

BUILDING RENEWAL

Accelerating Urban Sustainability Progress Through Facade System Renovation



SPEAKERS



**ANNETTE MATTHEWS,
G.S.C**
Project Manager
PCL Constructors Canada Inc.



**HARRISON CHAN,
OAA, MRAIC**
Principal
WZMH Architects



DON DELANEY, P.ENG.
Engineering Manager
Flynn Group of Companies



SCOTT ARMSTRONG
*Senior Façade Engineering
Specialist*
WSP Canada



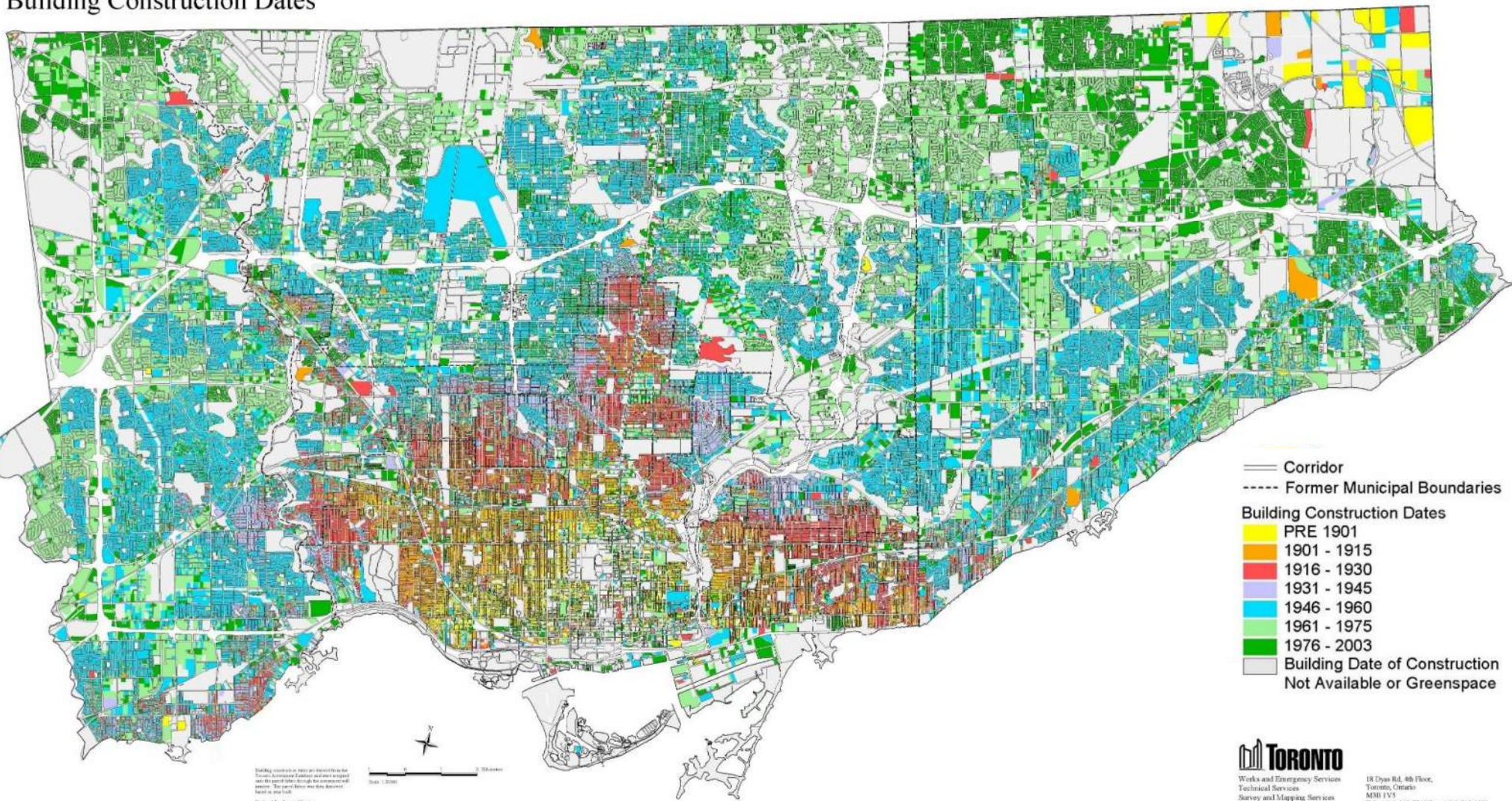
Façade Renewal – Opportunities and Challenges

Scott R Armstrong, Senior Façade Specialist, Building Sciences

Façade Tectonics – May 2019



City of Toronto Building Construction Dates



- Corridor
- - - - Former Municipal Boundaries
- Building Construction Dates**
- PRE 1901
- 1901 - 1915
- 1916 - 1930
- 1931 - 1945
- 1946 - 1960
- 1961 - 1975
- 1976 - 2003
- Building Date of Construction Not Available or Greenspace

