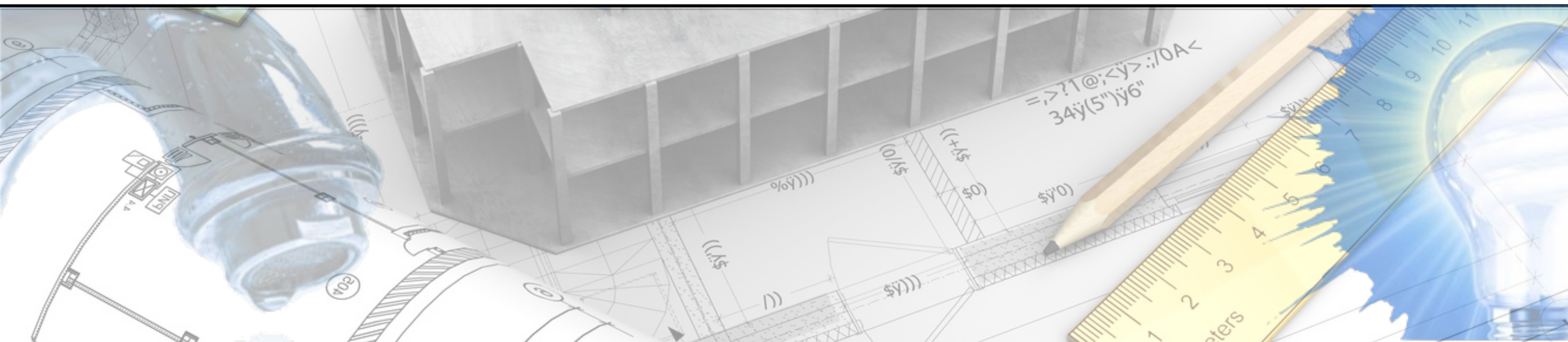
2019 Code Changes Presentation

the inspectionsgroup inc.

Residential:

Part 9 of the Alberta Building Code



Stairs

- 9.8.4.2. Dimensions for Rectangular Treads (Private Stairs) *New Minimum

10”

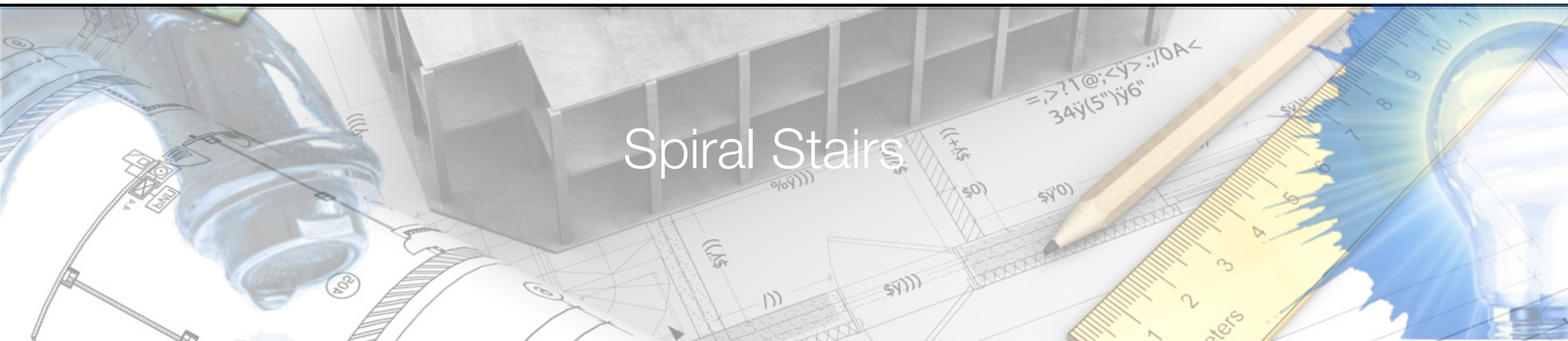
Stairs

Stairs: Minimum Runs

- 9.8.4.5. Uniformity of Runs in Flights with Mixed Treads within Dwelling Units
- ***New to Alberta
- Alberta Building Code 2014 did not allow mixed treads between floor levels. Now possible to mix in dwelling units.

SPIRAL Stairs

- 9.8.4.7. Spiral Stairs
  - ***New to Alberta & National Building Code
- Not limited to dwelling units
- Permitted as the only means of egress when:
  - Serves not more than 3 persons and
  - Not serves as an exit (Commercial Prop.)



Stairs - Clarifications

- Clearance and Design
- The clearance between a handrail and the surface behind it shall be not less than
    - 50 mm, or
    - where said surface is rough or abrasive, 60 mm.
- Appendix note on graspable: The graspable portion of a handrail should allow a person to comfortably and firmly grab hold by allowing their fingers and thumb to curl under part of all of the handrail. (A-9.8.7.5.(2))

Ornamental Guards

- 9.8.8.6. Design of Guards to Not Facilitate Climbing
  - Permitted when protecting a level not more than 4.2m above adjacent level. If greater than 4.2m, design as per 9.8.8.6.
  - Design shall still not allow a 100mm diameter spherical objet to pass through the guard.

Residential Fire Warning Systems

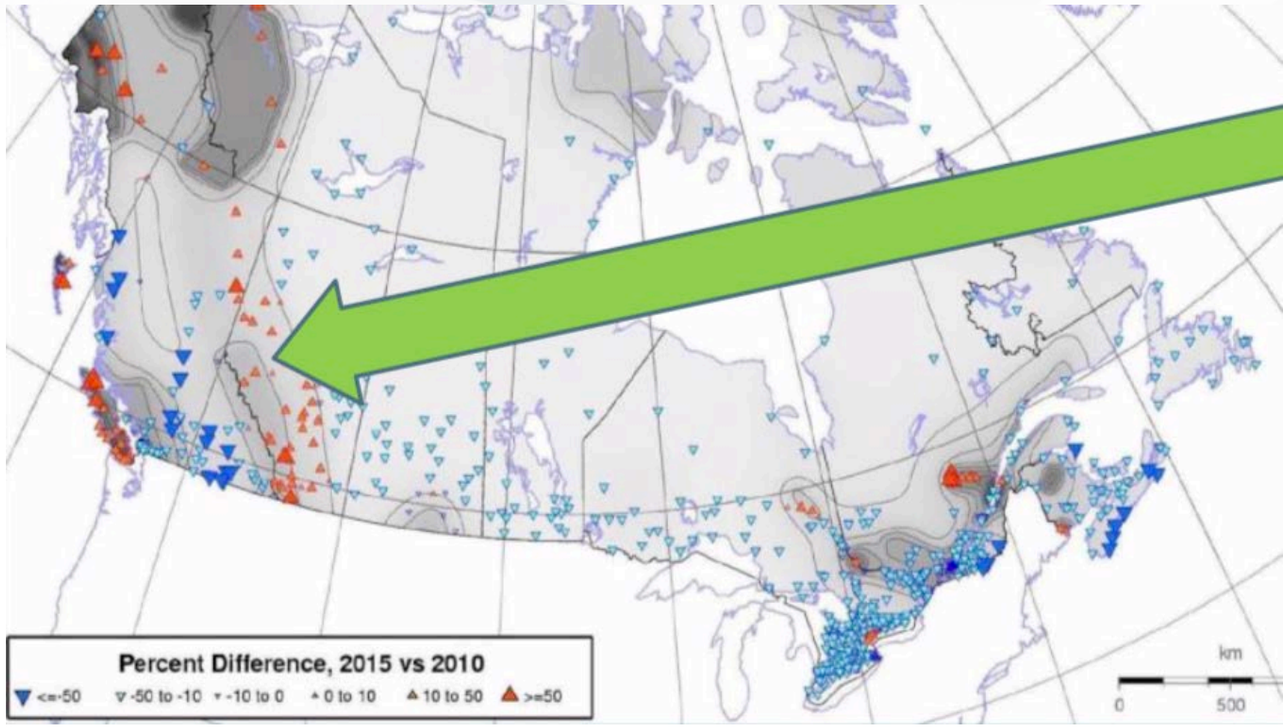
- 9.10.19.8 Residential Fire Warning Systems
  - ‘Essentially’ a fire alarm system designed for residences that includes requirements that it function like an interconnected smoke detector system in a SFD.

Roofing, Waterproofing and Dampproofing

- 9.13 Dampproofing, Waterproofing and Soil Gas Control
  - CGSB material standards
    - Deletes outdated standards
    - Replaced ASTM where acceptable
    - Kept CGSB standard where no replacements are available
  - CGSB installation standards
    - Deleted and replaced with prescriptive requirements for installation

Structural Design - Lateral Loads

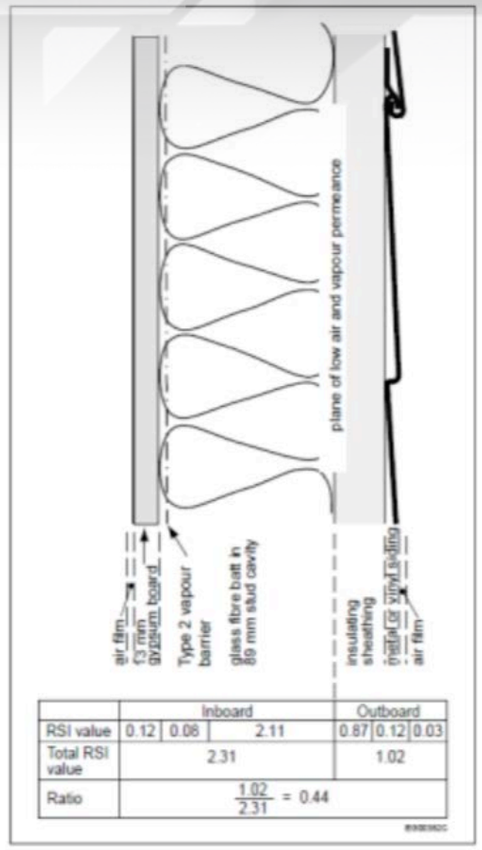
- Only going to show up in Alberta, if you are building in the mountains or immediate foothills.



