

Lab Infrastructure Retrofit and Renovation: The JC Wilt Infectious Diseases Research Centre

745 Logan Avenue, Winnipeg, Manitoba

Sustainable Labs Canada Workshop

Toronto | June 18, 2014



JC Wilt Project Background

The Project Team



Client Group

- The Public Health Agency of Canada
- Public Works & Government Services Canada

PHAC User Groups

- HIV & Retrovirology
- HIV Immune Monitoring
- HIV & Human Genetics
- Science Tech & Core Services
- Biorisk Management & Biosafety
- Surveillance & Reference Services Training
- Operations, Facilities, Maintenance & Security

Consultant Team

- Smith Carter
- MMM Group
- Merrick
- RWDI
- Hanscomb

Technical Review Team

- Government of Canada
- Public Works and Government Services Canada
- Public Health Agency of Canada

JC Wilt Project Background

Integrated Design Process



JC Wilt Project Background

- Existing Provincial Material Testing & Chemistry Laboratory built in 1979.
- Vacant since May 2006
- Purchased by PHAC in January of 2008.
- Functional Programming completed by PWGSC in November of 2008.



JC Wilt Project Background

Existing Building



JC Wilt Project Background

Existing Building



Existing Building Condition

Building Condition Assessment Outcome

- Robust building structure
- Salvageable doors & frames
- Roofing in disrepair
- Main floor building envelope damaged
- Penthouse building envelope salvageable



