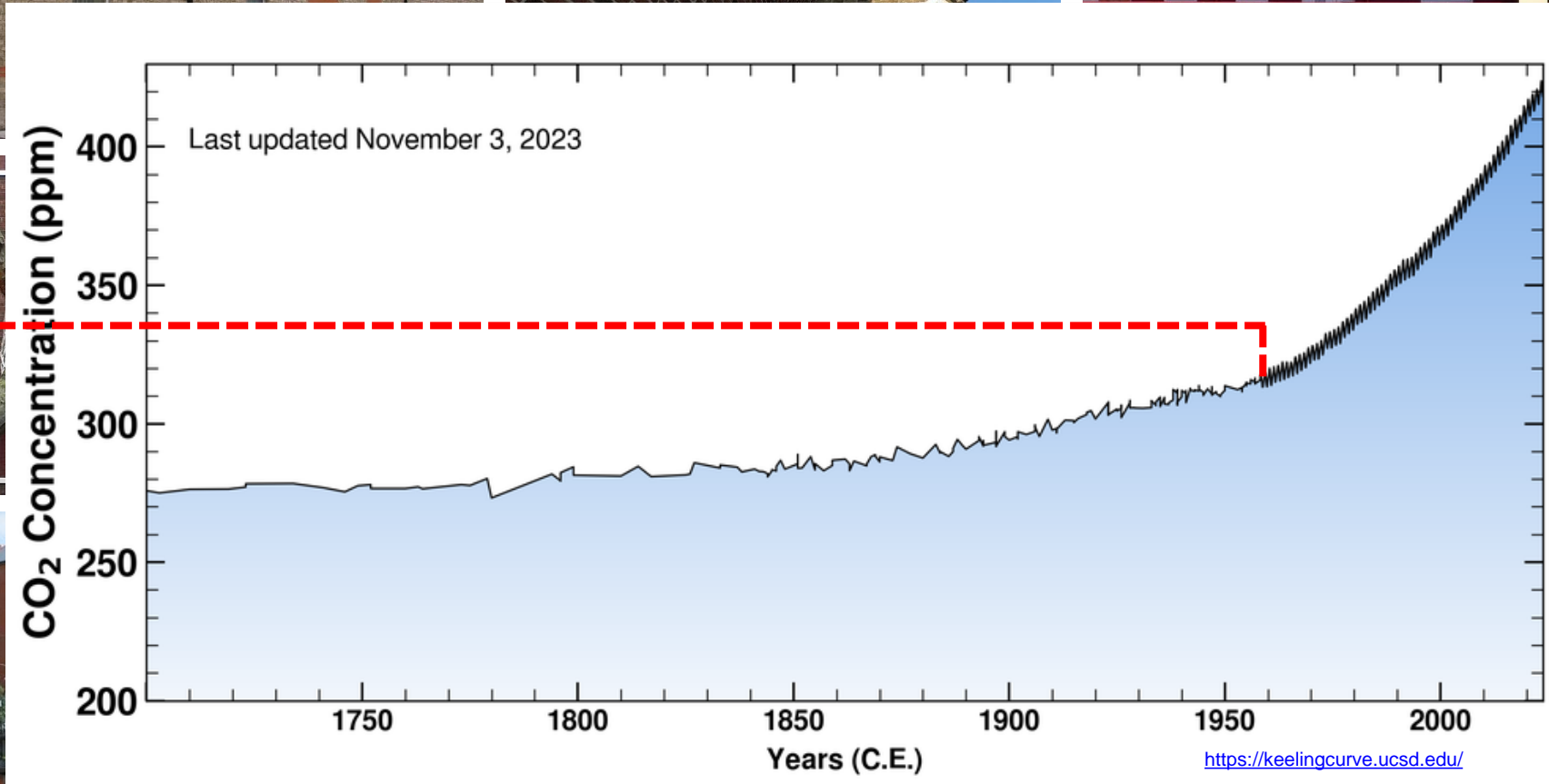
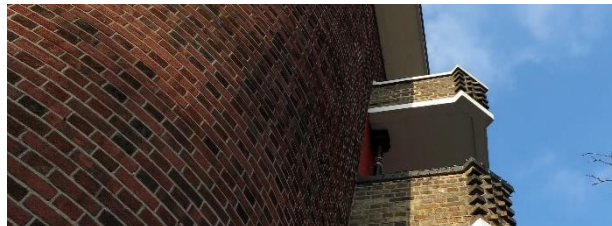