Fire Warning Systems

Low Permeance Materials

- 9.25.5. Properties and Position of Materials in the Building Envelope
  - DON'T create 2 sealed vapour barriers within your wall assembly



	Inboard			Outboard		
RSI value	0.12	0.08	2.11	0.87	0.12	0.03
Total RSI value	2.31			1.02		
Ratio	$\frac{1.02}{2.31} = 0.44$					

Low Permeance Materials

EIFS Systems

- 9.27.13. Exterior Insulation Finish Systems
  - Comply with prescribed drainage cavity referenced in ULC standards, or
  - Comply with Part 5

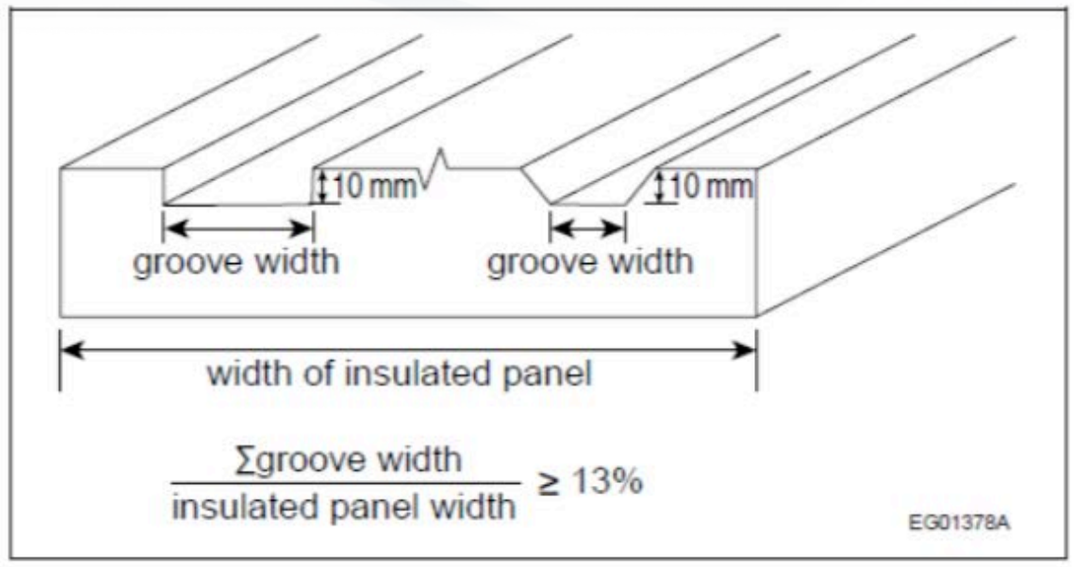


Figure A-9.27.13.1.(1)
Geometrically defined drainage cavity

Energy Efficiency: Garages

- 9.36.2.1.(8) the requirements of this Subsection also apply to components of a building envelope assembly that separate a heated or unheated garage from unconditional space or the exterior air, where the attached garage serves
  a) not more than one dwelling unit, or
  b) A house with a secondary suite.

The above has been removed from section 9.36. Envelope requirements for attached and detached garages is located in Section 9.25.

Energy Efficiency: Design Temp.

- 9.36.2.2. Determination of Thermal Characteristics of Materials, Components and Assemblies

  4) The effective thermal resistance of opaque building assemblies shall be determined from:

  a) Laboratory tests performed in accordance with ASTM C1363, “Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus,” using an indoor air temperature of 21℃ +/- 1℃ and an outdoor air temperature of -18℃ +/- 1℃ ~~(-35℃ +/- 1℃)~~

Energy Efficiency: Design Temp.

- 9.36.2.9. Airtightness
  - c) 9.36.2.9.(2-6) / Tested assembly to ASTM E 2357 / 9.25.3. ***New Sub-clause ****
    - i) the building <u>will not</u> be subjected to sustained wind loads calculated based on a 1-in-50 hourly wind pressure that <u>exceed 0.65 kPa</u>, and
    - ii) The air barrier assembly is installed on the warm side of the thermal insulation of the opaque building assembly.

Cold Lake 0.38 / St Paul 0.37 / Lac La Biche 0.36 / Westlock 0.42 / Athabasca 0.36

Main Entrance Doors

- A-9.7.4.2.(1) Standards referenced for Windows, Doors and Skylights
  - Performance of Doors, Limited Water Ingress Control (LW) rated doors

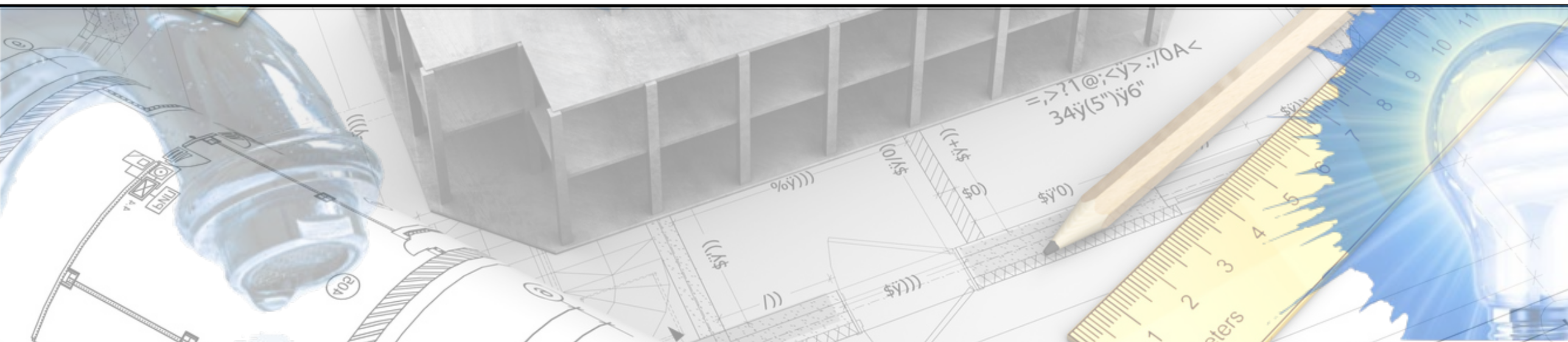
LW∅

LW

Main Entrance Doors

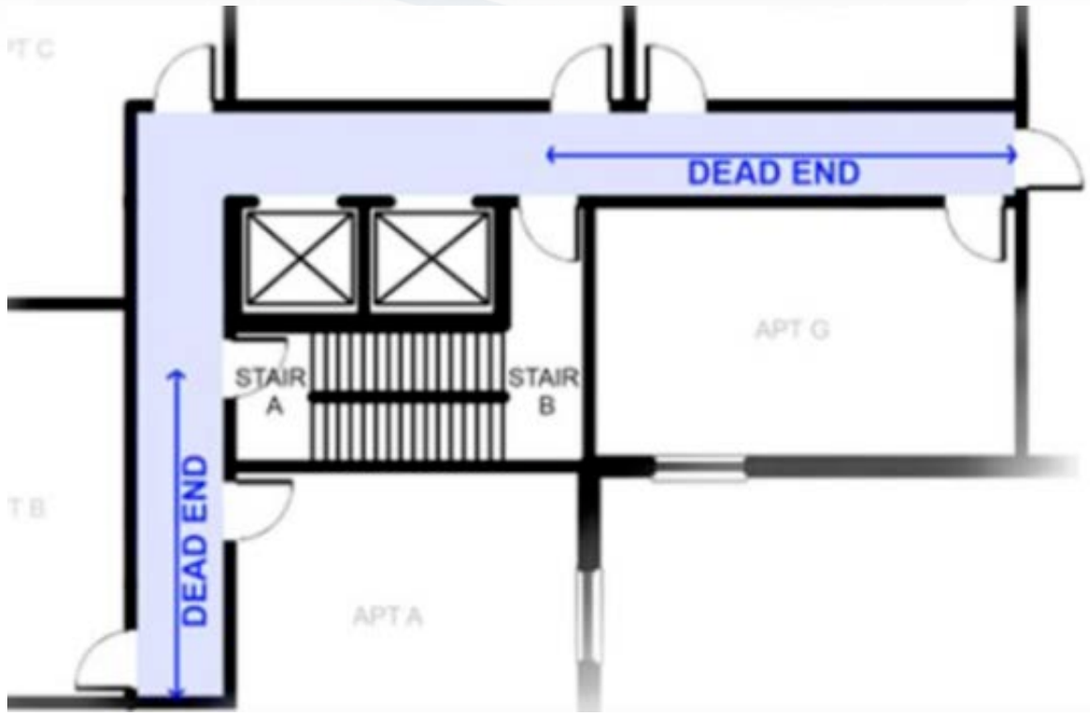
Commercial:

Part 9 of the Alberta Building Code



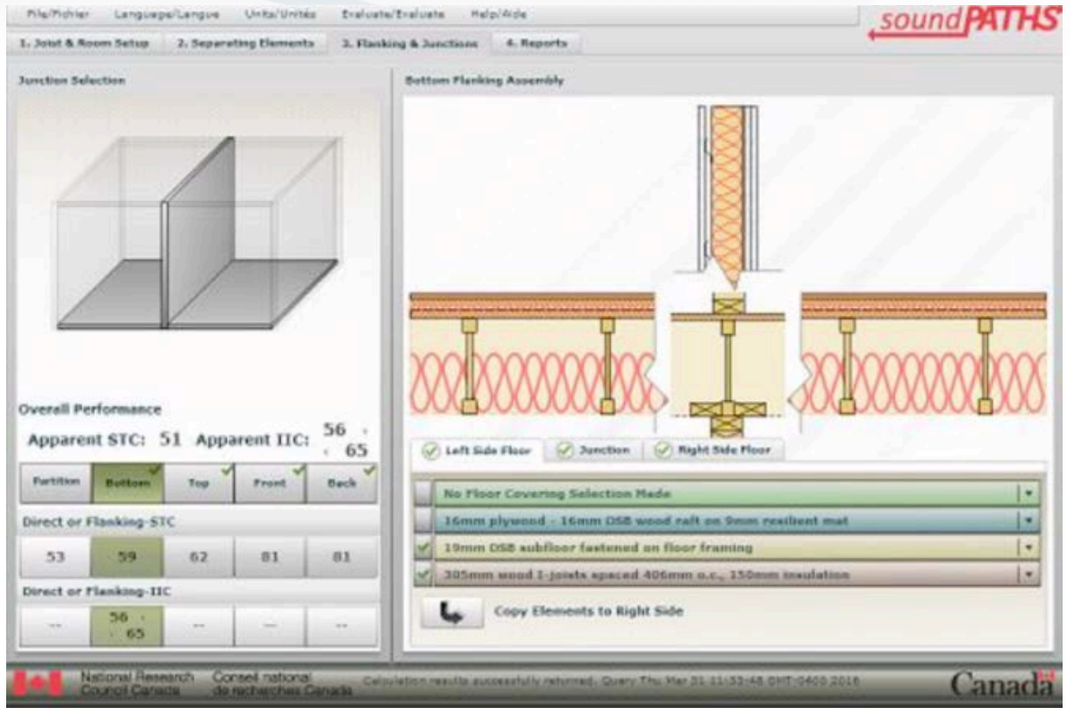
Dead End Corridors

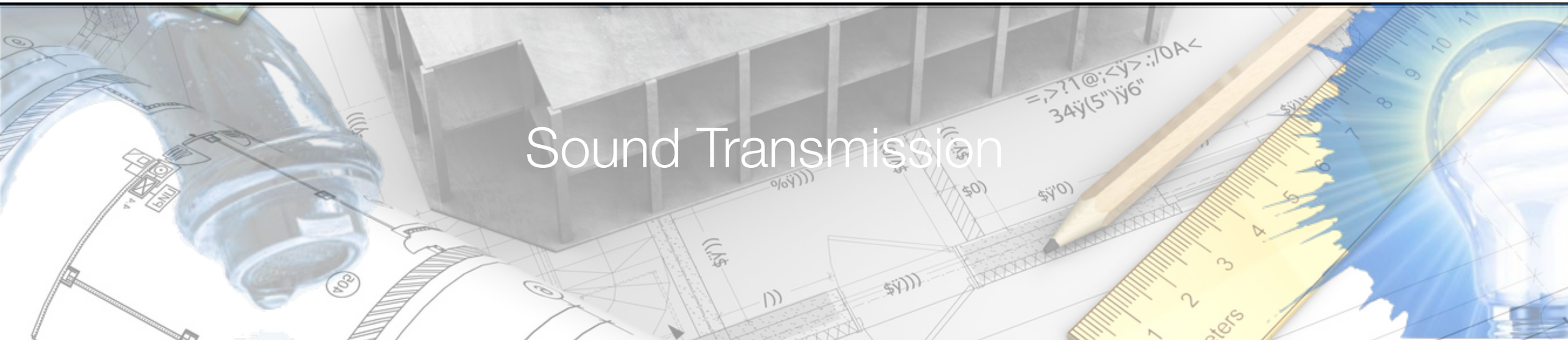
- 9.9.7.3. Dead-End Corridors
  - Now permitted to be not more than 6m long. (was 3m)



Sound Transmission

- 9.11.1.2. Determination of Sound Transmission Ratings
- Apparent Sound Transmission (ASTC) is introduced to account for flanking sound transmission in addition to direct sound transmission





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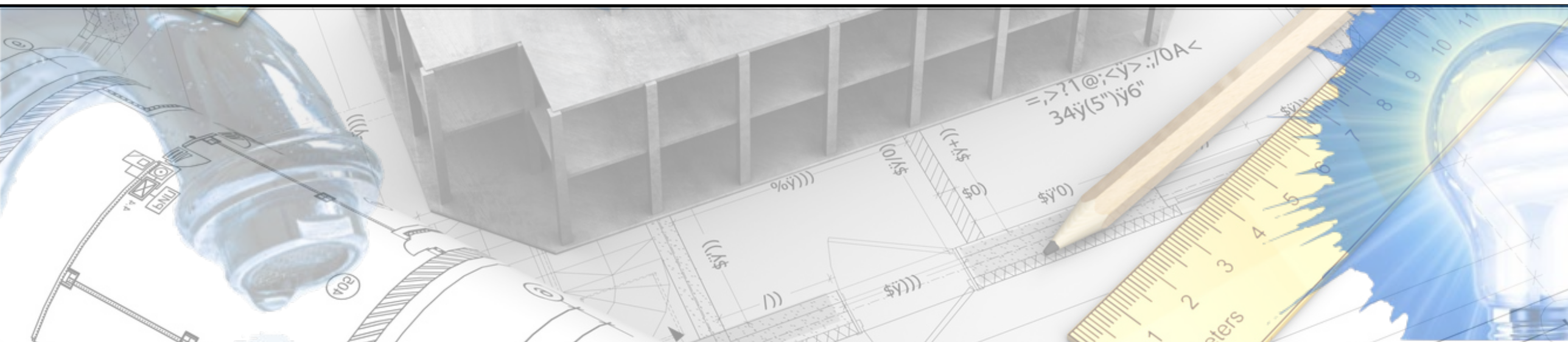
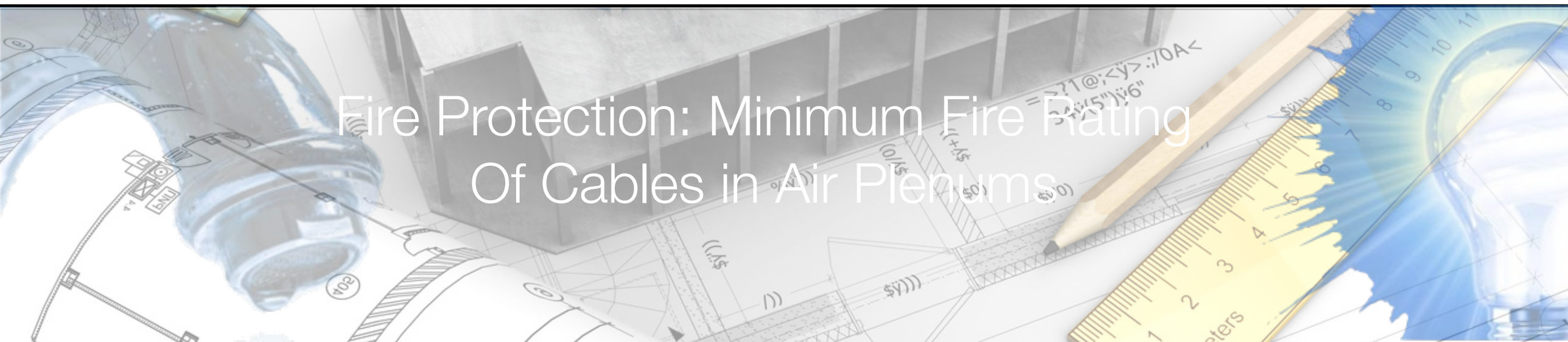
Large Projects:

Part 3 of the Alberta Building Code



3.1.4. Combustible Construction

- Change in the minimum rating
- Optic fibre cables and electric cables with combustible insulation in air plenums (for voice, sound and data) in combustible construction used to be FT4 and is now FT6
- Now consistent with optical fiber cables and electrical wires and cables in non-non-combustible construction



3.1.9.4. Penetration by Outlet Boxes

- Non-combustible outlet boxes (no fire stop required - with some size limitations)
- Opposing outlet boxes in a fire rated wall:
  - Separated horizontally not less than 600 mm, or
  - Fire Block

3.9. Self-Service Storage Buildings

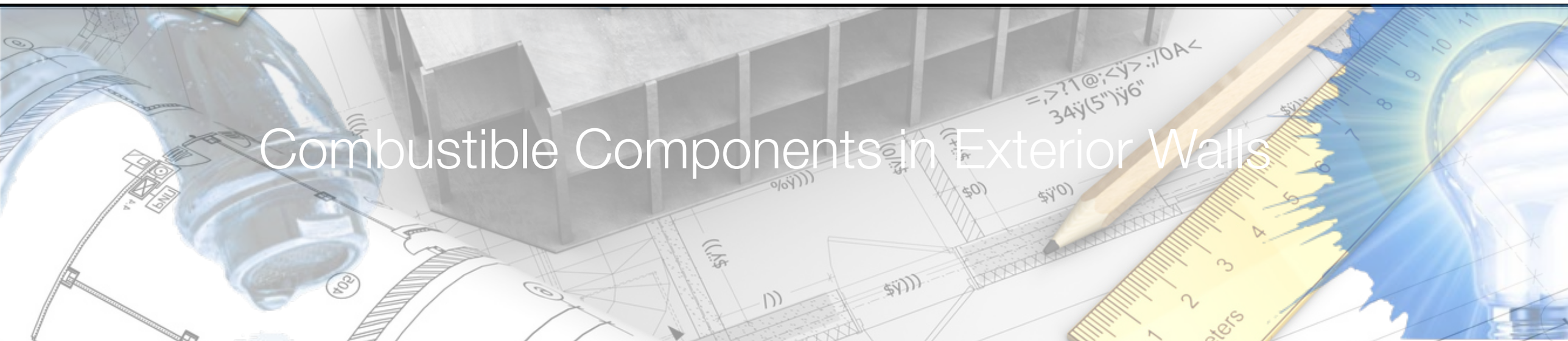
- Not more than 1 storey
- No Basement or mezzanine
- No other major occupancy
- Fire rated separations between compartments or the building is sprinklered

Foamed Plastics - 3.1.4.2(2) / 3.1.5.7. / 3.1.5.14. / 3.1.5.15.

- Updates for walk-in coolers and Freezers in combustible construction buildings.
- Permission for factory assembled panels containing foamed plastics in certain situations.
- Requirements for combustible insulation and foamed plastics within non-combustible buildings has been separated into two code articles.