Existing Building Condition

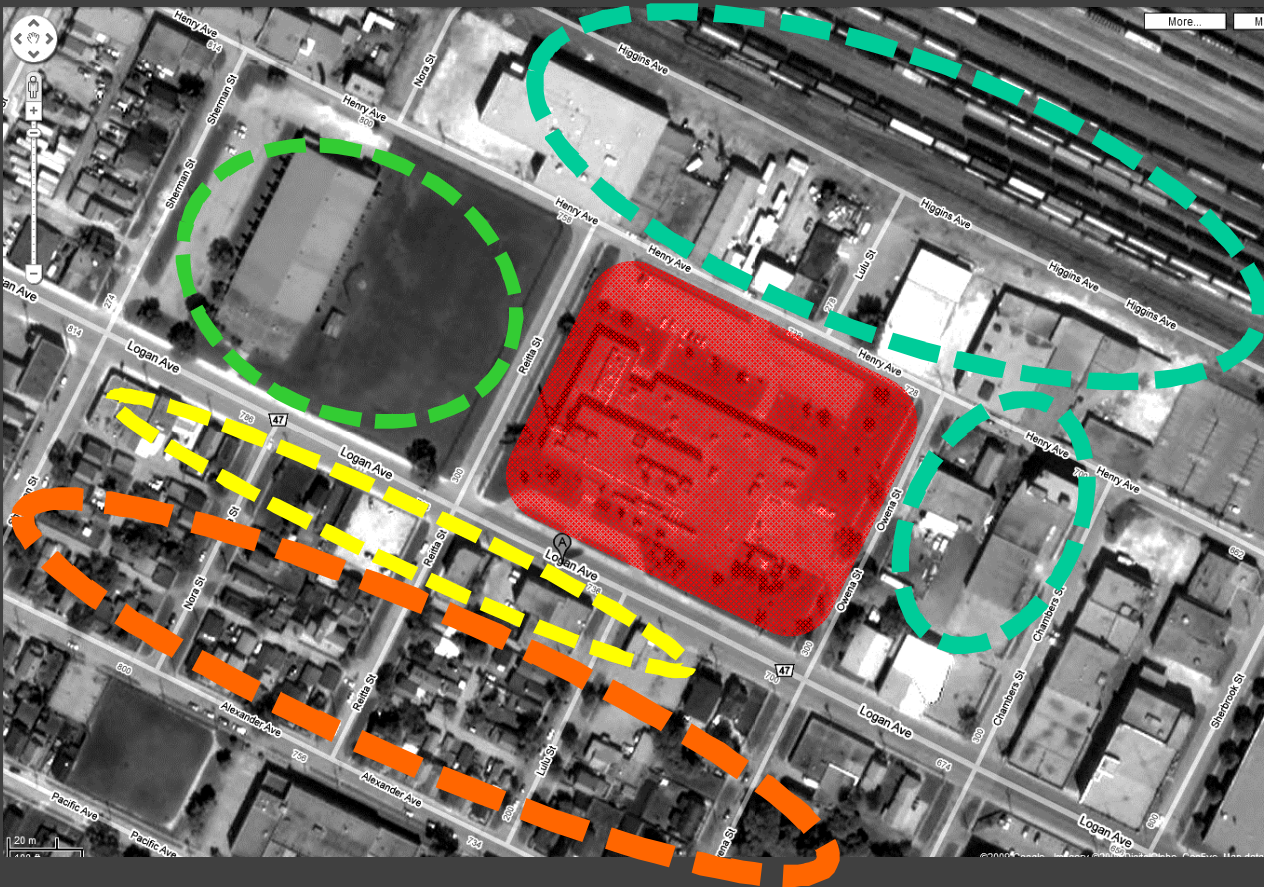


Existing Electrical & Mechanical Systems

- Original to building, 30+ years old
- Dated technology – limited flexibility
- Low energy efficiency
- Oversized for new program



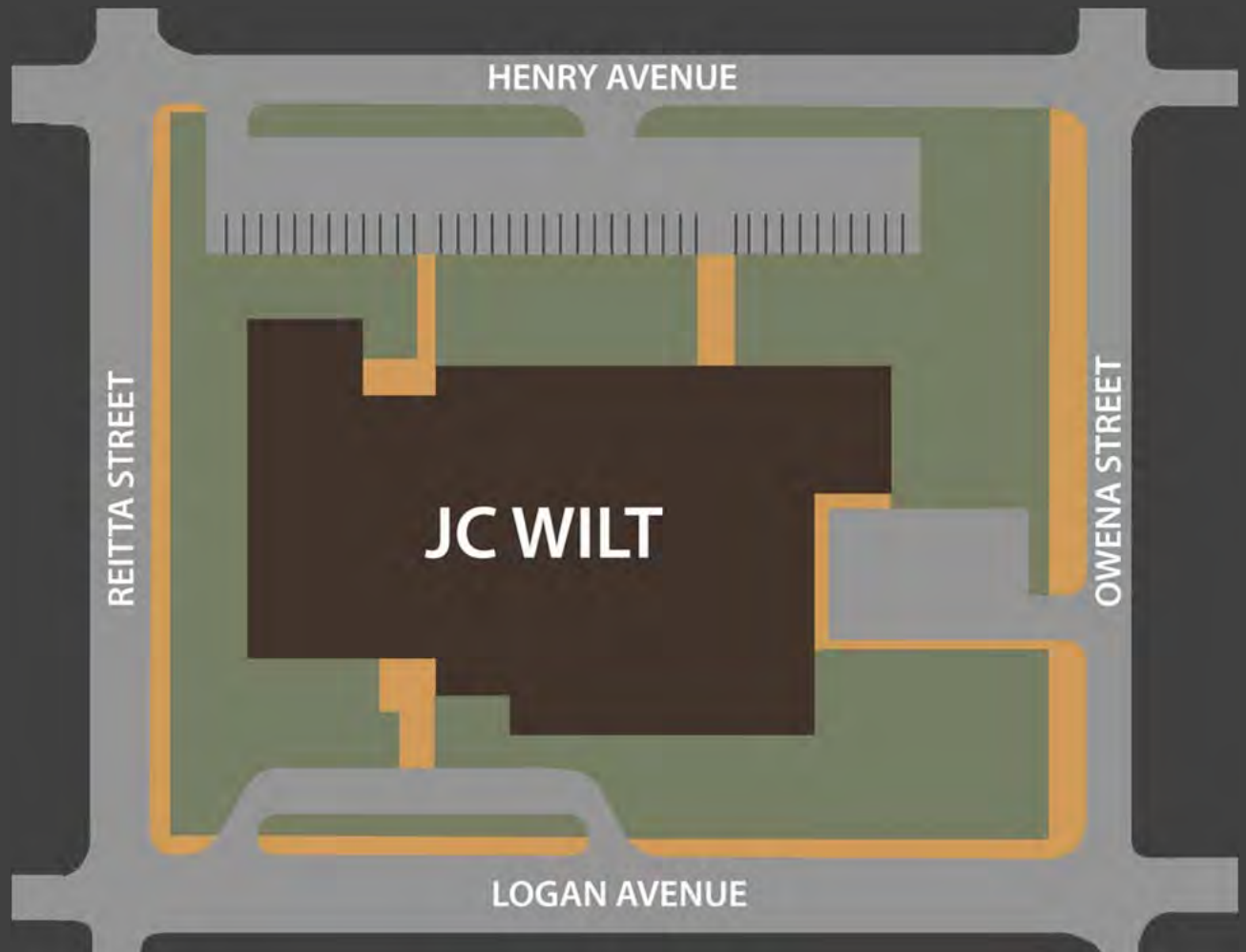
Site Context



- Recreational
- Industrial
- Commercial
- Residential

Site Development

Existing Condition



Sustainability Mandate by PWGSC & PHAC

- A new rating system
- Achieve:
 - 40 points from Labs21
 - LEED Silver
 - 20% + reduction in energy use
 - 30% + reduction in water use