DUBLIN CITY COUNCIL FLAT COMPLEX REGENERATION

# **THE CARBON QUESTION**







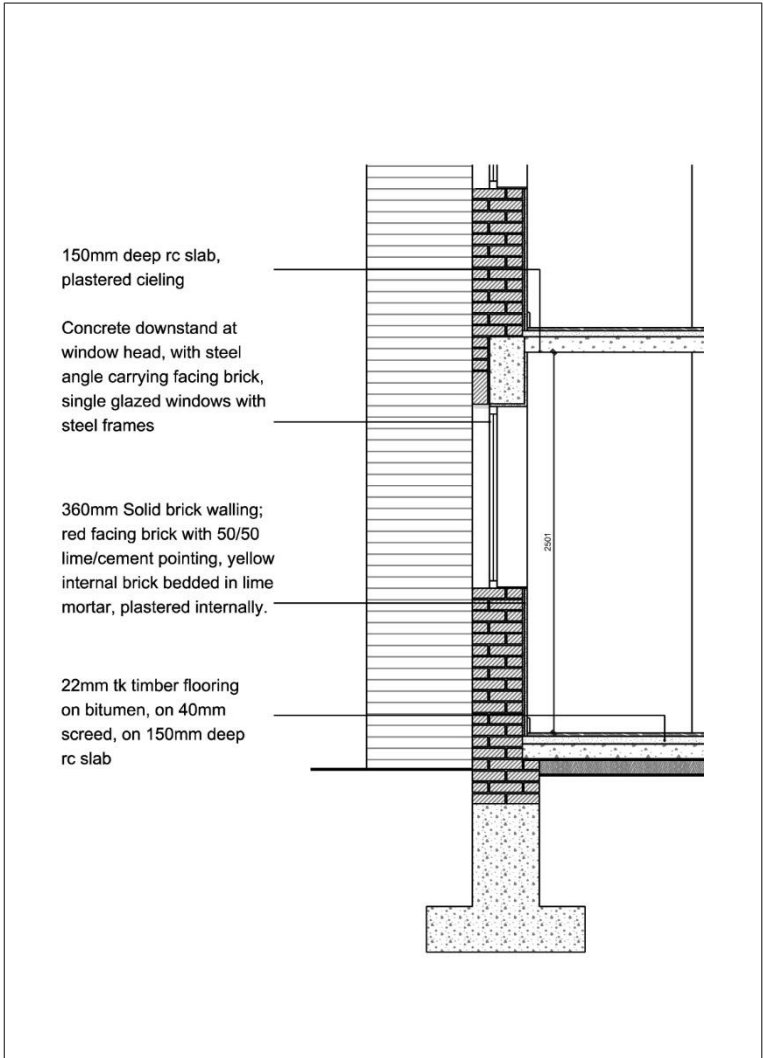


Ballybough House – Architect: Dublin Corporation Herbert Simms

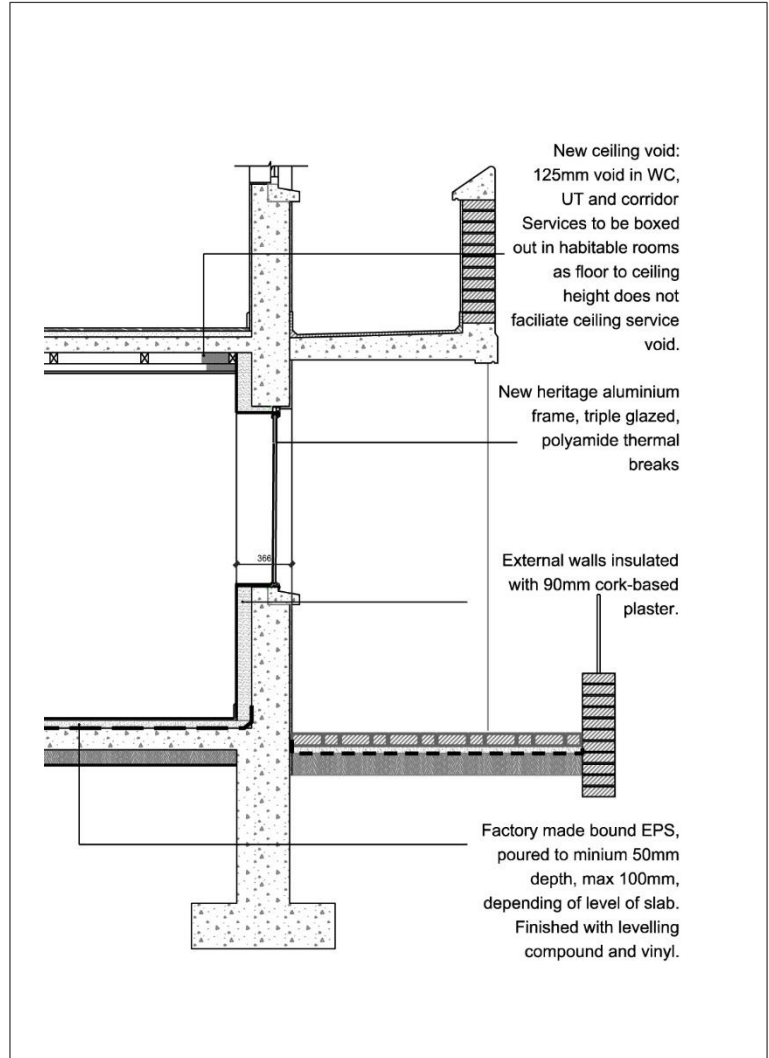


Sean Foster House - Architect: Dublin City Architects

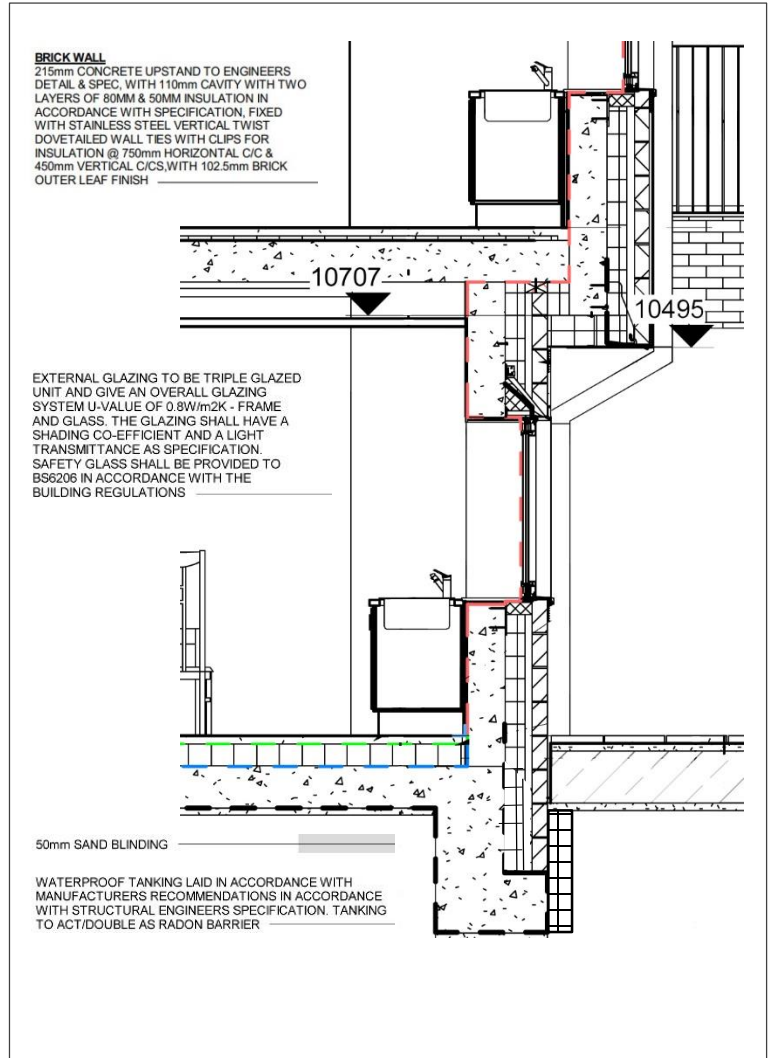




**Ballybough House 1939**  
Section through ground floor flat, front elevation



**Ballybough House Retrofit 2021**  
Post-retrofit section through ground floor flat, courtyard elevation (access deck over) (B2 BER)



**Sean Foster House 2022**  
Section through ground floor apartment, courtyard elevation (A1 BER)



# HOW CAN RETROFITTING EXISTING ESTATES HELP?

*‘Every tonne of CO<sub>2</sub> emissions adds to global warming’\**

- ❑ Paris Agreement targets and embodied carbon
- ❑ Materials needed to create NZEB buildings
- ❑ Competing criteria e.g. Paris targets / housing crisis / programme / budgets?
- ❑ Improve design and construction skill-sets
- ❑ Reimagine the buildings we already have
- ❑ Decision making re: demolish & rebuild or reuse & retrofit buildings in becoming a ‘climate neutral economy’?

