

# COUNTRY EXPOSURE MODEL

Review main statistic of a exposure model and create summaries for a given Country.

```
/home/risk/venvs/py38w/lib/python3.8/site-packages/geopandas/_compat.py:111: UserWarning: The Shapely GEOS version (3.9.1-CAPI-1.14.2) is incompatible with the GEOS version PyGEOS was compiled with (3.10.1-CAPI-1.16.0). Conversions between both will be slow.
  warnings.warn(
```

```
# Parameters
country = "Iceland"
```

Exposure files:  
Exposure\_Com\_Iceland.csv  
Exposure\_Ind\_Iceland.csv  
Exposure\_Res\_Iceland.csv

## Sanity checks and formats

## Exposure at National level

### Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	361.0K	60.1K	\$32.6B	81.14%	46.04%
Ind	138.6K	5.5K	\$12.6B	7.40%	17.82%
Com	144.4K	8.5K	\$25.6B	11.46%	36.14%

### Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	16,056.7K	\$44.0B	217	\$4,415
Res	11,764.4K	\$26.1B	196	\$2,775
Ind	1,701.0K	\$5.1B	310	\$7,425
Com	2,591.3K	\$12.8B	305	\$9,889

## Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Capital Region	\$46,025.8M	41,277	413.4K	64.92%	55.73%	64.19%
Southern Peninsula	\$7,238.4M	6,288	42.7K	10.21%	8.49%	6.63%
Northeastern Region	\$4,934.0M	6,614	56.3K	6.96%	8.93%	8.74%
Southern Region	\$4,342.2M	6,464	47.1K	6.12%	8.73%	7.32%
Western Region	\$2,861.5M	4,238	30.7K	4.04%	5.72%	4.77%
Westfjords	\$2,200.6M	2,656	14.0K	3.10%	3.59%	2.17%
Eastern Region	\$2,055.1M	4,155	25.6K	2.90%	5.61%	3.97%
Northwestern Region	\$1,241.0M	2,378	14.3K	1.75%	3.21%	2.22%

## Exposure by simplified taxonomy

Adding `MACRO\_TAXO` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
RC	\$61,919.6M	60,175	539,535	87.34%	81.24%	83.78%
W	\$4,400.4M	9,601	54,041	6.21%	12.96%	8.39%
S	\$3,739.2M	1,751	39,885	5.27%	2.36%	6.19%
MUR	\$378.5M	1,464	6,168	0.53%	1.98%	0.96%
MCF	\$330.9M	1,024	2,996	0.47%	1.38%	0.47%
MR	\$129.8M	55	1,386	0.18%	0.07%	0.22%