Combustible Components in Exterior Walls

- For Non-Combustible construction:
    - Cladding and components separated into two articles
    - Done to help clarify the distinction between these requirements

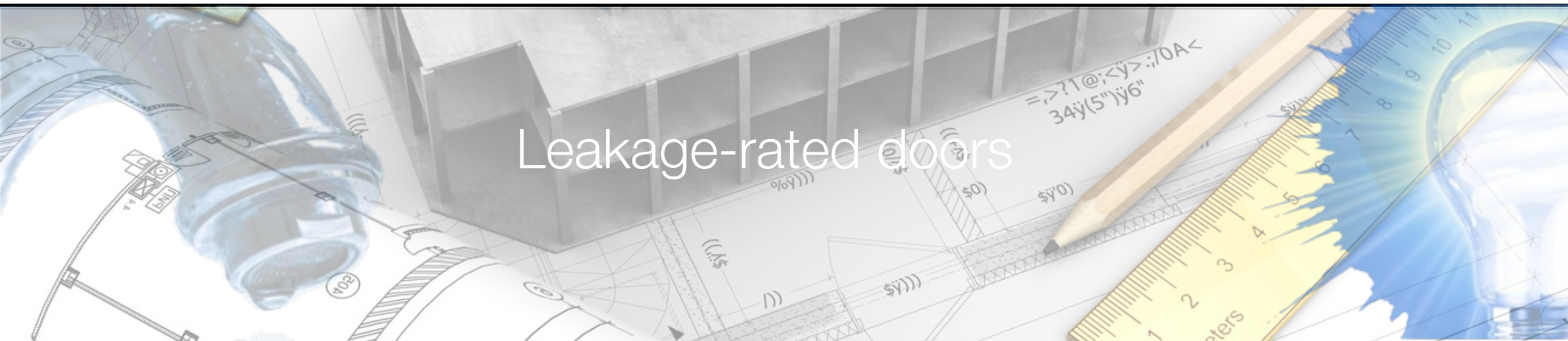


Installation of Smoke Dampers (3.1.8.7. / 3.1.8.9. / 3.1.8.11)

- Previously only addressed Fire dampers
  - prevent smoke spreading into egress paths
  - In specific locations…like public corridors
  - Combination fire/smoke damper is permitted

3.1.8.5. Installation of Closures

- **<u>Leakage-rated doors</u>** need not be installed where a dwelling unit served by a public corridor has
  a) a second and separate means of egress, or
  b) an open-air balcony
- Installation to NFPA 105 and ANSI/UL 1784 " Air Leakage Test of Door Assemblies and Other Opening Protectives"
- Certified doors marked "Smoke and Draft Control Door" or "S"



BUILDING COMMISSIONING IS FORMALLY HERE NOW!

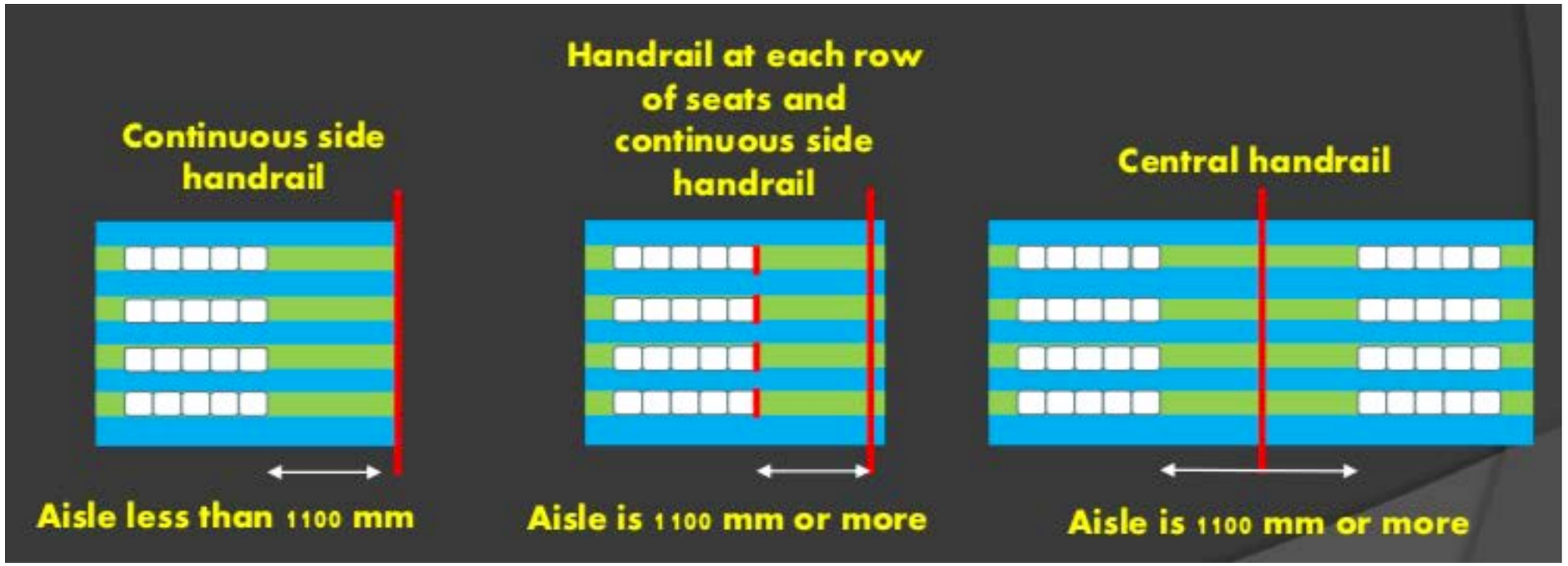
- **<u>3.1.8.13. / 3.2.9.1.</u>**
- CAN/ULC S1001 “Integrated Systems Testing of Fire Protection and Life Safety Systems” now a requirement.

Mezzanines relaxed to National Standards

- **<u>3.2.8.3</u>**
- Article Deleted: Now permits combustible construction if the occupancy classification permits combustible construction in 3.2.2.

Handrails for Aisles with Steps

- **<u>3.3.2.10.</u>**
  Clarification added to this article.



Handrails for Aisles with steps

Emergency Crossover Access to Floor Areas

- **3.4.6.18.**
  - Reworded - Updated to clarify
  - Electromagnetic locks now permitted

Distance Between Exterior Exits

- **<u>3.4.2.3.</u>**
  - Now permitted to only be separated by 6m
    - where the building is <u>sprinklered</u> throughout **<u>AND</u>** the 2 exterior exits are <u>within 15m of a street.</u>

Handrails, Guards and Stairs

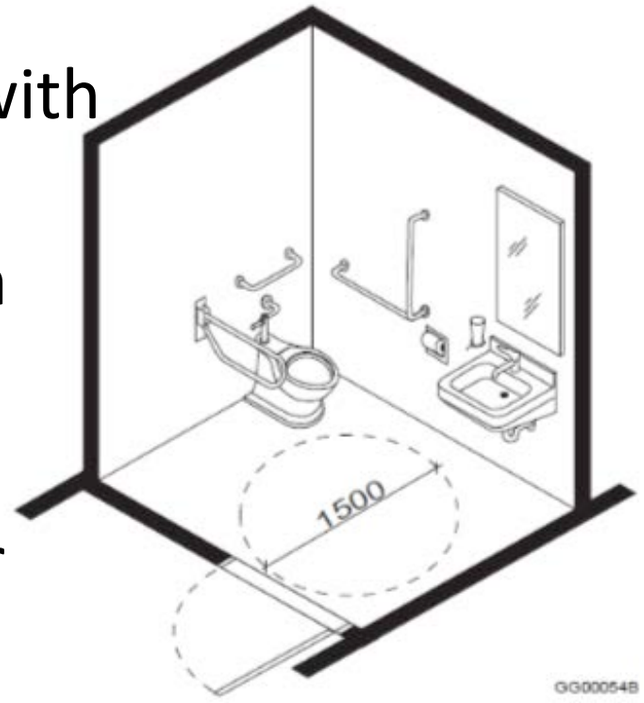
- **<u>3.4.6.4 / 3.4.6.6. / 3.4.6.8.</u>**
    - “Graspable portion” for non-circular cross section handrails is now deleted
    - Height of guards serving flight of exit stairs in Part 3 / 9 is harmonized (previously 920mm and 1070 mm) to all be 1070 mm
    - No open riser stairs permitted in public stairs, only permitted within dwelling units and industrial occupancies.

Accessibility

- **<u>3.8.3.1. Design Standards</u>**
  - Buildings or part there and facilities that are required to be barrier-free shall be designed in accordance with this subsection.
- CSA B651 will **<u>NOT</u>** be adopted in Alberta, not as restrictive as AB Barrier-Free requirements.

Accessibility

- **<u>3.8.3.11. Accessibility</u>**
  - water closet stalls and enclosures shall be equipped with L-shaped grab bar
    - horizontal and vertical components not less than 760mm long
    - mounted 750mm to 850 mm above the floor
    - Vertical component 150mm in front of the water closet

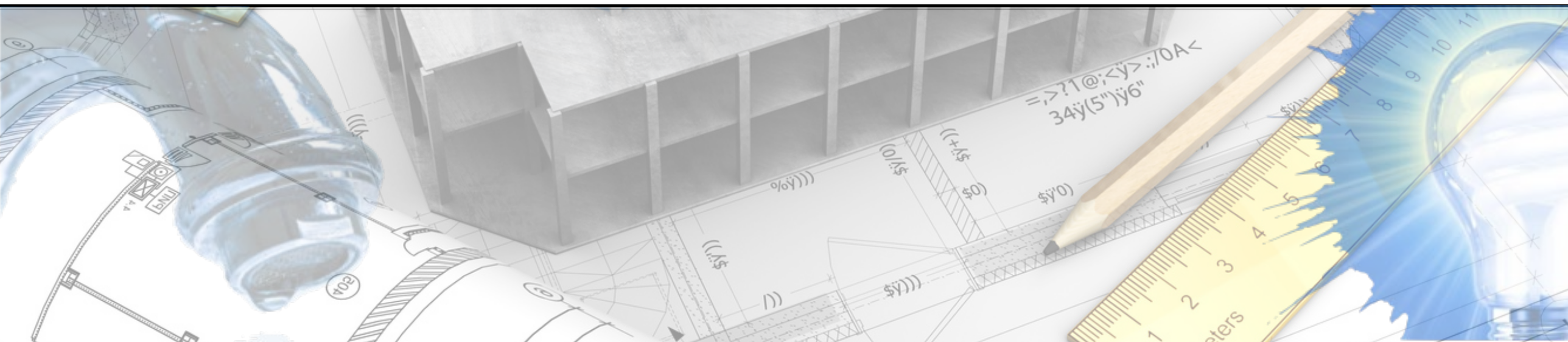


Accessibility

- **<u>3.8.3.11. Accessibility</u>**
  - NEW requirements for **<u>medical doctor clinics</u>** and offices to provide enhanced accessibility. For example;
    - Entrance doorway width is required to be 915mm when the door is in the open position

