

## About Rotterdam

The city of Rotterdam is the 2<sup>nd</sup> largest of the Netherlands, with a population of over 630,000 people and over 310,000 dwellings.

The city of Rotterdam wanted to assess quality of its building stock and obtain insights into building renovation strategies based on ownership and building type.

## Data collection and analysis

The municipality's dwelling ownership and tenure database were connected to the national energy label database, showing that:

- The stock consists mostly of post-war terraced houses and low-rise multi-family complexes. About 35% has energy label C, about 45% is in the D-G range.
- The ownership structure shows a significant presence of social housing providers, with 220,000 dwellings (71%), followed by owner-occupiers (47,000, 11%). Small-scale commercial rental (<100 units) own 9% of the market, large-scale commercial rental 2%, and institutional investors around 3%.

Owner Type	Buildings	% of Total
Corporaties	220,009	70.73%
Eigenaar bewoner	46,973	15.10%
Verhuur <100	28,518	9.17%
Institutionele	7,900	2.54%
Verhuur 100+	5,333	1.71%
Gemeente	1,241	0.40%
Overig	1,091	0.35%
<b>Grand Total</b>	<b>311,065</b>	<b>100.00%</b>

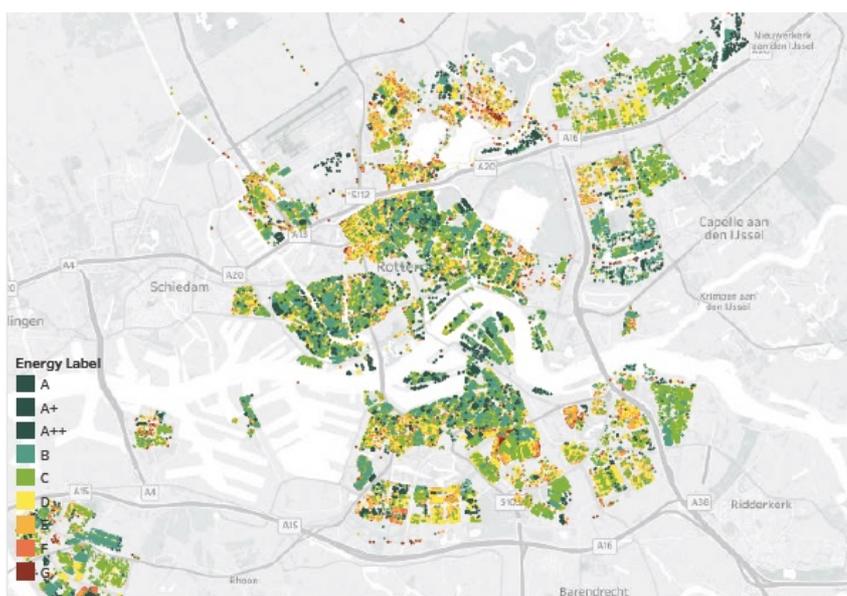
Figure 1 Ownership profile of the Rotterdam stock

## Energy Labels

Energy Label	Buildings	% of Total
A++	83	0.03%
A+	60	0.02%
A	23,872	7.67%
B	39,040	12.55%
C	112,742	36.24%
D	73,471	23.62%
E	29,707	9.55%
F	18,217	5.86%
G	13,873	4.46%
<b>Grand Total</b>	<b>311,065</b>	<b>100.00%</b>

Figure 2 Energy profile of Rotterdam stock

The Rotterdam city map shows energy quality of dwellings. Typically, lower quality dwelling re located in the northern parts of the city (such as Schiebroek, Noord, het Lage land), and sections in the south (Pendrecht, Lombardije and others).



### Analysis of market structure

#### Ownership type and quality

Analyzing ownership type and building quality shows building quality varies significantly between groups. Most low-quality buildings are owned by social housing providers. Commercial landlords, both small and large, typically manage the lowest quality stock. Owner-occupier homes on average have the highest building quality (mostly due to recent year of construction).

Owner Type	Total	D	E	F	G
Corporaties	220,009	56,140	18,417	9,200	4,368
Eigenaar bewoner	46,973	10,479	5,827	4,062	3,341
Verhuur <100	28,518	5,061	3,967	3,746	5,184
Institutionele	7,900	593	222	333	99
Verhuur 100+	5,333	939	1,160	770	744
Gemeente	1,241	113	55	61	84
Overig	1,091	146	59	45	53

#### Opportunities for multi-building renovation

The analysis shows that main opportunities for district (multi-building) renovation are in the south of the city, with either social housing providers or groups of small commercial landlords.

#### Sample Detail

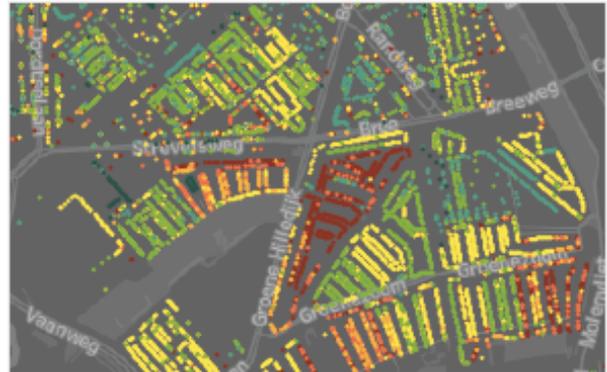


Figure 3 Detail of Vreewijk district

### Example sectorial analysis: landlords

The analysis has identified the largest private landlords and has singled out those with a particularly poor building quality, allowing design of targeted support schemes.

Energy Labels of Top 10 Owners

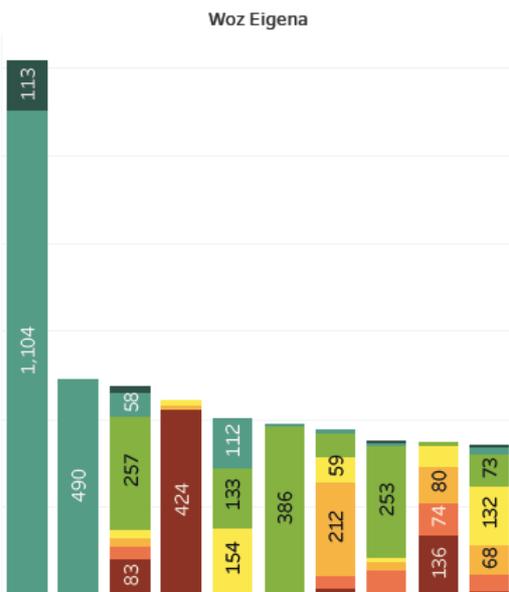


Figure 4 Sample stock quantity and quality per owner

### Action taken by Rotterdam

The analysis has been used by the Sustainable Rotterdam (Duurzaam Rotterdam programme, contributing to the following actions;

*For private home owners, in particular those organized in Home Owner Associations, a tailored Figure 5. CO2 savings & energy index projections of investment pathw 'technical assistance' programme has been created with support of the European Investment Bank (€3M ELENA grant). The provides external expertise to prepare ambitious renovation projects.*

- Institutional investors have been identified as target group. Organisations will be approached individually with proposals and subsidies for roof-mounted PV, or technical assistance for deep renovation.
- With social housing providers, district-based renovation programmes are being planned and coordinated.