Outline

• About NRC
• Codes Development System
• NBC 2015, Part 9 Significant Changes
• $853.3 Million Budget 2015-2016
• Over 3,500 employees
• Operating in every province in Canada
• Unique facilities-national assets
• Global reach
• 100 years of Innovation
NRC 100 years legacy
NRC multidisciplinary expertise

Engineering

• Construction
  ➢ Building Regulations for Market Access program (BRMA)
  ➢ Codes Canada
Outline

• About NRC
• Codes Development System
• NBC 2015, Part 9 Significant Changes
• 
Historical background

- Early 1930's - mounting pressure from architects, builders, insurers etc.
  - no national model codes
  - no provincial codes
  - multiplicity of municipal codes
- 1941 – 1st national model building code
Codes & guides

50+ Codes published since 1941
Most current
Codes & guides

- Over 75 guides, supplements and commentaries
- **Coming soon:** Illustrated User’s Guide–NBC 2015 Part 9, Housing and Small Buildings
Partners

- Provinces and Territories (PTPACC)
- Canadian Commission on Building and Fire Codes (CCBFC)
- National Research Council Canada (NRC)
Code development system - Collaboration

Partners
- Provinces and Territories (PTPACC)
- Canadian Commission on Building and Fire Codes (CCBFC)
- National Research Council Canada (NRC)

Stakeholders
- Construction industry
- Regulators
- General public
Canada’s governance

- 1 Federal government
- 10 Provincial plus 3 territorial governments
- >1000 Municipal governments
Provincial / Territorial role

**Provinces and Territories**
- Enact building and fire regulations
- Inspect and enforce the Code
- Interpret Code requirements
- Initiate training programs
- License trades and professions
- Provide policy guidance
Provincial / Territorial role

**Adopt or adapt**
- New Brunswick
- Nova Scotia
- Manitoba
- Saskatchewan
- Newfoundland
- Labrador
- Northwest Territories
- Nunavut
- Yukon
- Prince Edward Island

**Their own Codes**
- Alberta
- British Columbia
- Ontario
- Quebec
Canadian Commission on Building and Fire Code

Commission (CCBFC)

Construction, Industry and Public

Prov&Territ (PTPACC)

Executive Committee

Task Groups and Working Groups

Standing Committees (SC)
- HVAC and Plumbing (SC-HP)
- Earthquake Design (SC-ED)
- Energy Efficiency in Buildings (SC-EEB)
- Environmental Separation (SC-ES)
- Fire Protection (SC-FP)
- Hazardous Materials and Activities (SC-HMA)
- Housing and Small Buildings (SC-HSB)
- Structural Design (SC-SD)
- Use and Egress (SC-UE)
From request to requirement

Continuous process

www.codescanada.ca
Evidence and consensus
The path may not be easy
Get involved!

- Volunteer for a standing committee, a task group
- Submit a code change request (CCR)
- Submit public review comments on proposed changes (PCF)
- Respond to information requests
- Attend a meeting as an observer
Standing Committee on Housing and Small Buildings (SC-HSB)
2015 Model codes

- 5 Public reviews
- 373 NBC changes
- 100 NFC changes
- 27 NPC changes
- 3179 Comments
Outline

• About NRC
• Codes Development System
• NBC 2015, Part 9 Significant Changes
Outline

- Stairs, Ramps, Handrails and Guards
- Airborne sound transmission
- Roofing, dampproofing and waterproofing standards
- Exterior insulation finish systems (EIFS)
Stairs, Handrails and Guards

- Terminology
- Dimension of rectangular tread
- Dimension of tapered tread
- Stairs configurations
- Guards
- Handrails

Christopher Holden: https://www.flickr.com/photos/maximalideal/4871758457
Terminology

Flight

Stair with one flight

Stair with two flights

landing

landing
Terminology

Flight

- Stair with one flight
- Stair with two flights

flight

floor

landing

flight

landing
Terminology

Run

- **run**: measured nosing to nosing
- **rise**: measured nosing to riser
- **tread depth**: measured nosing to riser
Terminology

Tapered treads in curved flights

Treppe, Leipziger, Messe, Sachsen: [https://commons.wikimedia.org/wiki/File:Treppe._Leipziger_Messe._Sachsen._IMG_4384WI.jpg](https://commons.wikimedia.org/wiki/File:Treppe._Leipziger_Messe._Sachsen._IMG_4384WI.jpg)
Tapered treads in curved flights

Dimensions of tapered tread

- 300 mm
- 280 mm
- 255 mm
Run dimension in dwelling units
Run dimension in dwelling units