Retrofit Imperative

50% of today's existing
building stock
will still be in use in
2050

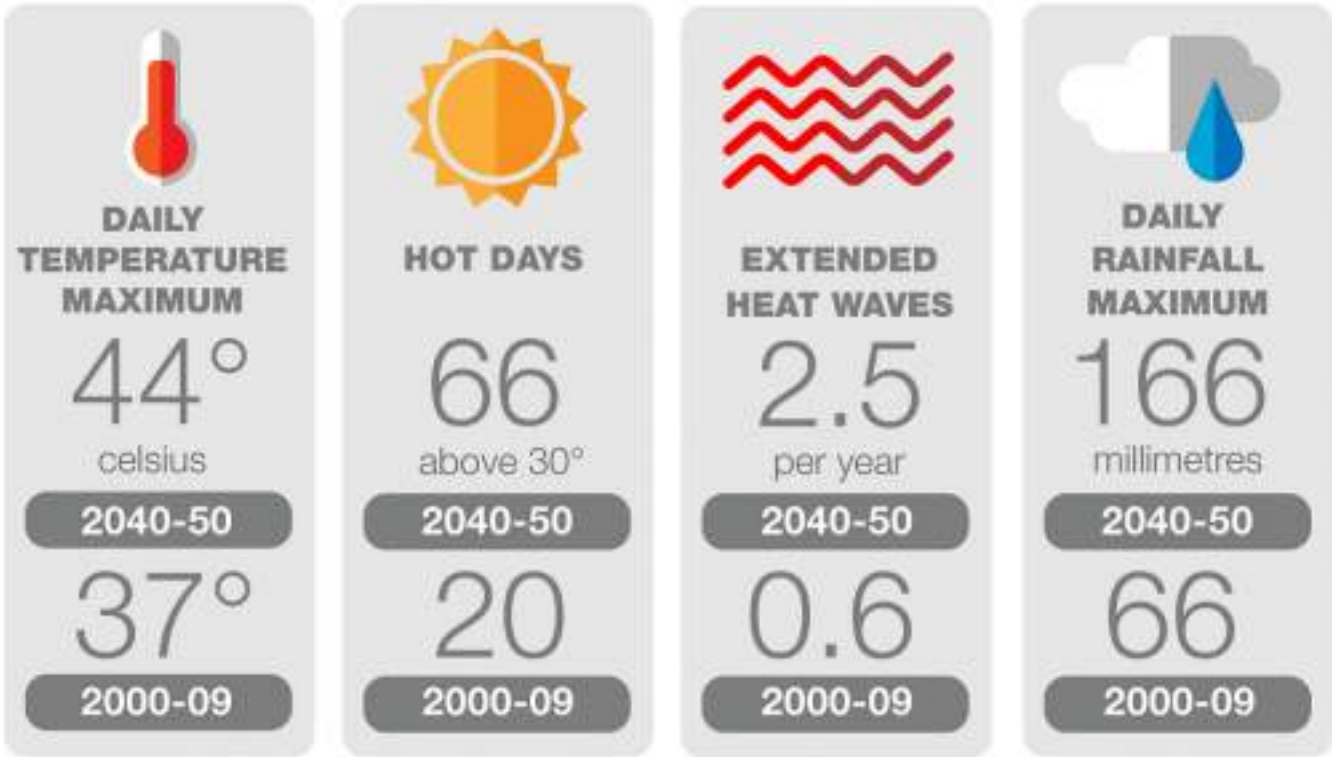
Retrofit Imperative & Energy Opportunity

50% of today's existing
building stock
will still be in use in
2050

Available **energy savings**
within this building stock are
estimated at
20-40%

Climate Changing

Toronto's **Future Weather***



Toronto's Future Weather (Toronto's Future Weather and Climate Driver Study)



Climate Changing Changed

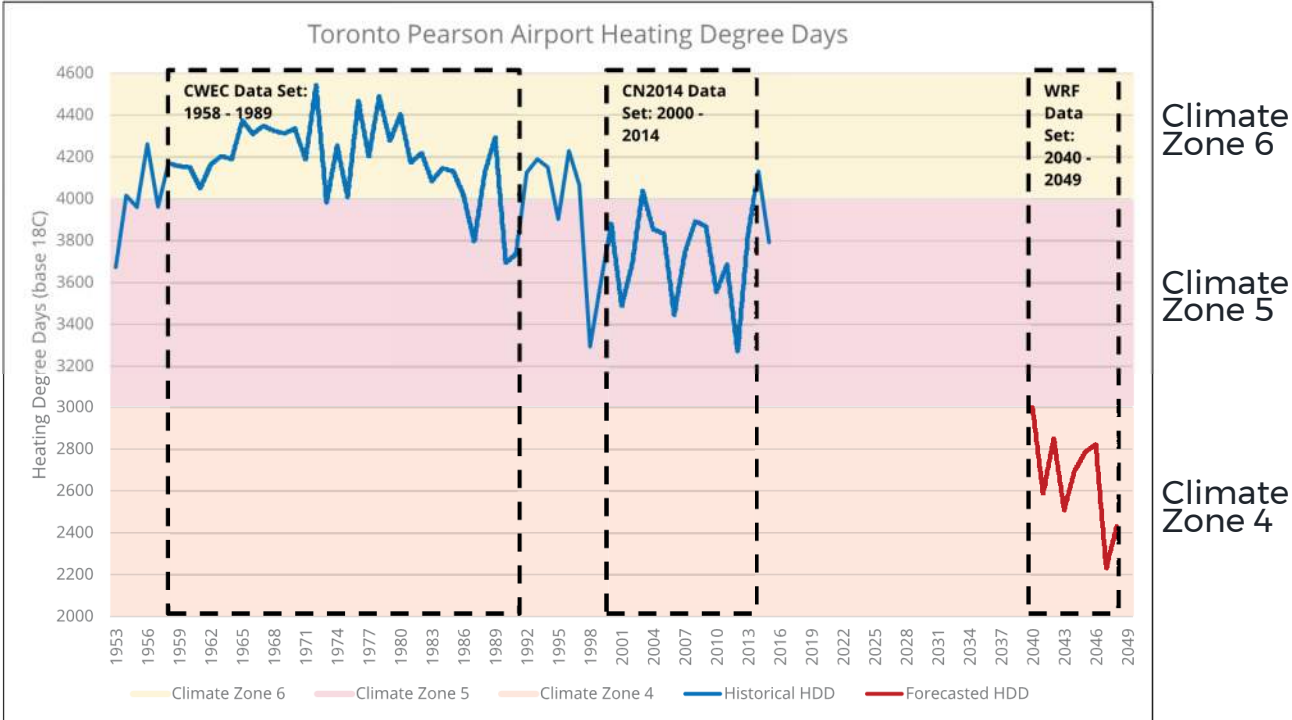


Figure 2: Heating Degree Days, Historical and Forecasted





Façade Renewal Paradigm



WSP - A Global Professional Services Firm



Scott R. Armstrong
Senior Façade Specialist,
Building Sciences, WSP
Toronto, Ontario
416-640-5456
scott.r.armstrong@wsp.com

