



Single Family Housing Characteristics and Energy Use Segmentation

Energy and Housing Summary Statistics
to Target Efficiency Program Design and Delivery
in Cook County and Chicago IL

June 2014

Background

The single family characteristics and energy use segmentation identifies 15 distinct housing typologies in Cook County Illinois that local energy efficiency programs should target for deeper energy savings and efficient program design and delivery.

The result of 15 typologies is based on merging energy use for 423,956 homes, and home characteristics for 919,103 single family homes in Cook County.

This document features example pictures of each housing group along with a short summary that includes:



- Median Therms
- Median kWh
- Median Site EUI
- Median Square footage
- Prevalence of each home type in Cook County and Chicago
- Geographic clusters of six housing types recommended for targeting

Detailed methodology is documented in ACEEE Summer Study Paper titled: *Energy and Housing Stock Segmentation to Achieve Community Energy Savings* to be published and presented August 2014. See Research Team for details or questions.

County Recommendation: Target Six Housing Types

Six housing groups were identified as showing the greatest potential for deep energy savings and for targeted outreach. These 6 housing types represent a significant percentage of the population (71.4%).

- Group 4: Masonry 1942-1978 Less than 2 stories (no split level)
- Group 6: Masonry Pre-1942 Less than 2 stories (no split level)
- Group 10: Frame Post-1978 2 or more stories
- Group 11: Frame 1942-1978 Less than 2 stories (no split level)
- Group 13: Frame 1942-1978 2 or more stories
- Group 14: Frame Pre-1942 Less than 2 stories (no split level)

City Recommendation: Target Four Housing Types

Four housing groups were identified as showing the greatest potential for deep energy savings and for targeted outreach. These 4 housing types represent a significant percentage of the population (69%).

- Group 4: Masonry 1942-1978 Less than 2 stories (no split level)
- Group 6: Masonry Pre-1942 Less than 2 stories (no split level)
- Group 11: Frame 1942-1978 Less than 2 stories (no split level)
- Group 14: Frame Pre-1942 Less than 2 stories (no split level)


**Group 1 Masonry Post-1978 less than 2 stories
(No Split level)**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	1.3% (n= 12,078)	0.9% (n=2,708)
Median Site EUI	86	95
Median Therms	1173	1100
Median kWh	8962	8496
Median Sqft*	1660	1376


Group 2 Masonry All Years Split Level

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	2.0% (n=18,507)	1.2% (n=3,742)
Median Site EUI	133	149
Median Therms	1446	1496
Median kWh	8729	8416
Median Sqft*	1300	1186

**Group 3 Masonry Post 1978 2 or more stories**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	3.3%%	4.4% (n=13,044)
Median Site EUI	86	95
Median Therms	1775	1577
Median kWh	15530	13703
Median Sqft*	3290	2410

**Group 4 Masonry 1942-1978 Less than 2 Stories
(No Split Level)**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	19.2% (n=176,352)	23.5% (n=70,478)
Median Site EUI	132	138
Median Therms	1229	1248
Median kWh	7849	7719
Median Sqft*	113	1080

Municipalities/Chicago Community Areas with Largest Concentration of Group 4 (Top 5)

	Cook County (n=919,103)	Chicago (n=299,373)	Name	Group 4 N Obs	Total # of SF Homes	Group 4 % of SF Homes
% of Population	19.2% (n=176,352)	23.5% (n=70,478)	Ashburn	7247	11959	61%
Median Site EUI	132	138	Skokie	6663	17129	39%
Median Therms	1229	1248	Garfield Ridge	4763	10405	46%
Median kWh	7849	7719	Norwood Park	4715	11242	42%
Median Sqft*	113	1080	Oak Lawn	4245	16695	25%
			Total	27,633	67430	41%

**Group 5 Masonry 1942-1978 2 or more stories**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	4.6% (n=42,009)	7.2% (n=21,503)
Median Site EUI	117	121
Median Therms	1412	1411
Median kWh	9036	8678
Median Sqft*	1440	1391

**Group 6 Masonry Pre-1942 less than 2 stories
(No Split Level)**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	7.4% (n=67,594)	16.0% (n=14,899)
Median Site EUI	157	160
Median Therms	1583	1611
Median kWh	8396	8390
Median Sqft*	1177	1178

**Municipalities/Chicago Community Areas with Largest
Concentration of Group 6 (Top 5)**

Name	Group 6 N Obs	Total # of SF Homes	Group 6 % of SF Homes
Berwyn	4,608	9,764	47%
Cicero	3,567	8,633	41%
Chicago Lawn	3,094	7,594	41%
Belmont Cragin	3,061	8,054	38%
Portage Park	3,060	9,778	31%
Total	20,220	43,823	46%