\*IPCC sixth assessment report <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>



**...WHY DOMINICK STREET PROJECT?**

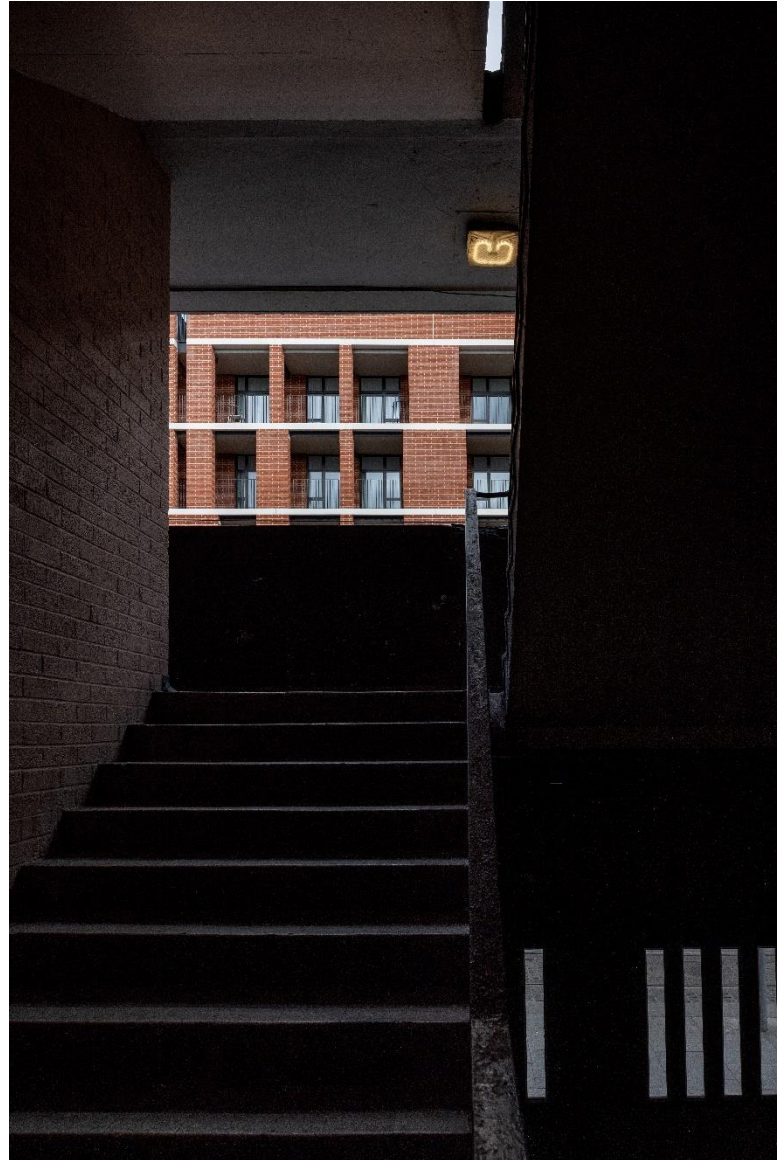
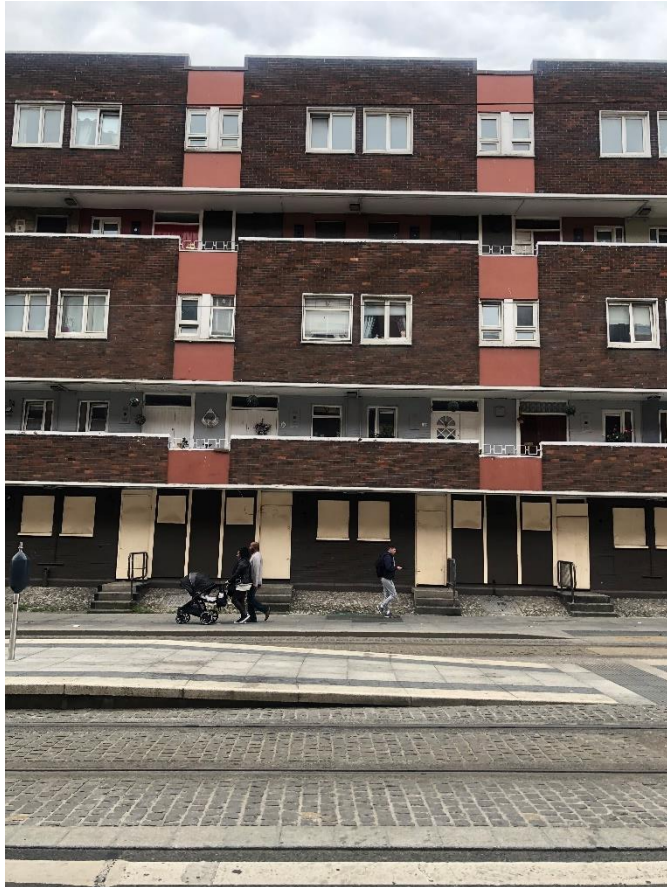