Our Canadian Presence

8,000

EMPLOYEES

100+

OFFICES





WZMH

Recladding + Retrofits

WZMH



222 Jarvis Street



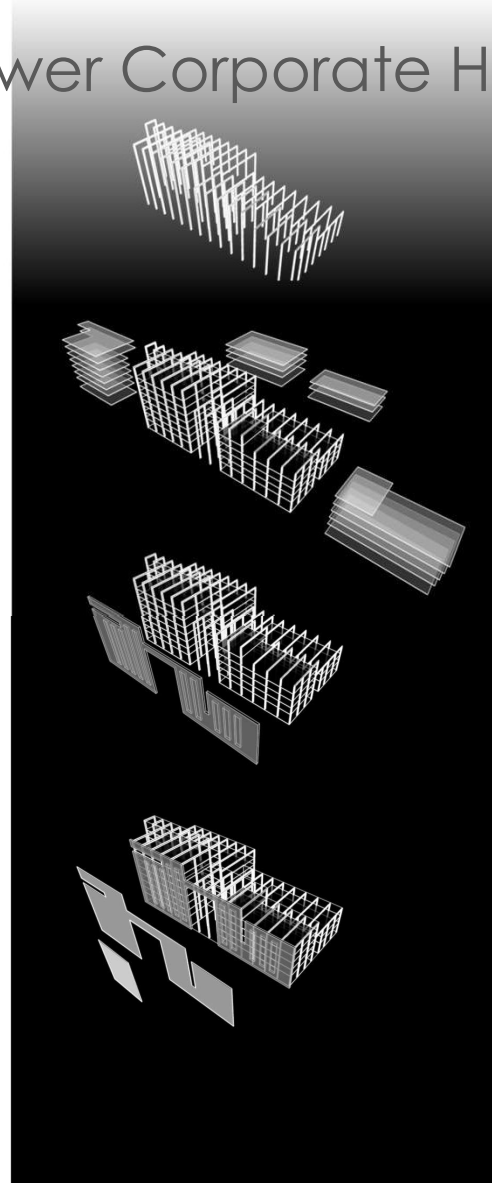
WZMH

Nova Scotia Power Corporate Headquarters



WZMH

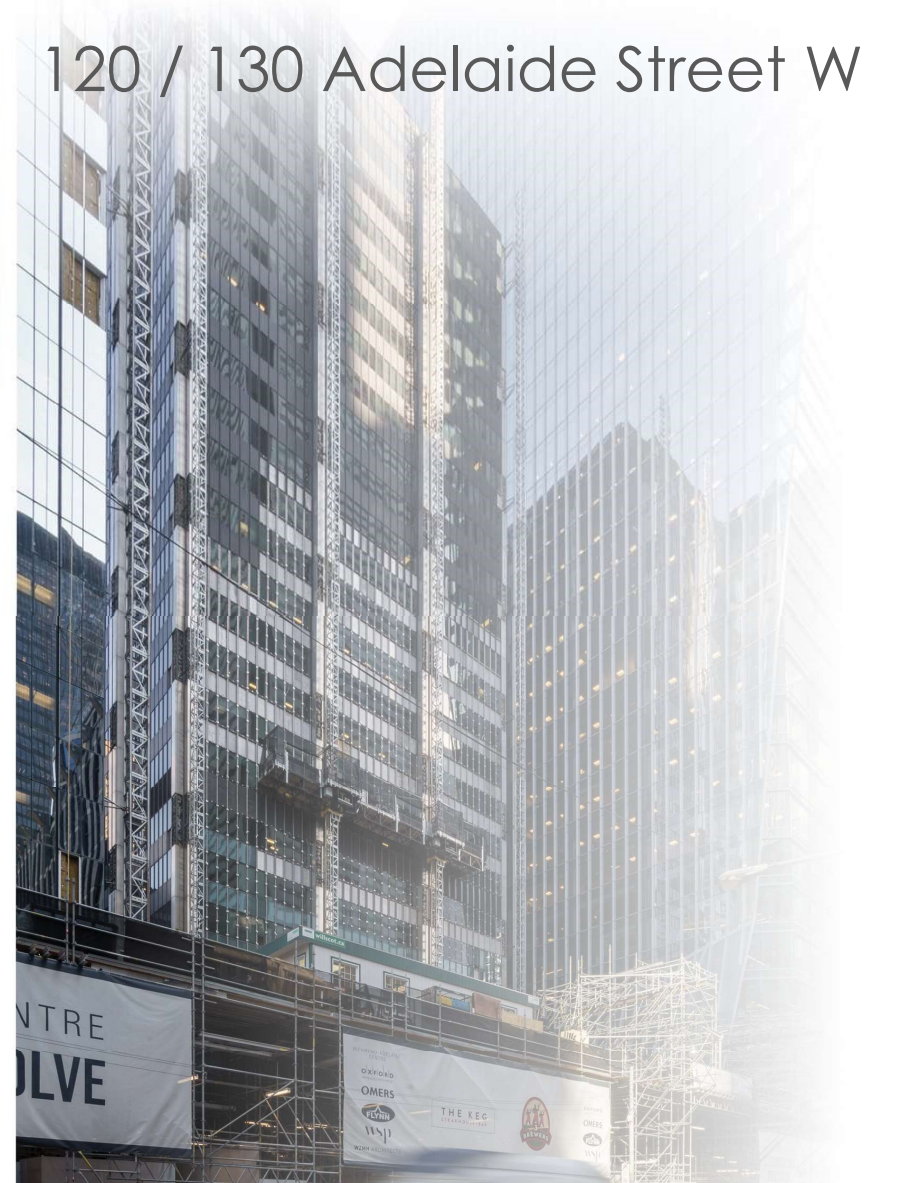
Nova Scotia Power Corporate Headquarters