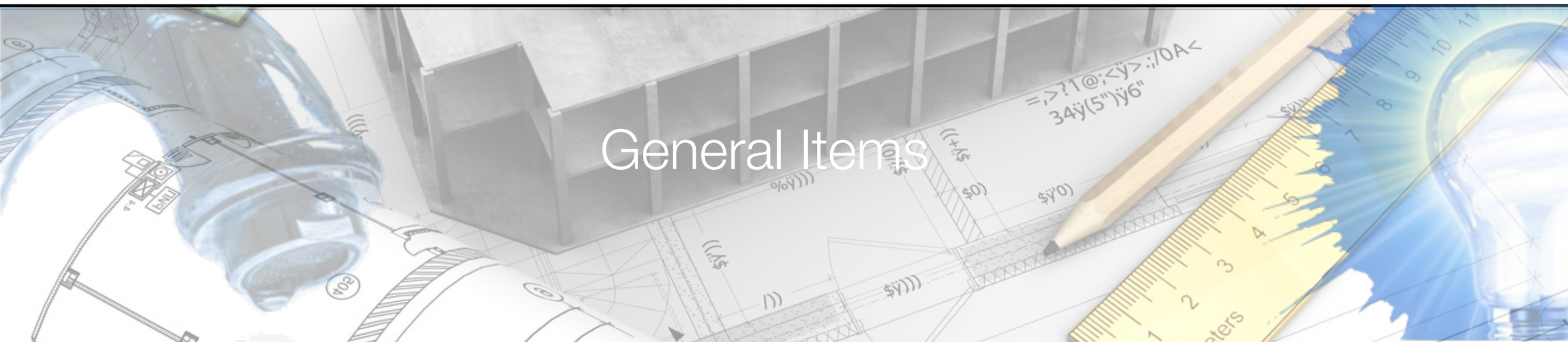
Environmental:

Part 5 of the Alberta Building Code



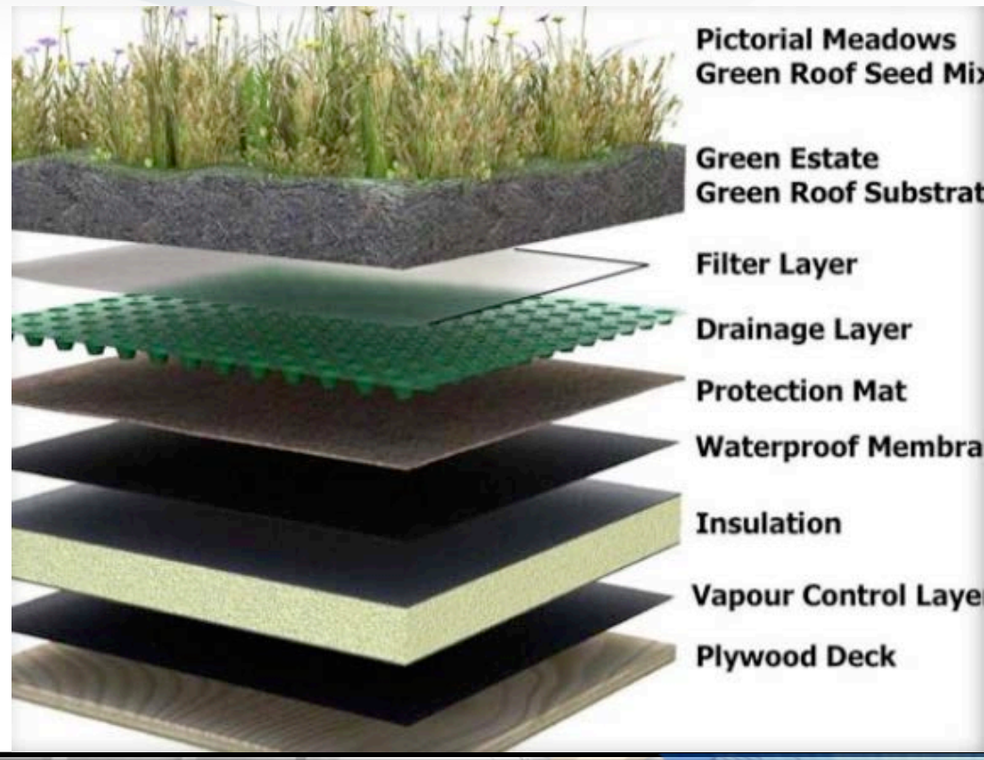
General Items

- Curtain walls, Storefronts and Glazed Architectural Structures
- EIFS systems have their own Subsection now (5.9.4.)
- Wind Uplift of Membrane Roofing Assemblies has a specific standard CAN/CSA-A123.21 added



Vegetative Roofing Systems

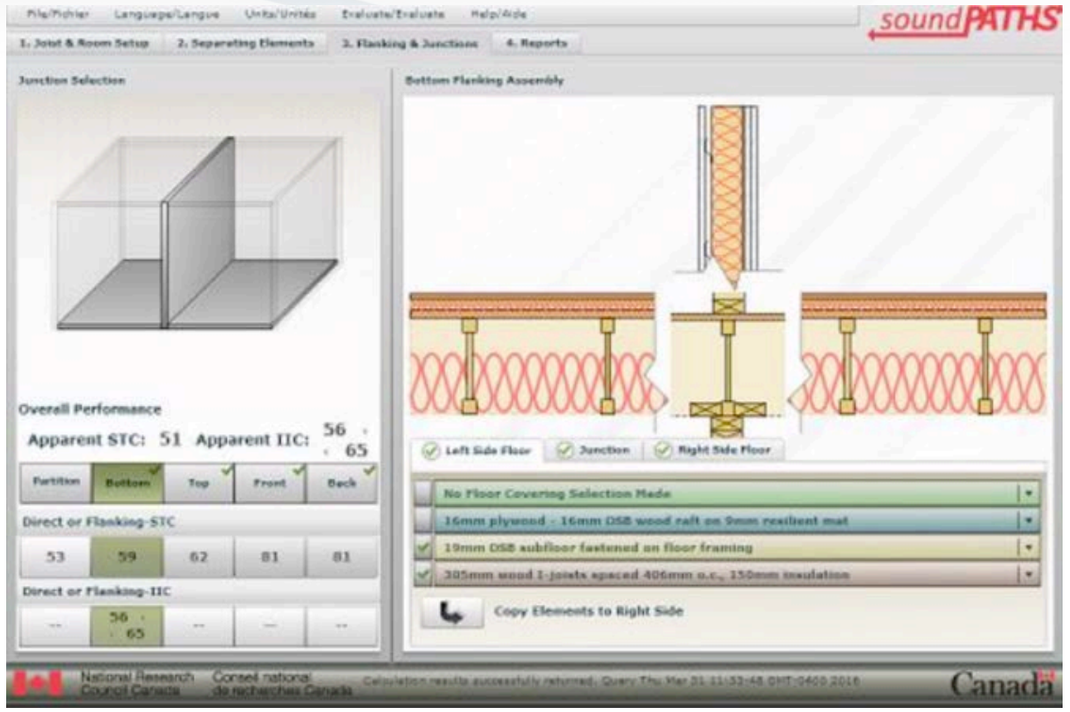
- 5.6.1.2. Installation of Protective Materials
  - Materials need to be tested for precipitation also need to be tested for resistance to root and rhizome penetration.
- New standard: ANSI/GRHC/SPRI VR-1

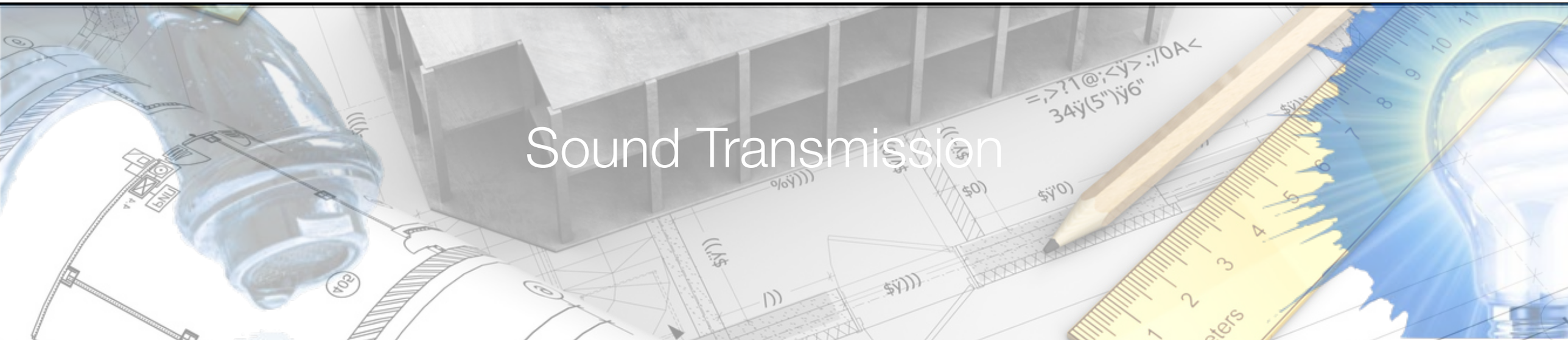


Vegetative Roofing Systems

Sound Transmission

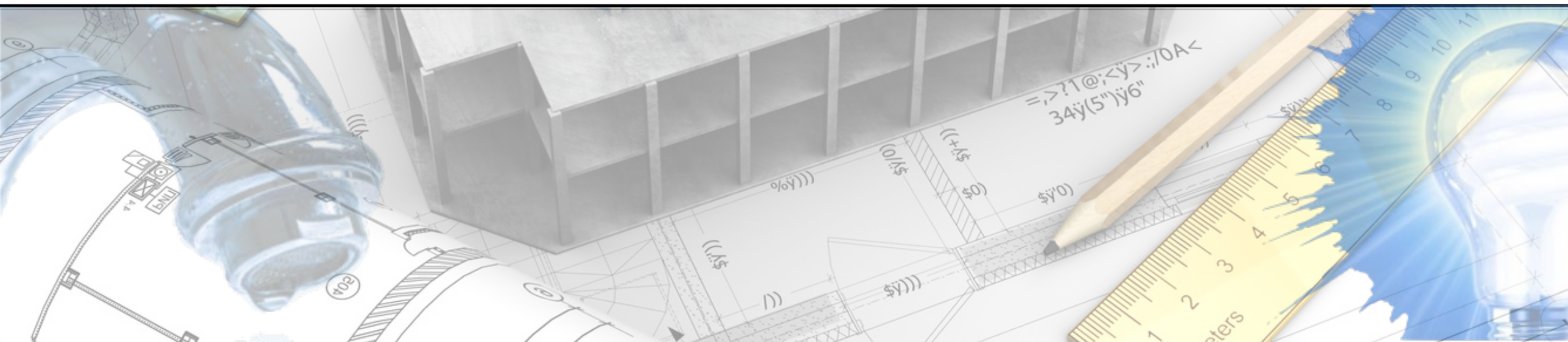
- Apparent Sound Transmission (ASTC) is introduced to account for flanking sound transmission in addition to direct sound transmission
- Section 5.8 or tables 9.10.3.1.A/B & 9.11.1.4.





