

# **Economic Impacts of Building Regulations National Research Council Updates**

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**Presented to IRCC**

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# Outline

- Canada's System
- Impact Analysis
- Case Studies

# Legal Basis

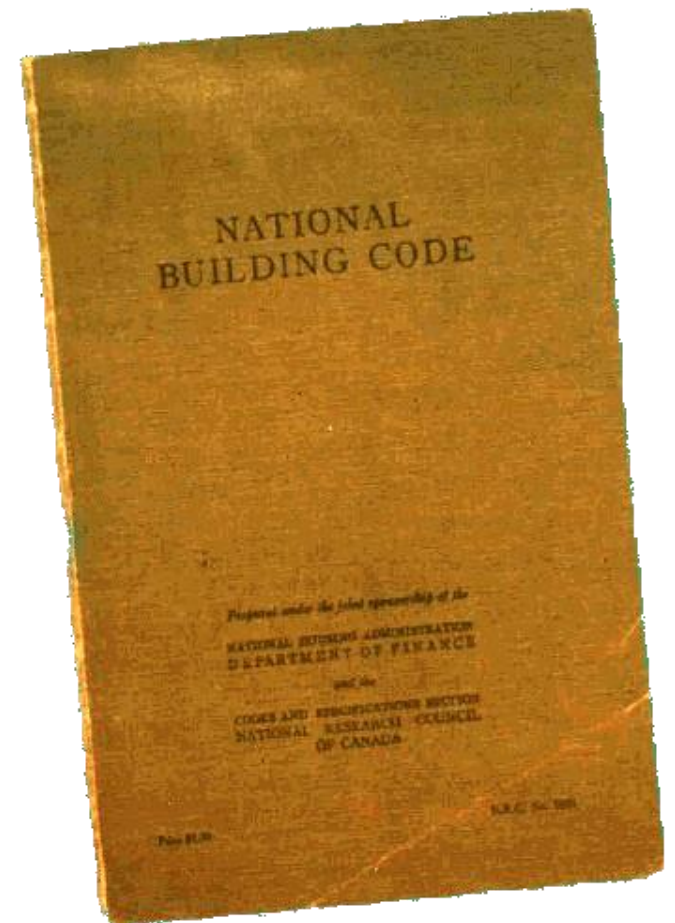
- British North America Act / Constitution Act
  - building regulation is a provincial /territorial responsibility
- What is the federal role?

# Origins

- 1937
  - no national model codes
  - no provincial codes
  - multiplicity of municipal codes
- Federal Dept. of Finance ?
  - NRC: We need a model code to encourage greater uniformity

# First Code

- First Building Code: 1941



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# Impact

- Impact concerns consequences introduced by a code change. Impact can be either positive or negative.

A large, red, distressed stamp with the word "IMPACT" in bold, uppercase letters. The stamp has a rough, textured appearance and is set against a white background with a faint grid pattern.

# Impact Analysis

- Describing methods and processes to be used when comprehensively describing positives and negatives
- Implies a systematic practice where assumptions, methods and results are presented in such a way that they can be tested by other analysts.





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# Case Study - Step Dimensions

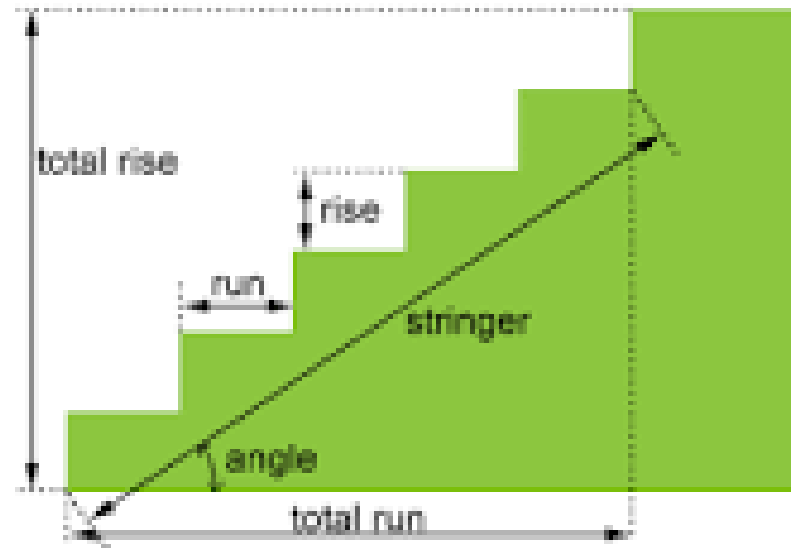


## Set the Criteria

- Established a year
- Determined # of residential homes 9 million
- New Starts 120K
- Service Life 75 years

# Step Dimensions

- run of 210 mm (8¼ in.)  
and
- a rise of 200 mm (7⅞ in.).



# Burden of Falls

direct burden of falls in residential stairs for 2012 is estimated

314 deaths

\$476 million of health care spending



# Costs of Injury

indirect spending is

- 10 times the health care spending.



# Reasons for Falls

Heel scuffs

Overstep

Preoccupied

Intoxicated

# Reduction of Falls due to increased Run

Change of Run (mm)	Reduction of falls
219 to 235	36%
210 to 240	46%
210 to 255 ( 10inch)	64%
210 to 267 ( 10.5 inch)	71%
210 to 280 ( 11inch)	80%



## Direct Savings

- ***Direct Savings***=***Reduc.Falls***×**Burden /Exist.Inst.**×**New Inst.**×**Service Life**

Change of Run (mm)	Lives saved / Health savings ( millions)
219 to 235	109/165\$
210 to 240	139/211\$
210 to 255 ( 10inch)	194/293\$
210 to 267 ( 10.5 inch)	215/325\$
210 to 280 ( 11inch)	242/367\$

## Cost of Construction ( \$/home)

Run	9in	9.5	10in	10.5in	11in	7/11
8ft	1542	1903	2264	2625	2986	4208
9ft	1583	1972	2361	2750	3139	4361

***Direct Inst Cost*=\$200/ft.<sup>2</sup>×added floor area [ft.<sup>2</sup>]  
+\$1,000**

Run	9in	9.5	10in	10.5in	11in	7/11
8ft	182	225	267	310	352	497
9ft	192	241	290	339	388	533

## Indirect costs (housing sales)

- ***Indirect Inst.Cost=3.39×Direct Inst.Cos***

Where

- ***3.39= \$400 M/ \$1,000 inst.increase×118 000 inst***
- **3.39% decrease in sales.**

# Cost Benefit Analysis for 8 foot Ceiling

Cost /ben	9in	9.5in	10in	10.5in	11in	7/11in
Net direct ben	-16.9\$	-13.7	26.2	15.7	14.3	-129.9
Cost	155105	98213	-135360	-73041	-59218	536375
Overall benefit	1017	1334	2054	2220	2487	1854
Recovery period	28	27	23	24	2	34

# Thank You



- 255mm ( 10”) run falls within the acceptable range