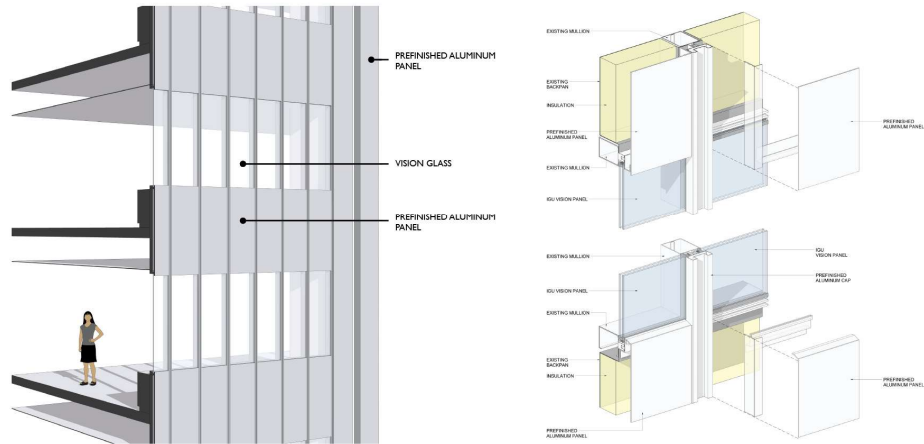
WZMH



120 / 130 Adelaide Street W

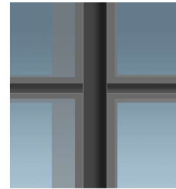


WZMH

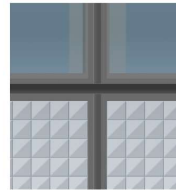


120 / 130 Adelaide Street W

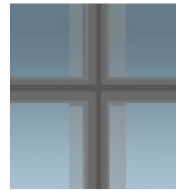
Column



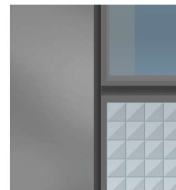
Stack



Glaze Shadow Box

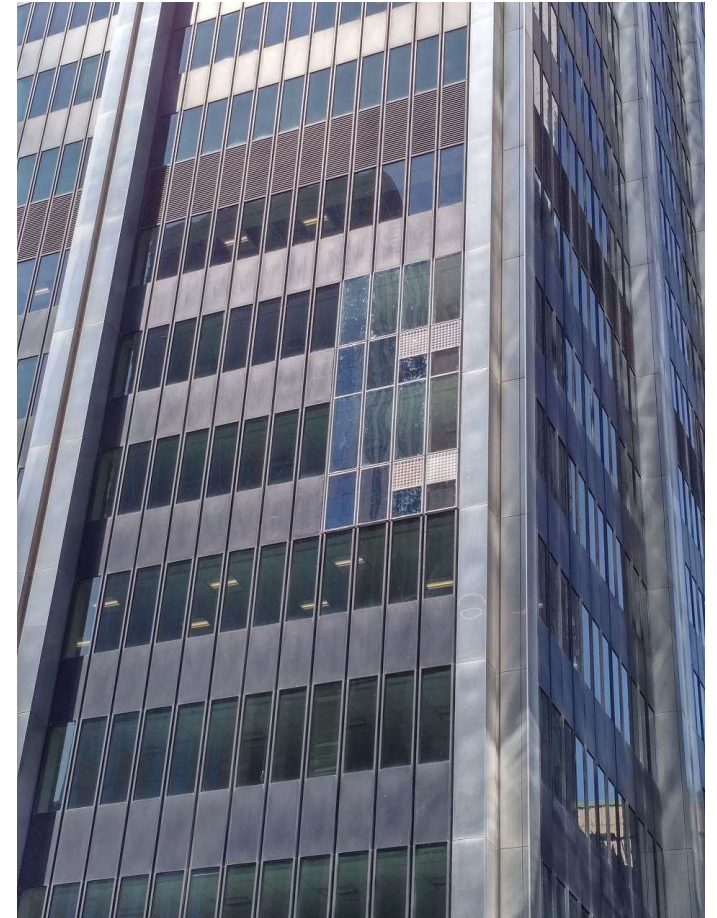
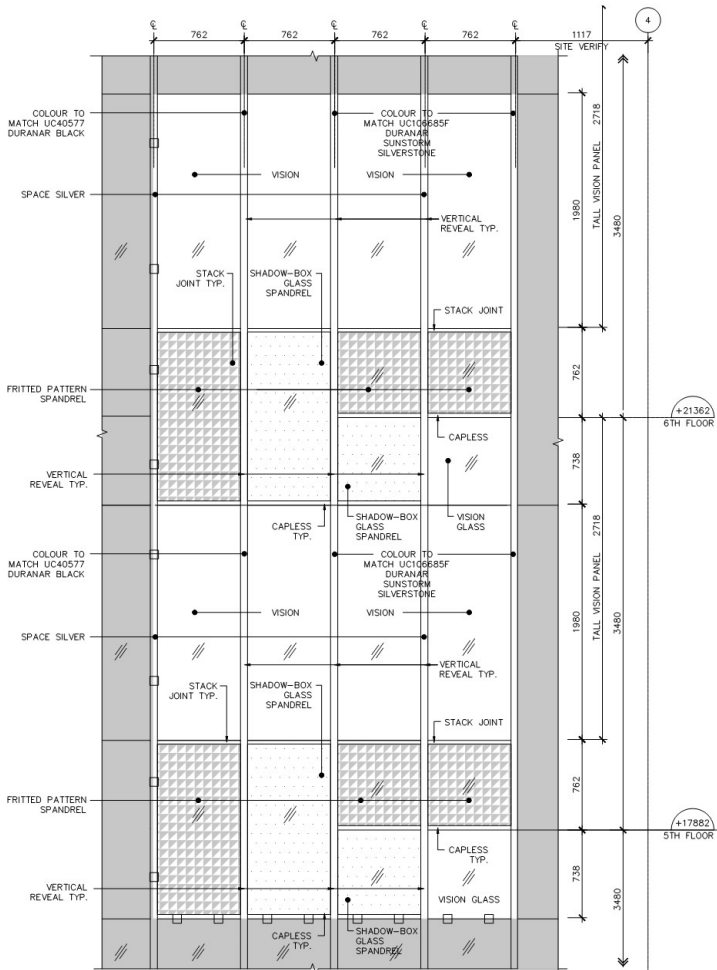