HVAC:

Part 6 of the Alberta Building Code



Separation Distances

- 6.3.2.9 Supply, Return, Intake and Exhaust Air Openings

Table 6.3.2.9.
Minimum Distances of Air Intakes from Sources of Contaminants
Forming Part of Sentence 6.3.2.9.(2)

Source of Contaminants	Minimum Distance of Outdoor Air Intake, m
Garage entry of a garage for 5 or more motor vehicles, automobile loading area and drive-in queue	4.5
Truck loading area or dock, and bus parking	7.6
Driveway, *street*, and parking space	1.5
Thoroughfare, arterial road, freeway, and highway	7.6
Garbage storage/pick-up area and dumpsters	4.5
Discharge from evaporative cooling tower, evaporative fluid cooler and evaporative condenser	7.6
Sanitary vent	3.5
Kitchen cooking exhaust	3.0
Vent for combustion products	3.0

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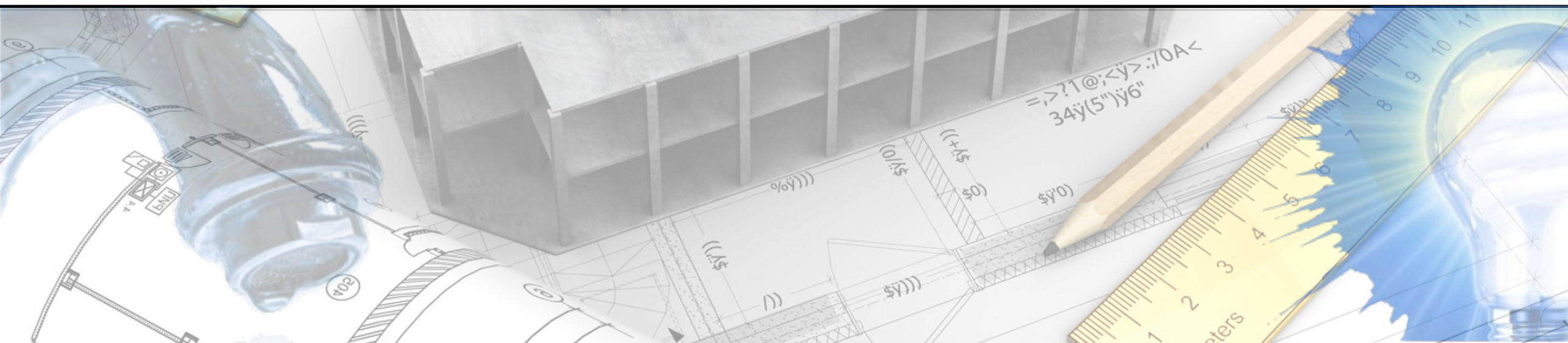
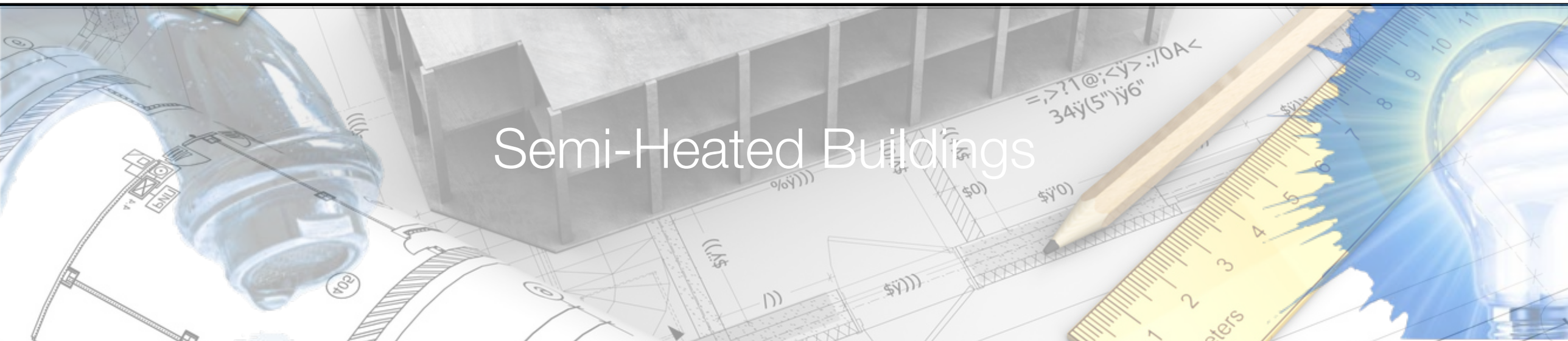
NECB 2017 Changes



Semi-Heated Buildings

- Semi-Heated Building is a defined term: For the purposes of this Code, a semi-heated building is considered to be a building with a design set-point temperature of less than 15℃.

- Trade-off path does not apply to additions or to semi-heated buildings



Air-Barrier Performance

- Now have a Standard air-barriers must perform too:
    - CAN ULC-S742, “ Air Barrier Assemblies - Specification,” and an air leakage no greater than 0.2L/(s*m2) at a pressure differential of 75 Pa., **OR**
    - Air barrier assemblies tested in accordance with ASTM E 2357

NO prescriptive or measurement method identified in NECB 2011.

Trade-Off Path

- The Detailed trade-off path has been deleted
- ONLY simple trade-off method is permitted, or go to modelling.

Part 3: Building Envelope ***NEW ITEMS***

- New standards for determining thermal characteristics of building assemblies
  - BC Hydros Building Envelope Thermal Bridging Guide. Using the Building Envelope Thermal Analysis (BETA)
  - ASHRAE RP-1365 “Thermal Performance of Building Envelope Details for Mid and High-Rise Buildings
  - ISO 14683 “Thermal Bridges in Building Construction”

Modeling: All two or three dimensional thermal modelling

Part 3: Building Envelope ***NEW ITEMS***

- Lowered U-Values for Roofs in all zones

Zone 7A	NECB 2011	NECB 2015	NECB 2017
Walls	0.21	0.21	0.21
Roofs	0.162	0.162 RSI 6.17 (R35)	0.138 RSI 7.24 (R41)
Floors	0.162	0.162	0.162

Part 3: Building Envelope ***NEW ITEMS***

- Lowered U-Values for fenestrations and doors in all zones

Zone 7A	NECB 2011	NECB 2015	NECB 2017
Fenestrations (except doors)	2.2	2.2 (RSI 0.45 –R 2.56)	1.9 (RSI 0.52 – R 2.95)
Doors	2.2	2.2 (RSI 0.45 –R 2.56)	1.9 (RSI 0.52 – R 2.95)

Max Light Power Density (LPD) limits

- Calculation of interior Lighting Power Allowance Using the Building Area Method

Building Type	NECB 2017	NECB 2015	NECB 2011
Hotel	8.1	9.4	10.8
Hospital	11.3	11.3	13.0
Warehouse	5.2	7.1	7.1
Library	8.4	12.8	12.7

Exterior Lighting Site Allowance

- Reduced Base Site Allowance for Exterior Lighting

Zone	NECB 2017	NECB 2015	NECB 2011
4	900 W	1300 W	1300 W
3	500 W	750 W	750 W
2	400 W	600 W	600 W
1	350 W	500 W	500 W

Application	NECB 2017	NECB 2015	NECB 2011
Drive Through	200 W	400 W	400 W
ATM machines	135 W + 45 W for additional	270 W + 90 W for additional	270 W + 90 W for additional

Part 4 NEW ITEMS

Demand Control Ventilation

- 5.2.3.4. Demand Control Ventilation Systems

1)Enclosed semi-heated spaces or conditioned spaces where fuel powered vehicles or mobile fuel-powered equipment or appliances are intermittently used shall be provided with sensors and demand control ventilation systems capable of limiting the expected air contaminants to acceptable levels by

a)staging the ventilation fans, or

b)Modulating the outdoor airflow rates.

Eg. Indoor spaces where fuel-powered equipment is used

Heat Rejection *NEW

- Introduces performance requirements for standalone heat rejection equipment
- Cooling Tower and Condensate categories
  - Direct Contact
  - Indirect Contact
  - Indirect Contact Evaporative
  - Air Cooled

Temporary Control in Guest Rooms and Suites

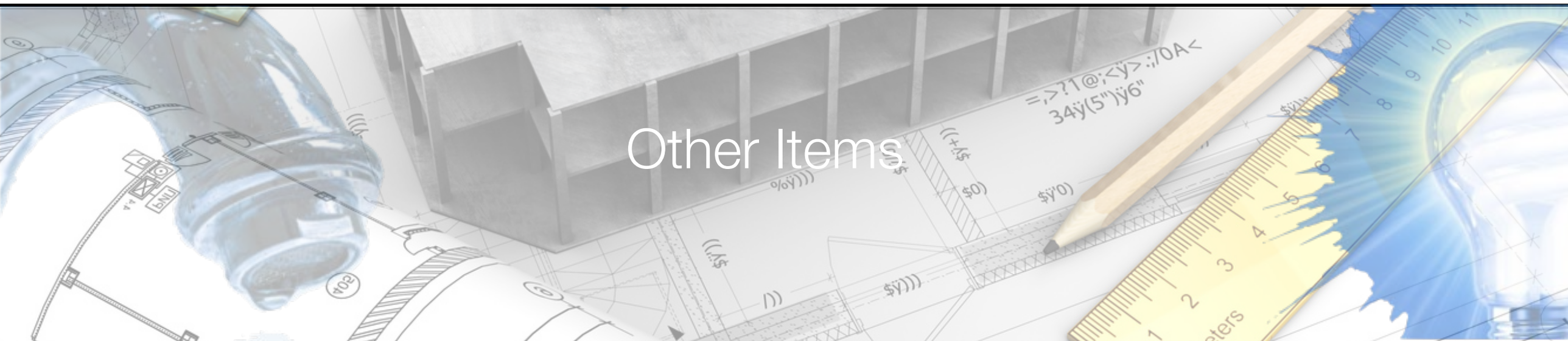
- Shall be controlled so it is automatically adjusted to set back temperature within 15 minutes of the space being unoccupied

Energy Recovery Systems:

- Name change HRV is now Energy Recovery System (ERS)
- If the exhaust air system design exceeds or meets certain values, it shall be equipped with an ERS
- Ventilation systems that operate less than 8000 hours per year are considered non-continuously operating