Dominick Street East



Dominick Street West





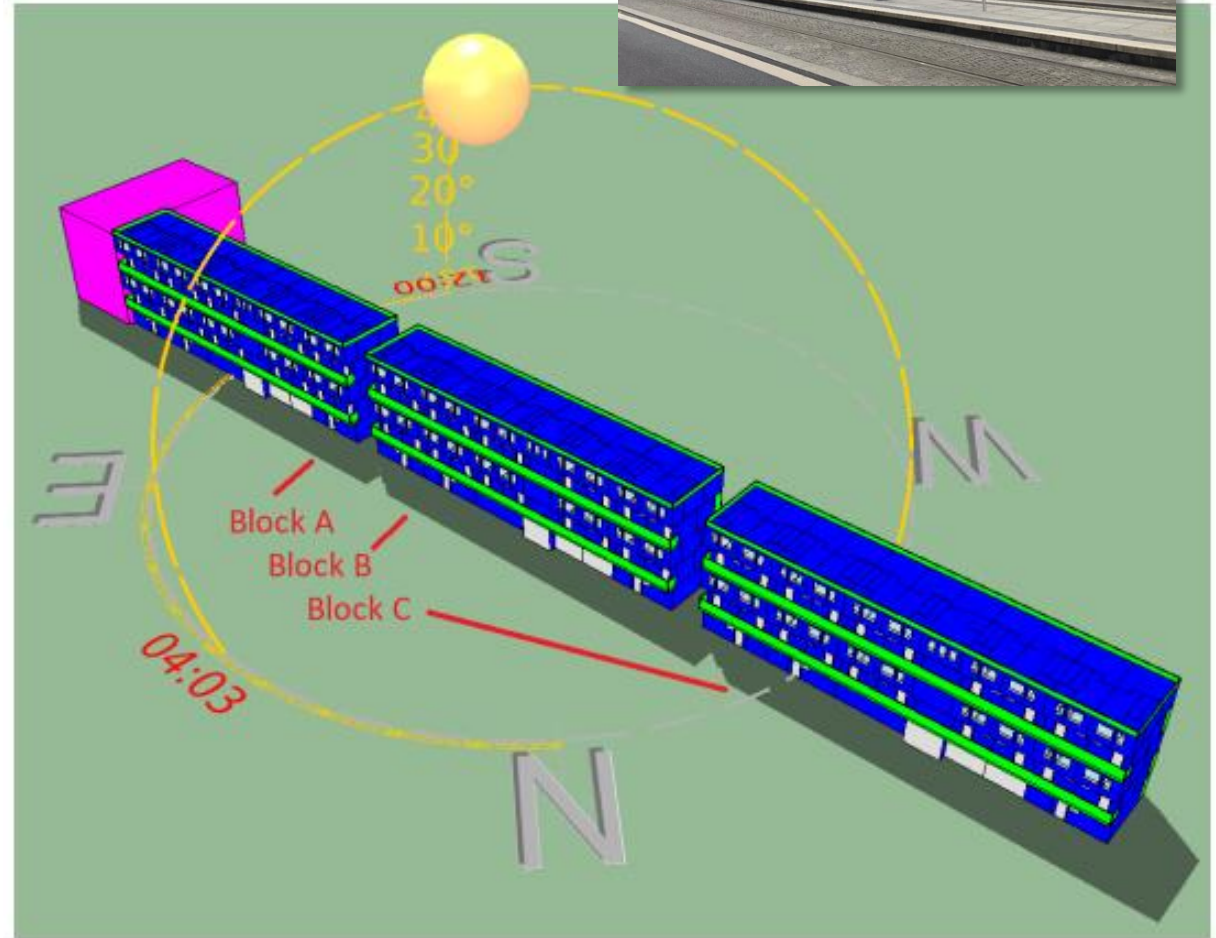
Dominick Street Retrofit - Architect: Dublin City Architects