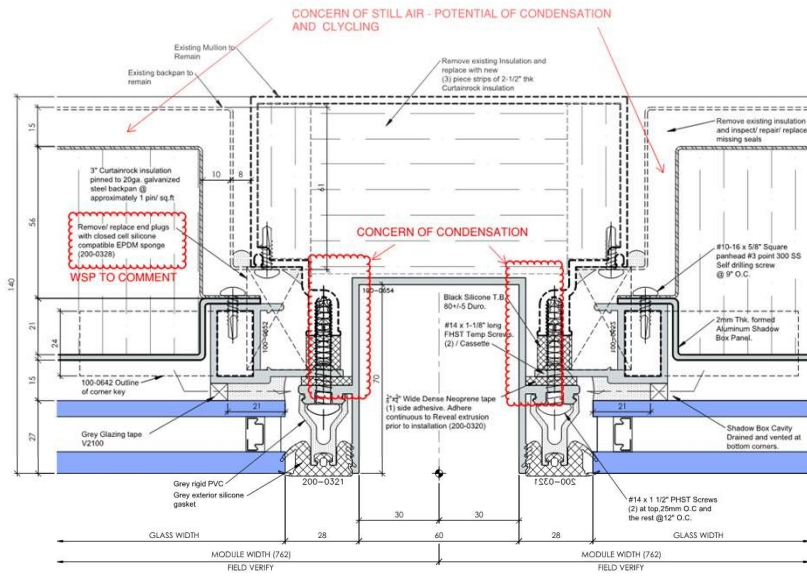
Column



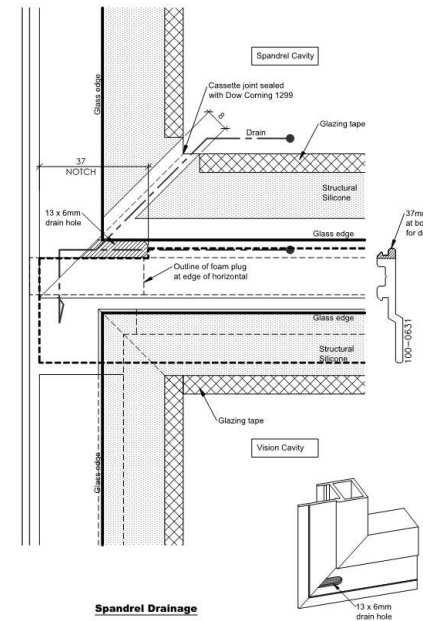
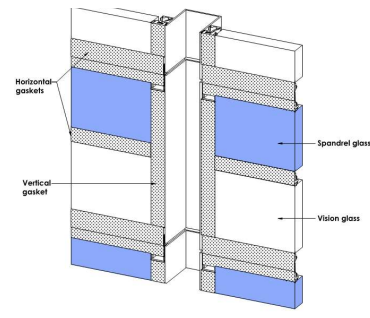
WZMH

In Situ Mock-ups

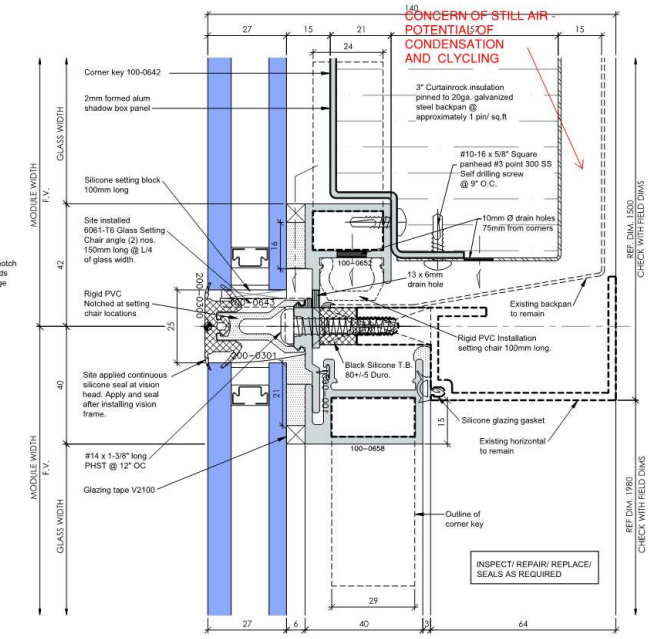
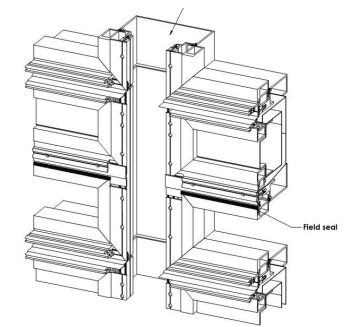




1 TYPICAL SSG MULLION
27mm Spandrel
Scale: 1:1 Ref: 6/ A250



Spandrel Drainage



1 SSG HORIZONTAL
27mm Spandrel/ Vision - 63.5mm Back Section
Scale: 1:1 Ref: 7/ A320

CONCERN OF STILL AIR - POTENTIAL OF CONDENSATION AND GLYCLING

CONCERN OF CONDENSATION

CONCERN OF STILL AIR - POTENTIAL OF CONDENSATION AND GLYCLING

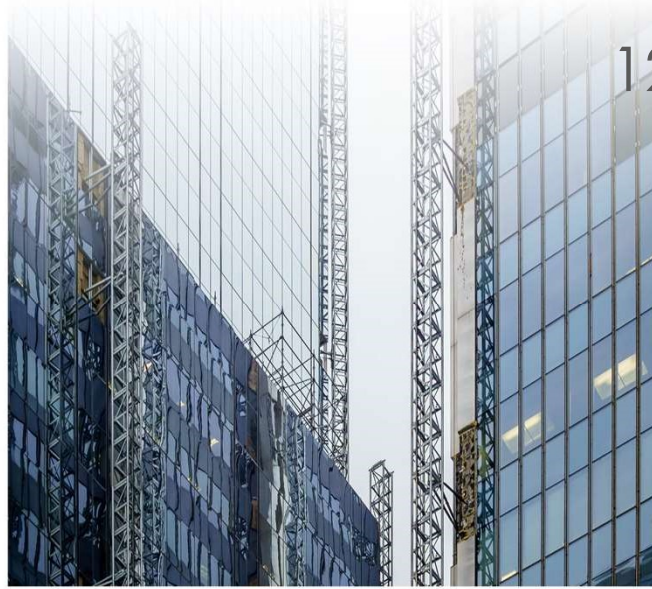
Remove/ replace and plug with closed cell silicone compatible EPDM sponge (200-0329)
WSP TO COMMENT

INSPECT/ REPAIR/ REPLACE/ SEALS AS REQUIRED

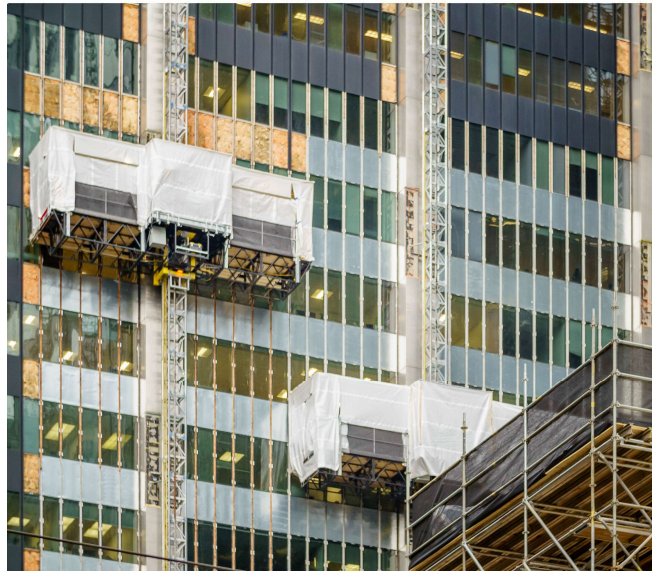
REF: 6/ A100
CHECK WITH FIELD DIMS

REF: 6/ A180
CHECK WITH FIELD DIMS

WZMH



120 / 130 Adelaide Street W



WZMH



120 / 130 Adelaide Street W



WZMH

Innovation- “Balancing Act”