Tweaks to Existing

- 5.2.5.3. Piping Insulation - design temp range ~~13℃~~ 16℃ - 41℃
- 5.2.12.1. Unitary and packaged HVAC (added efficiency requirements Gas-fired outdoor packaged units)
- 5.2.12.1/6.2.2.1. Updates performance requirements in Mechanical and Service Water Tables
- 6.2.6.1. Showers / 6.2.6.2. Lavatories have reduce the max. water flow rates



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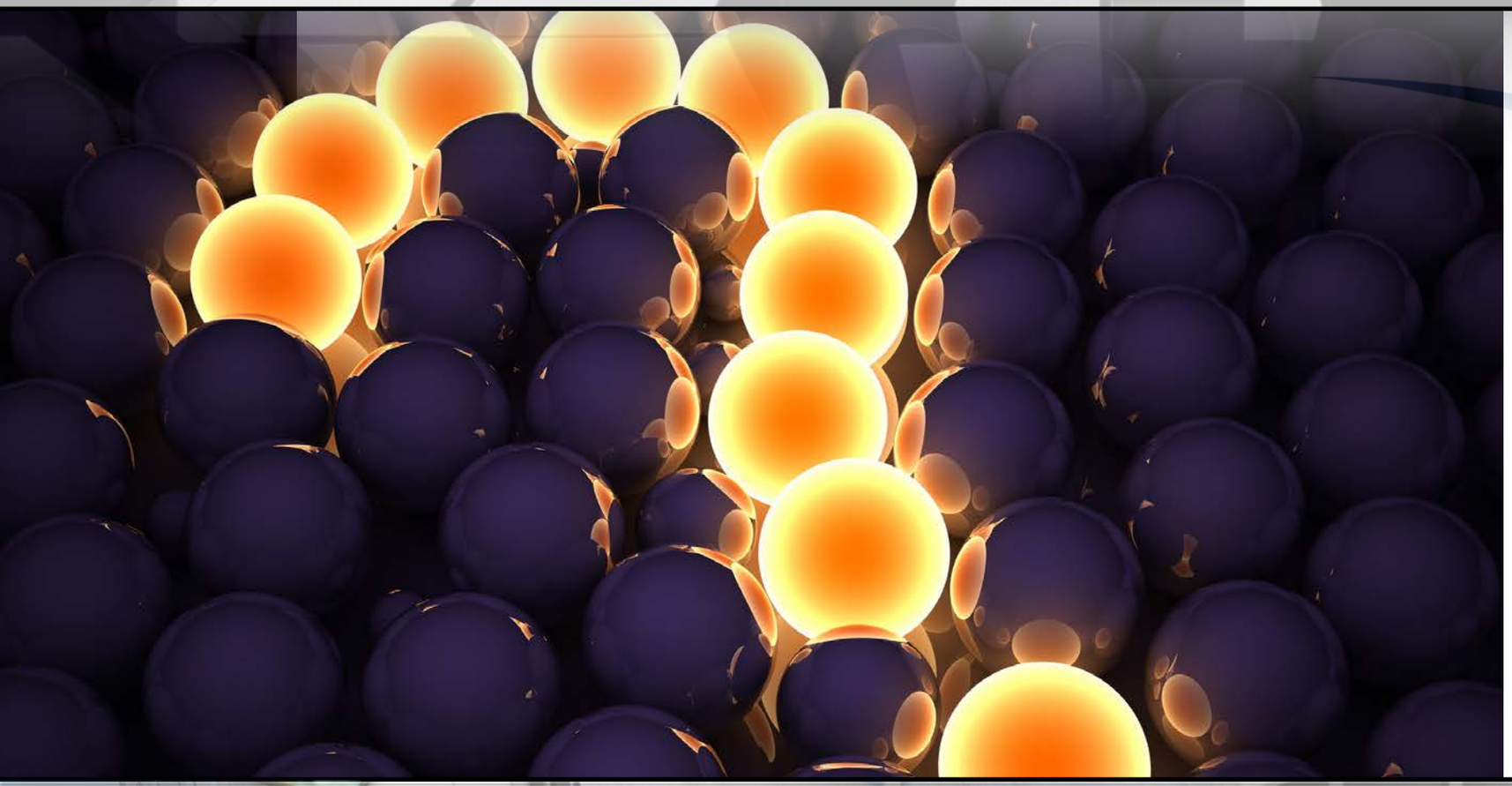

Questions

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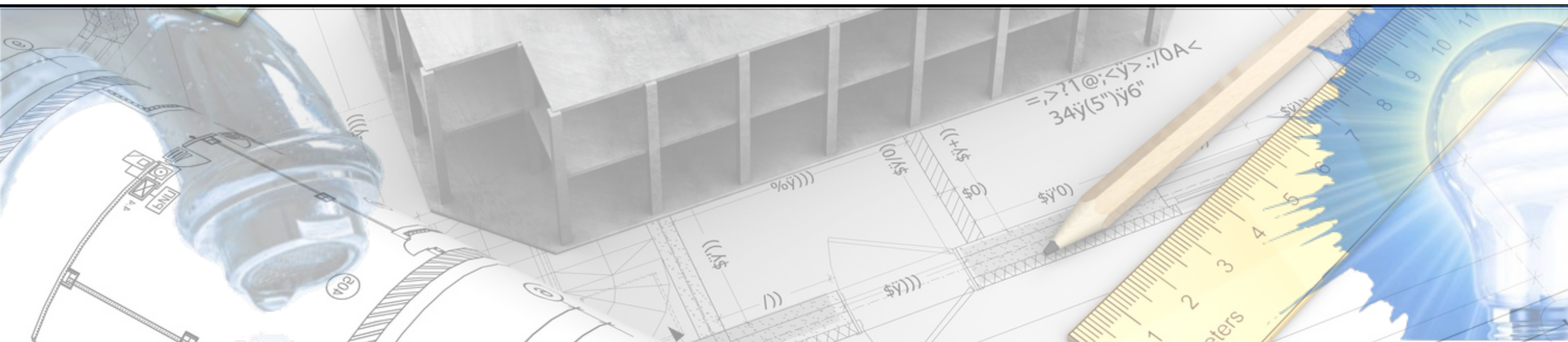
2018 Electrical Code Changes



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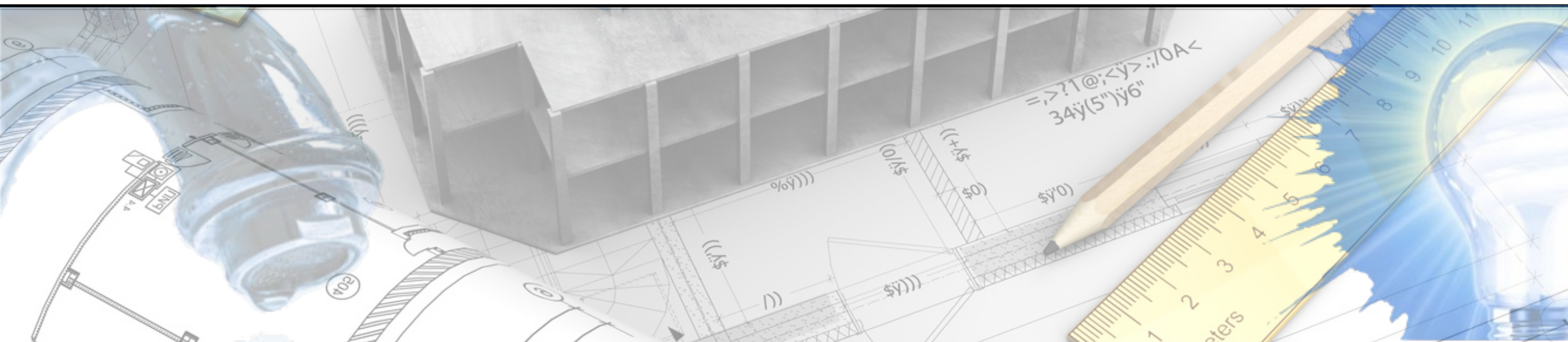
Residential Key Changes



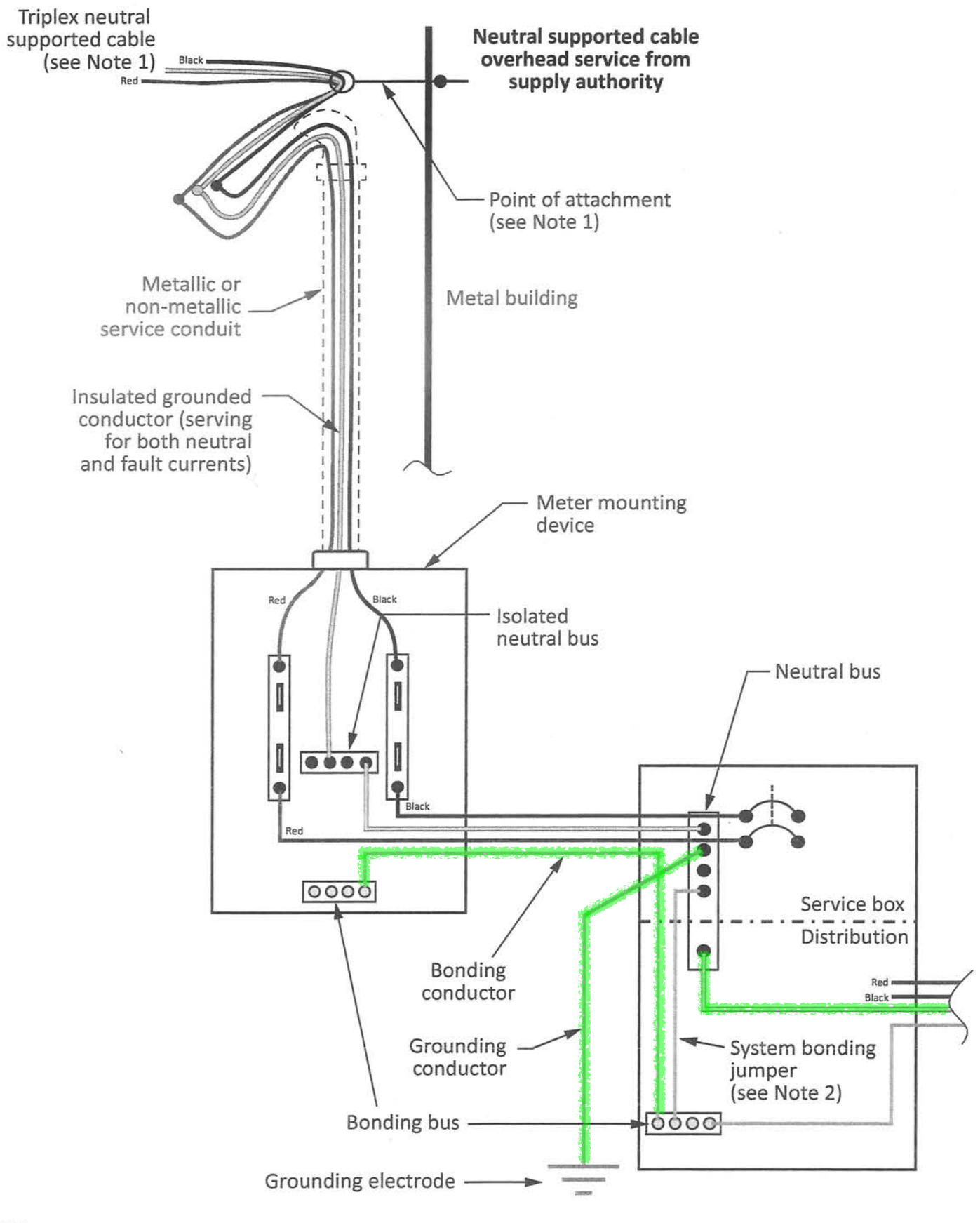
Rule # 4-022(2) Installation of the identified conductor