## Exposure by taxonomy

Showing only taxonomies that represent 90% of the total `COST\_USD`

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
RC	CR/LWAL+CDH+LFC:10.0/HBET:3-5/COM	\$8,364.3M	1,753	13.13%	2.79%
	CR/LWAL+CDL+LFC:7.0/HBET:3-5/RES	\$6,529.5M	3,852	10.25%	6.12%
	CR/LWAL+CDN/HBET:3-5/RES	\$4,141.5M	2,336	6.50%	3.71%
	CR/LWAL+CDH/H:1/IND	\$4,024.8M	1,699	6.32%	2.70%
	CR/LWAL+CDM+LFC:12.0/H:2/RES	\$2,271.8M	6,811	3.57%	10.82%
	CR/LWAL+CDM+LFC:12.0/HBET:3-5/COM	\$2,179.6M	663	3.42%	1.05%
	CR/LWAL+CDN/H:2/RES	\$2,001.3M	7,262	3.14%	11.54%
	CR/LWAL+CDH+LFC:20.0/HBET:3-5/COM	\$1,918.8M	402	3.01%	0.64%
	CR/LWAL+CDL+LFC:7.0/H:1/RES	\$1,835.7M	6,350	2.88%	10.09%
	CR/LWAL+CDL+LFC:7.0/H:2/RES	\$1,746.2M	5,961	2.74%	9.47%
S	S/LFBR+CDH/H:1/IND	\$1,731.1M	767	2.72%	1.22%
W	W/LWAL+CDM/H:1/IND	\$1,644.5M	767	2.58%	1.22%
S	S/LFM+CDH/H:1/IND	\$1,483.8M	658	2.33%	1.05%
	CR+PC/LWAL+CDM+LFC:12.0/HBET:3-5/COM	\$1,478.9M	348	2.32%	0.55%
	CR+PC/LFM+CDL/H:1/IND	\$1,428.2M	603	2.24%	0.96%
	CR/LWAL+CDM+LFC:13.0/HBET:3-5/RES	\$1,270.5M	718	1.99%	1.14%
	CR/LWAL+CDH+LFC:0.0/HBET:3-5/COM	\$1,251.5M	262	1.96%	0.42%
	CR/LWAL+CDM/HBET:3-5/IND	\$1,168.5M	493	1.83%	0.78%
	CR/LWAL+CDH+LFC:10.0/HBET:6-/COM	\$1,160.1M	240	1.82%	0.38%
	CR/LWAL+CDN/HBET:6-/RES	\$1,082.5M	256	1.70%	0.41%
	CR/LWAL+CDH+LFC:8.0/HBET:3-5/RES	\$865.0M	439	1.36%	0.70%
	CR/LDUAL+CDH+LFC:8.0/HBET:3-5/RES	\$833.8M	425	1.31%	0.68%
	CR/LWAL+CDM+LFC:16.0/HBET:3-5/COM	\$828.4M	252	1.30%	0.40%
	CR/LFM+CDM/H:1/IND	\$779.0M	329	1.22%	0.52%
	CR/LWAL+CDM+LFC:12.0/HBET:3-5/RES	\$651.6M	356	1.02%	0.57%
	CR/LWAL+CDM+LFC:16.0/H:2/RES	\$598.0M	2,342	0.94%	3.72%
	CR+PC/LWAL+CDM+LFC:12.0/HBET:6-/COM	\$575.1M	108	0.90%	0.17%
	CR+PC/LWAL+CDM+LFC:16.0/HBET:3-5/COM	\$562.1M	132	0.88%	0.21%
W	W/LWAL+CDM/H:1/RES	\$542.6M	2,862	0.85%	4.55%
RC	CR/LWAL+CDM+LFC:13.0/H:2/RES	\$533.9M	1,638	0.84%	2.60%
	CR+PC/LWAL+CDN/HBET:3-5/COM	\$520.9M	129	0.82%	0.21%
W	W/LWAL+CDH/H:2/RES	\$501.4M	2,236	0.79%	3.55%
	CR/LWAL+CDM+LFC:12.0/HBET:6-/RES	\$488.4M	110	0.77%	0.17%
	CR/LWAL+CDH+LFC:10.0/H:2/COM	\$464.9M	438	0.73%	0.70%
	CR/LWAL+CDN/HBET:3-5/COM	\$458.1M	126	0.72%	0.20%
RC	CR/LDUAL+CDH+LFC:10.0/HBET:3-5/RES	\$413.5M	280	0.65%	0.44%
	CR+PC/LWAL+CDH+LFC:10.0/HBET:3-5/COM	\$409.8M	86	0.64%	0.14%
	CR/LDUAL+CDH+LFC:8.0/HBET:6-/RES	\$396.7M	84	0.62%	0.13%
	CR/LWAL+CDM+LFC:13.0/HBET:6-/RES	\$385.0M	89	0.60%	0.14%
	CR/LWAL+CDH+LFC:10.0/HBET:3-5/RES	\$382.4M	250	0.60%	0.40%
	CR/LDUAL+CDH+LFC:8.0/H:2/RES	\$363.3M	1,030	0.57%	1.64%
W	W/LWAL+CDH/HBET:3-5/RES	\$329.9M	240	0.52%	0.38%
MCF	MCF/LWAL+CDL/H:2/RES	\$316.7M	986	0.50%	1.57%
RC	CR/LWAL+CDM+LFC:12.0/H:1/COM	\$312.0M	344	0.49%	0.55%
	CR/LWAL+CDH+LFC:10.0/H:1/COM	\$296.3M	307	0.46%	0.49%
	CR/LWAL+CDN/H:1/RES	\$296.2M	1,375	0.46%	2.18%
W	W/LWAL+CDH/H:1/RES	\$294.7M	952	0.46%	1.51%
	W/LWAL+CDM/H:2/COM	\$289.4M	224	0.45%	0.36%
	CR/LWAL+CDM+LFC:8.0/H:2/RES	\$283.9M	1,077	0.45%	1.71%
RC	CR/LWAL+CDM+LFC:4.0/HBET:3-5/COM	\$278.8M	85	0.44%	0.13%
	CR/LWAL+CDH+LFC:20.0/HBET:6-/COM	\$266.1M	55	0.42%	0.09%
W	W/LWAL+CDN/H:1/RES	\$244.2M	1,288	0.38%	2.05%
RC	CR/LWAL+CDH+LFC:8.0/HBET:3-5/COM	\$243.6M	51	0.38%	0.08%