Dominick Hall - Architect: Cotter Naessens & Denis Byrne Architects



# DIGITAL TWIN STUDY 2022

- Assess full carbon emissions impact (over 10, 30, 60 years) for retrofitting using four scenarios:
  1. Shallow Retrofit (reduce energy use between 0% - 30%)
  2. Medium Retrofit (reduce energy use between 30% -60%)
  3. Deep retrofit (reduce energy use between 60% - 90%)
  4. Reduce to Core & Shell and Rebuild



	Whole-Life Carbon With Grid Decarbonisation			Whole-Life Carbon Without Grid Decarbonisation		
	10 Years Life Period [tons CO2]	30 Years Life Period [tons CO2]	60 Years Life Period [tons CO2]	10 Years Life Period [tons CO2]	30 Years Life Period [tons CO2]	60 Years Life Period [tons CO2]
Baseline	1,284	3,385	6,171	1,418	4,255	8,510
1 Shallow R.	1,147	2,982	5,382	1,277	3,826	7,649
2 Medium R.	937	2,386	4,301	1,032	3,005	5,964
3 <b>Deep R.</b>	<b>715</b>	<b>969</b>	<b>969</b>	<b>855</b>	1,879	3,414
4 Full R. (C&S)	1,040	1,209	1,209	1,133	<b>1,816</b>	<b>2,839</b>