- The identified conductor shall be installed at each location of a manual or automatic control device for the control of permanently installed luminaries at a branch circuit
- Examples: general use switches, motion sensors, photocells, dimmers and components of energy or lighting management system

Rule # 10-210(a) Grounding connections for solidly grounded AC systems by the supply authority

- When the system ground is installed into the neutral buss in the main breaker compartment of the panel, a bonding conductor must be installed from the bond buss in the panel to the bond buss in the meter socket. This bonding conductor must be sized according to Table 16.

Figure B10-5
Consumer's service grounded at the service box



Rule # 26-656(3) Arc Fault protection of branch circuits for dwelling units

- Additional receptacles may now be added to an existing branch circuit that is not arc fault protected, as long as an outlet branch-circuit-type arc fault circuit interrupter is installed in the first receptacle added into the circuit.

Rule # 26-706(1) Tamper Resistant receptacles

- Guest rooms and suites of hotels and motels and preschool and elementary education facilities were added to the requirements for installation of tamper resistant receptacles.

Rule # 26-724 Receptacles in dwelling units

- The requirement for a separate branch circuit for receptacles in a dining area forming part of a kitchen has been removed, the spacing requirements of 26-724(a) are still applicable.

Rule # 68-306 Receptacle for a cord-connected hydro massage bathtub

- The receptacle for a cord connected hydro massage tub must be supplied form a circuit supplies only receptacles for that tub.

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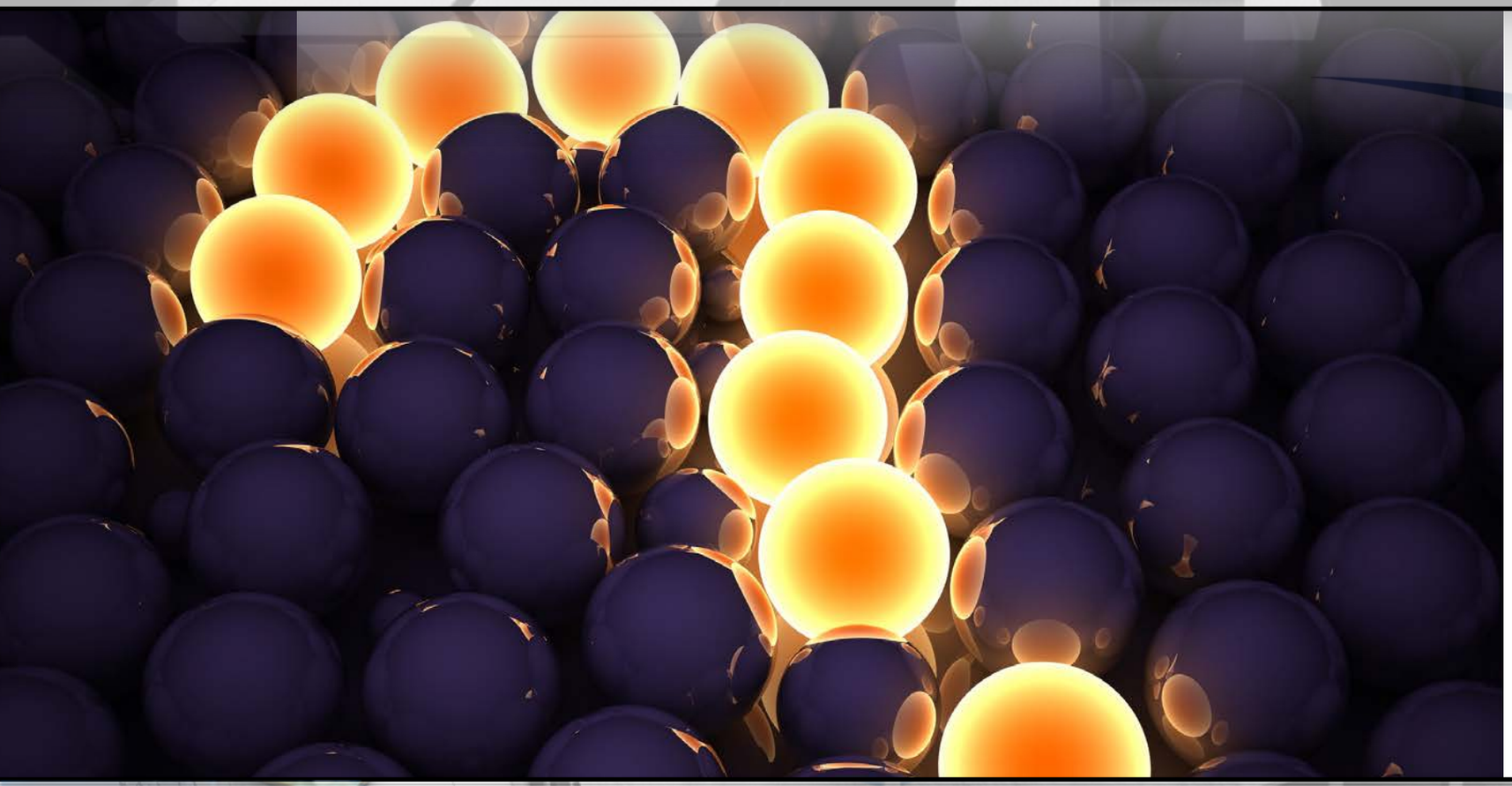
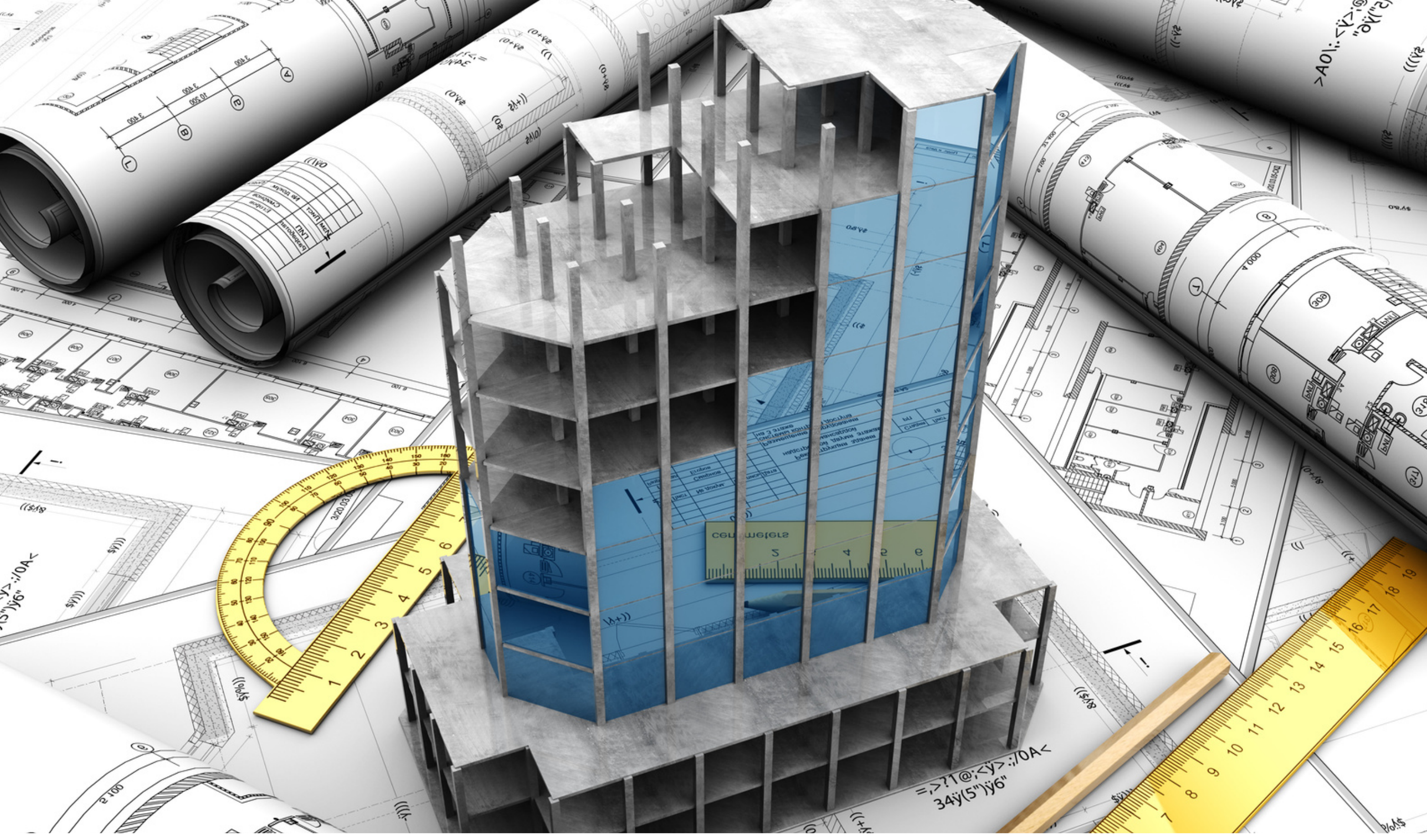


Questions



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