<table>
<thead>
<tr>
<th>NBC 2010</th>
<th>NBC 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RUN</strong> 210 mm</td>
<td><strong>RUN</strong> 255 mm</td>
</tr>
<tr>
<td>RISE: 200 mm (7(\frac{3}{8}) in.)</td>
<td>RISE: 200 mm (7(\frac{3}{8}) in.)</td>
</tr>
</tbody>
</table>
Spiral stairs

➤ Code did not permit spiral stairs

➤ **Now!** Permitted
  - As secondary stairs
  - Used by less than 3 people
  - Not in exits
Mixed-run flight in dwelling units

- Code did not permit mixed treads in a flight

- **Now!** Flexibility to mix in dwelling units
  - Tapered and rectangular treads in the same flight
  - With restrictions to the run dimensions of treads
Mixed-run flights in dwelling units
Winders in dwelling units

≥ 255 mm

✓
Ornamental guards

- Restricted choices
- **Now!** Permitted when less than one floor-to-floor elevation (4.2 m)
Continuity of handrails
Sound transmission class rating
Apparent sound transmission class

ASTC

ASTC
ASTC compliance options

- Tested “as built”
  - ASTC ≥ 47

- NRC Calculation Guide
  - Detailed or simplified method
  - ASTC ≥ 47

- Deemed-to-comply construction
  - Uses STC data in NBC
Waterproofing and dampproofing

- Outdated **material** standards
  - **Deleted** obsolete standards
  - **New** standards where acceptable
  - **Kept** standards where no replacements were available

- Introduced performance requirements
Waterproofing and dampproofing

Outdated **installation** standards

- Part 5 – *Deleted* without replacement
- Part 9 – *Replaced* with Code requirements
  - Surface preparation
  - Service conditions
  - Application methods
Roofing

Outdated **material and installation** standards
- Replaced and deleted
- Reorganized in Tables by material type
Exterior insulation finish systems (EIFS)

Courtesy of: Dryvit Systems Canada
Three ULC standards:

geometrically defined drainage cavity

Courtesy of: DuROCK Al-facing International Ltd.
Takeaways

» Terminology
» Dimension and uniformity of tapered tread
» Run dimension in dwelling units
» New stair configurations in dwelling units
» Guards design
» Continuity of handrails
Takeaways

- ASTC - New metric for airborne sound transmission
- New calculation/design method for sound transmission
- Updated standards for roofing, damp proofing and waterproofing reduce liabilities for contractors
- Many new acceptable materials in Part 9
- EIFS Standards and prescriptive req’s for EIFS in Part 9
- EIFS Design guidance for Part 5
Use of illustrations

- Explain general concepts
- Key features
- Construction methods

9.20.4.3. Laying of Masonry Units

9.23.9.9. Cantilevered Floor Joists
Understand and apply the provisions in Part 9
A companion document
Informational
No legal status
Not intended for formal adoption
Online presentations

- 13 technical presentations
- Accessible format and
- Less cost
- **Availability:** on virtual store by January 2018
- **Price:** $25 per presentation
On-site seminars

- 13 technical presentations
- **Availability:** on demand
- **Contact:** NRC Codes Seminars
- **Telephone:** 613-993-0042
- **Email:** NRC.CodesSeminars-Seminairessurlescodes.CNRC@nrc-cnrc.gc.ca
- **Price:** $15 000 (half-day seminar) or $25 000 (full-day seminar)
Handbook

- Detailed information
- A stand-alone product
- Complement information
- **Availability:** on virtual store
- **Price:** $40 per handbook (PDF or hard copy)
CONTACT
Publication Sales, Codes Canada
Printed and electronic format
Telephone: 1-800-672-7990
CONSTPubsales-Ventes@nrc-cnrc.gc.ca
Codes Canada

http://www.nrc-cnrc.gc.ca/ci-ic/
Construction Innovation

Nedjma Belrechid

Thank You!
NRC’s Advances to Residential Ventilation Systems

The Construction Research Centre

Boualem Ouazia
Senior Research Officer, Construction Research Centre
1200 Montreal Rd
Ottawa ON
K1A 0R7
Dr. Boualem Ouazia

- Senior Research Officer at NRC’s Construction Research Centre
- Arctic Program – Community Infrastructure Thrust lead
- Manager of projects on
  - ✔ Air ventilation systems for housing in the Arctic
  - ✔ Balanced (HRV/ERV) ventilation effectiveness and IAQ impacts
  - ✔ Field intervention studies - Relationship between ventilation, IAQ and health