TABLE 7: WHOLE-LIFE CARBON EMISSIONS FOR DIFFERENT LIFE PERIODS

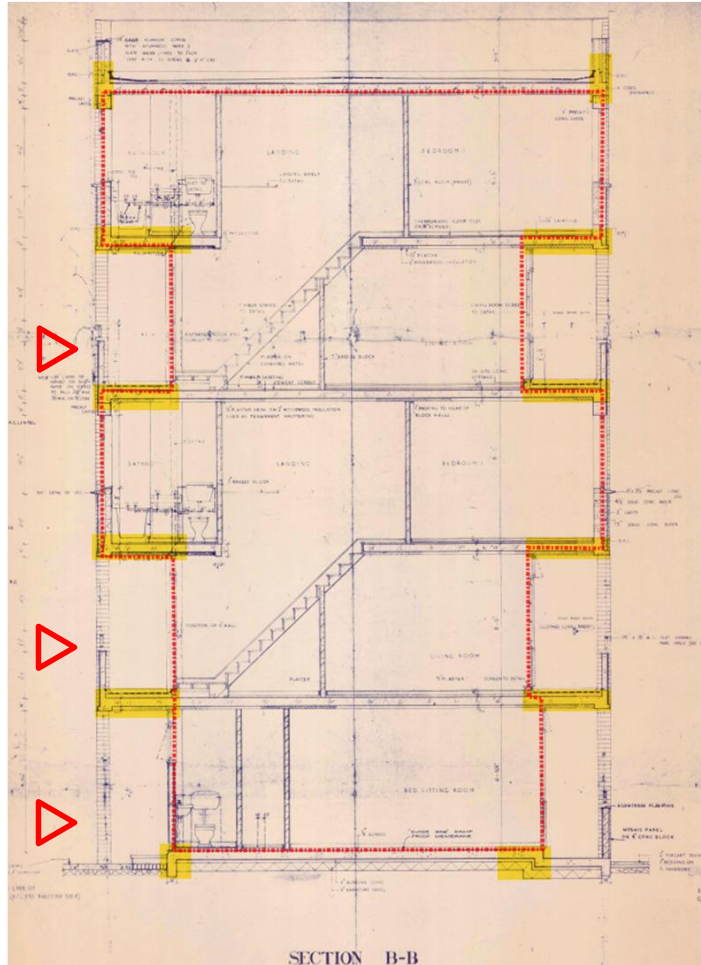


# TECHNICAL STRATEGY?

Duplex entered off street facing access deck

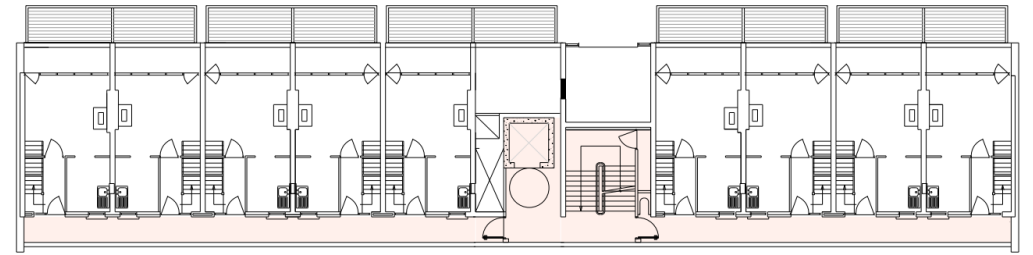
Duplex entered off street facing access deck

Bedsit entered off street

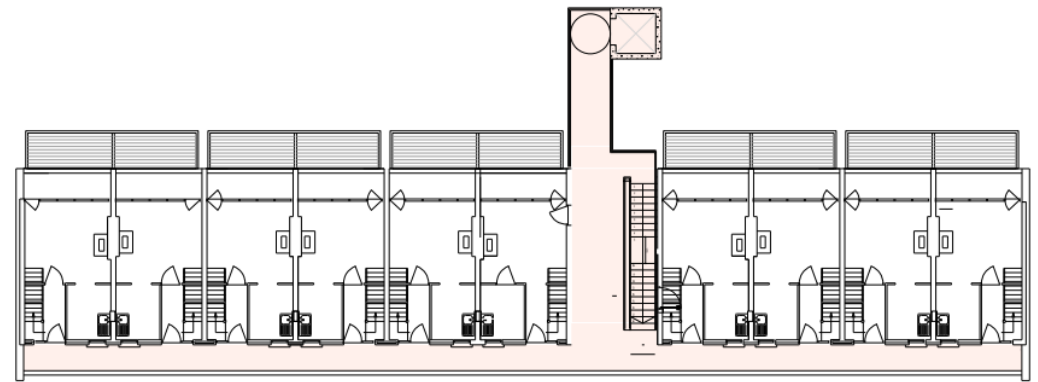


## Section through existing block

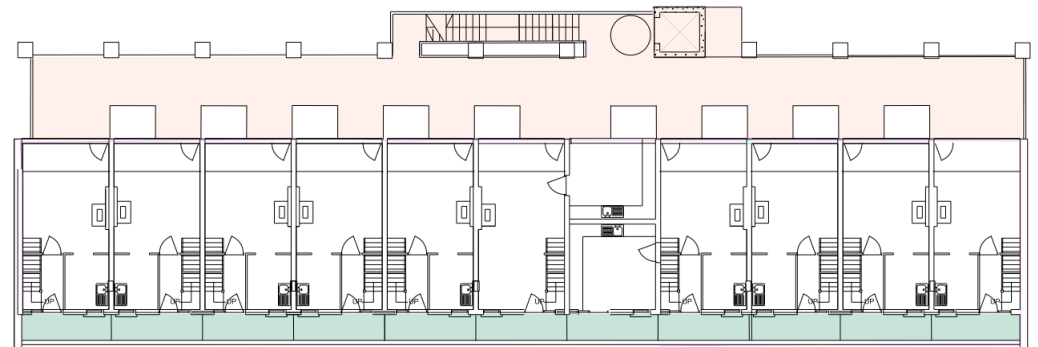
Redline shows existing thermal line highlighting cold bridges combined with general lack of insulation in the existing fabric. All of these junctions require upgrade to mitigate heat loss and improve Building Energy rating.....



Typical Floor Plan – access strategy option 1



Typical Floor Plan – access strategy option 2



Typical Floor Plan – access strategy option 3





GRANBY PARK 2013: Upstart with A2 Architects, Sean Harrington Architects and Dublin City Council



ali.grehan@dublincity.ie

**THANK YOU!**