AGENDA

- RISK MITIGATION
- BENEFITS OF RECLADDING
- COMPLETED RECLAD PROJECTS
- CURRENT RECLAD PROJECTS



RISK MITIGATION



- EARLY INVOLVEMENT OF A GENERAL CONTRACTOR
- RISKS ASSOCIATED WITH FULLY OCCUPIED BUILDING
- STRUCTURAL REVIEWS AND EXISTING CONDITION SURVEYS
- LOGISTICAL ISSUES



BENEFITS OF RECLADDING



- INCREASE IN R-VALUE TO ENVELOPE
- INCREASE TENANT COMFORT
- ASTHETIC IMPROVEMENT
- EXTEND SERVICE LIFE OF THE BUILDING
- IMPROVED LEASABILITY



COMPLETED RECLAD PROJECTS

- 66 WELLINGTON ST.
- 77 KING ST.
- 180 WELLINGTON ST.
- 111 RICHMOND ST.
- 181 UNIVERSITY
- NORDSTROM FAÇADE – EATON CENTRE



CURRENT RECLAD PROJECTS

- 85 RICHMOND STREET
- 55 BLOOR
- PARK HYATT
- YONGE/SHEPPARD – TOWER OVERCLAD
- 95 WELLINGTON ST. W



FLYNN GROUP OF COMPANIES

total building envelope

Façade Recladding
A Contractors Perspective



THEMES for Retrofit Projects

1. Think Outside of the Box
2. Expect the Unexpected
3. Get Tenant Buy-in



THEMES for Retrofit Projects

1. Think Outside of the Box

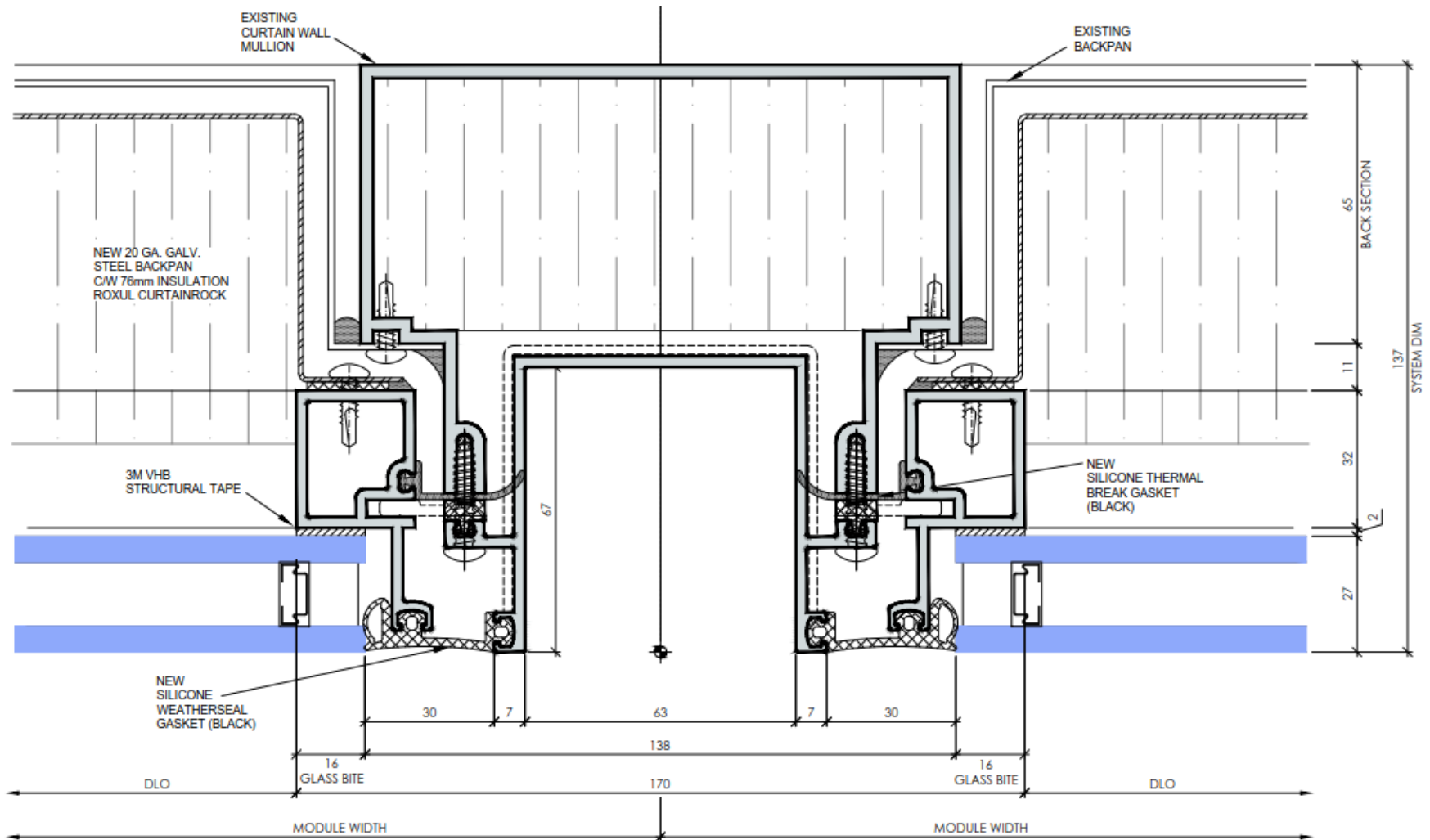
Creative solutions can expedite the schedule and improve the end product.