Group 7 Masonry Pre-1942 2 or More Stories

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	2.2% (n=20,437)	4.1% (n=12,187)
Median Site EUI	115	117
Median Therms	1978	1986
Median kWh	11220	10309
Median Sqft*	2078	2030


**Group 8 Frame Post-1978 Less than 2 Stories
(No Split Level)**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	1.6% (n=14,864)	0.1% (n=274)
Median Site EUI	79	80
Median Therms	1033	957
Median kWh	8132	8239
Median Sqft*	1990	1996

**Group 9 Frame Post-1978 Split Level**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	2.2%% (n=20,199)	0.4% (n=1,143)
Median Site EUI	110	115
Median Therms	1173	1179
Median kWh	9527	9185
Median Sqft*	1987	1990

**Group 10 Frame Post-1978 2 or more stories****Municipalities/Chicago Community Areas with Largest Concentration of Group 10 (Top 5)**

	Cook County (n=919,103)	Chicago (n=299,373)	Name	Group 10 N Obs	Total # of SF Homes	Group 10 % of SF Homes
% of Population	8.8% (n=80,557)	2.5% (n=7,554)	Orland Park	6,619	14,832	45%
Median Site EUI	75	82	Schaumburg	5,110	17,129	30%
Median Therms	1402	1221	Streamwood	4,687	12,088	39%
Median kWh	11881	10455	Hoffman Estates	4,561	14,130	32%
Median Sqft*	2441	1992	Tinley Park	4,136	13,466	31%
			Total	25,113	71,645	35%



**Group 11 Frame 1942-1978 less than 2 stories
(No Split Level)**

**Municipalities/Chicago Community Areas with Largest
Concentration of Group 11 (Top 5)**

	Cook County (n=919,103)	Chicago (n=299,373)	Name	Group 11 N Obs	Total # of SF Homes	Group 11 % of SF Homes
% of Population	18.4% (n=168,731)	8.2% (n=24,687)	Hoffman Estates	4,721	14,130	33%
Median Site EUI	130	147	Elk Grove Village	4,524	9,764	46%
Median Therms	1163	1257	Des Plaines	4,491	17,783	25%
Median kWh	8201	7803	Oak Lawn	4,357	17,641	25%
Median Sqft*	1134	1060	Streamwood	4,349	12,088	36%
			Total	22,442	71,406	31%



Group 12 Frame Pre-1979 Split Level

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	6.5% (n=59,543)	1.4% (n= 4,295)
Median Site EUI	128	157
Median Therms	1297	1451
Median kWh	9035	8425
Median Sqft*	1253	1118

**Group 13 Frame 1942-1978 2 or more stories****Municipalities/Chicago Community Areas with Largest Concentration of Group 13 (Top 5)**

	Cook County (n=919,103)	Chicago (n=299,373)	Name	Group 13 N Obs	Total # of SF Homes	Group 13 % of SF Homes
% of Population	6.7% (n=61,873)	2.3% (n=6,936)	Arlington	4,988	19,372	26%
Median Site EUI	96	116	Palatine	2,945	16,695	18%
Median Therms	1507	1439	Northbrook	2,807	11,644	24%
Median kWh	11082	9238	Des Plaines	2,612	17,783	15%
Median Sqft*	1990	1482	Glenview	2,556	13,331	19%
			Total	15,908	78,825	21%

**Group 14 Frame Pre-1942 less than 2 stories
(No Split Level)****Municipalities/Chicago Community Areas with Largest Concentration of Group 15 (Top 5)**

	Cook County (n=919,103)	Chicago (n=299,373)	Name	Group 15 N Obs	Total # of SF Homes	Group 15 % of SF Homes
% of Population	11.0% (n=100,910)	21.8% (n=65,332)	Portage Park	3,923	9,778	41%
Median Site EUI	160	166	West Englewood	3,886	6,389	61%
Median Therms	1428	1465	Roseland	3,573	11,097	33%
Median kWh	8390	8357	Austin	3,084	9,567	33%
Median Sqft*	1058	1056	Belmont Cragin	3,039	8,054	38%
			Total	17,505	44,885	39%

**Group 15 Frame Pre-1942 2 or more stories**

	Cook County (n=919,103)	Chicago (n=299,373)
% of Population	4.9% (n=44,820)	5.9% (n=17,591)
Median Site EUI	115	118
Median Therms	1740	1713
Median kWh	10476	9650
Median Sqft*	1816	1734