Façade Tectonics Toronto



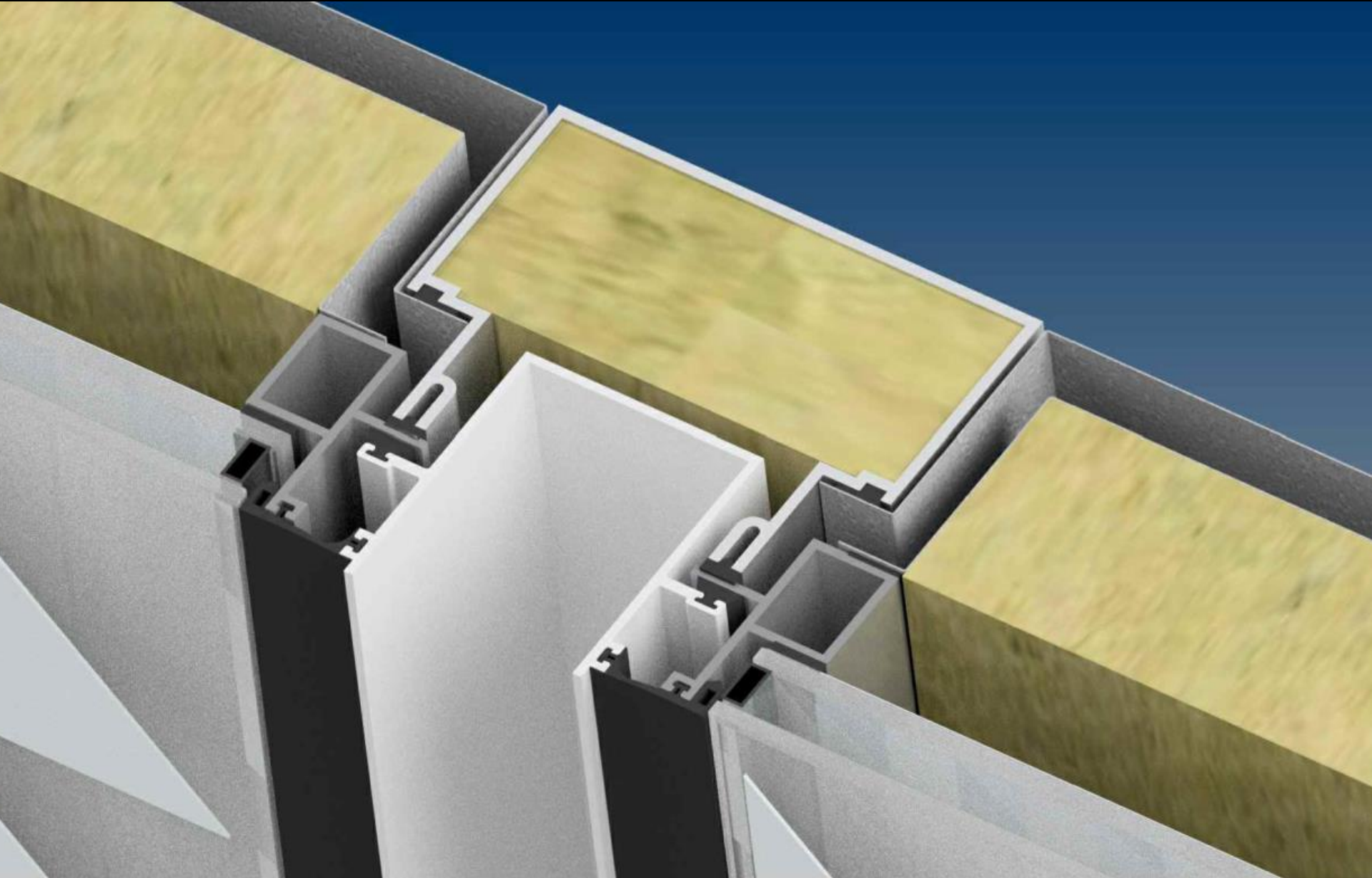
Existing Backpan Condition



1 TYPICAL SSG MULLION
 27mm Spandrel - 65mm Back Section
 Scale: 1:1



Façade Tectonics Toronto



Total Building Envelope

Typical SSG
144.5 mm System Dimension
(87.6 mm Back Section)

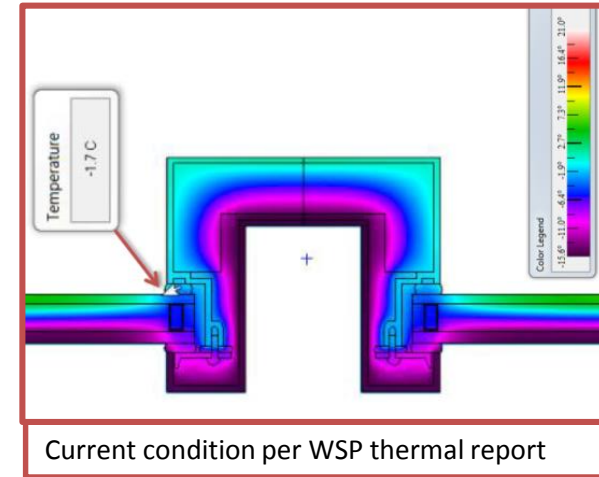
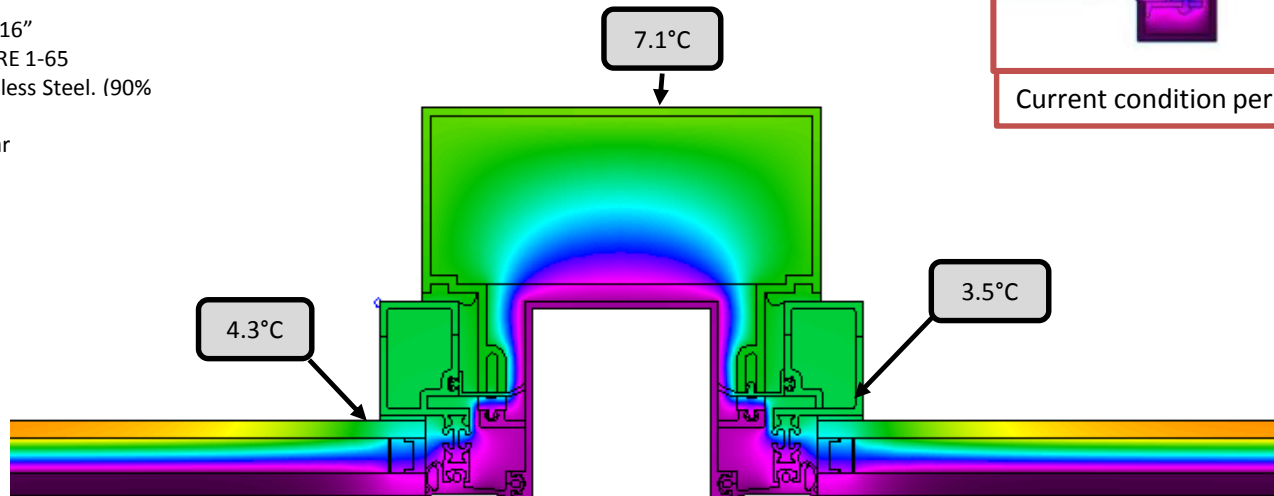
Design Conditions:

- Exterior = -18°C
- Interior = 21°C

Glass Make-up

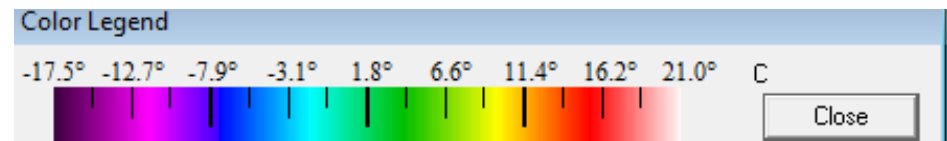
- Viricon Overall 17/16"
- Exterior – 5/16" VRE 1-65
- Spacer – 1/2" Stainless Steel. (90% Argon)
- Interior – 1/4" Clear

Condensation Risk Analysis

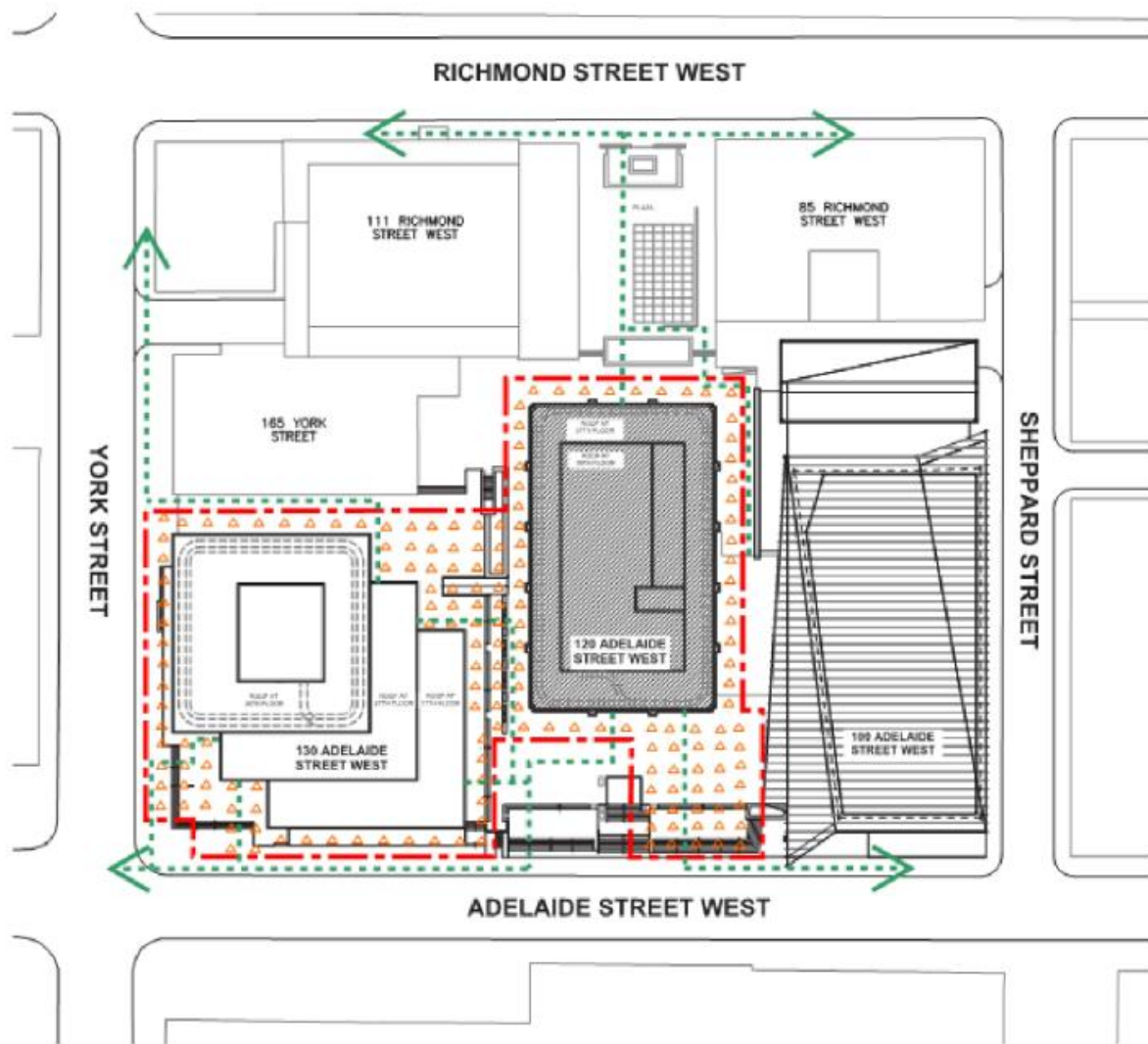





All Temperatures are Above the Dew Point

- Relative Humidity = 30%
- Dew Point = 2.8°C @ Interior Temp = 21°C



Therm Version 7.3
 Window Version 7.3



-  LIGHTS UNDER SCAFFOLD DECK
-  SCAFFOLD OUTLINE
-  EXIT ROUTE



Façade Tectonics Toronto





Façade Tectonics Toronto





Façade Tectonics Toronto



Total Building Envelope



THEMES for Retrofit Projects

2. Expect the Unexpected

It's simply not possible to think of or include in your price all of the unforeseen issues that may come up.



Façade Tectonics Toronto





Façade Tectonics Toronto





Expect the Unexpected

Tolerances of existing work will most likely not be up to today's standards.

Have a contingency fund budgeted and rules on how this is used.



THEMES for Retrofit Projects

3. Get Tenant Buy-in

Tenants can help make or break a construction schedule.



Façade Tectonics Toronto

Mar 28, 2019 12:48:08 AM
Toronto





Façade Tectonics Toronto

Mar 28, 2019 12:47:11 AM
Toronto





Get Tenant Buy-in

Co-operation Allows Construction
to Progress as Quickly as Possible.

Establish Clear Expectations with
Consequences for All Stakeholders.



Façade Tectonics Toronto





Façade Tectonics Toronto



BUILDING RENEWAL

Accelerating Urban Sustainability Progress Through Facade System Renovation



SPEAKERS



**ANNETTE MATTHEWS,
G.S.C**
Project Manager
PCL Constructors Canada Inc.



**HARRISON CHAN,
OAA, MRAIC**
Principal
WZMH Architects



DON DELANEY, P.ENG.
Engineering Manager
Flynn Group of Companies



SCOTT ARMSTRONG
*Senior Façade Engineering
Specialist*
WSP Canada