Reconciliation of a Score Sheet

LEED

Erosion & Sedimentation Control
Site Selection
Development Density & Community Connectivity
Brownfield Redevelopment
Public Transportation Access
Bicycle Storage & Changingrooms
Hybrid and Alternative Fuel Vehicles
Parking Capacity
Protect or Restore Open Space
Maximize Open Space
Development Footprint
Stormwater Management Rate & Quantity
Stormwater Management Treatment
Heat Island Effect Non-Roof
Heat Island Effect Roof
Light Pollution Reduction

Water Efficient Landscaping: Reduce by 50%
No Potable Water Use for Irrigation
Innovative Wastewater Technologies
Water Use Reduction 20% and 30%

Fundamental Building Systems Commissioning
Minimum Energy Performance
CFC Reduction in HVAC&R

Optimize Energy Performance
Renewable Energy 5%, 10% and 15%
Best Practices Commissioning
Ozone Protection
Measurement & Verification
Green Power

Storage & Collection of Recyclables
Building Reuse: 75% and 95% of Shell and Structure
Building Reuse: 50% of Interior Elements
Construction Waste Management: 50% and 75%
Resource Reuse: 5% and 10%
Recycled Content: 7.5% and 15%
Regional Materials: 10% and 20%
Rapidly Renewable Materials
Certified Wood
Durable Building

Minimum IAQ Performance
Environmental Tobacco Smoke Control

Carbon Dioxide Monitoring
Ventilation Effectiveness
Construction IAQ Management During Construction
IAQ Testing Before Occupancy
Low Emitting Materials: Adhesives & Sealants
Low Emitting Materials: Paints & Coatings
Low Emitting Materials: Carpet
Composite Wood and Laminated Adhesives
Indoor Chemical & Pollutant Source Control
Controllability of Systems: Resonance Spaces
Controllability of Systems: Non-Perimeter Spaces
Thermal Comfort Compliance with ASHRAE 55-2004
Thermal Comfort Monitoring
Daylight 75% of Spaces
Views for 90% of Space

4 Innovation Credits
LEED Accredited Professional

LABS21

Construction Activity Pollution Prevention
Site Selection
Development Density & Community Connectivity
Brownfield Redevelopment
Public Transportation Access
Bicycle Storage & Changingrooms
Low Emitting & Fuel Efficient Vehicles
Parking Capacity
Protect or Restore Open Space
Maximize Open Space
Stormwater Management Quantity Control
Stormwater Management Quality Control
Heat Island Effect Non-Roof
Heat Island Effect Roof
Light Pollution Reduction
Safety & Risk Management Air Effluent
Safety & Risk Management Water Effluent
Laboratory Equipment Use
Water Efficient Landscaping: Reduce by 50%
No Potable Water Use for Irrigation
Innovative Wastewater Technologies
Water Use Reduction 20% and 30%
Process Water Efficiency Document Baseline
Process Water Efficiency 20% Reduction
Fundamental Building Systems Commissioning
Minimum Energy Performance
CFC Reduction in HVAC&R
Assess Minimum Ventilation Requirements
Optimize Energy Performance
Renewable Energy 5%, 10% and 15%
Enhanced Commissioning
Enhanced Refrigeration Management
Measurement & Verification
Green Power
Energy Supply Efficiency
Improve Laboratory Equipment Efficiency
Moisten Comparable Lab
Meeting Provision
Storage & Collection of Recyclables
Hazardous Material Handling
Building Reuse: 75% and 95% of Shell and Structure
Building Reuse: 50% of Interior Elements
Construction Waste Management: 50% and 75%
Resource Reuse: 5% and 10%
Recycled Content: 7.5% and 15%
Regional Materials: 10% and 20%
Rapidly Renewable Materials
Certified Wood

Chemical Resource Management
Minimum IAQ Performance
Environmental Tobacco Smoke Control
Laboratory Ventilation
Exterior Door Notification System
Outdoor Air Monitoring
Increased Ventilation
Construction IAQ Management During Construction
IAQ Testing Before Occupancy
Low Emitting Materials: Adhesives & Sealants
Low Emitting Materials: Paints & Coatings
Low Emitting Materials: Carpet
Composite Wood and Laminated Adhesives
Indoor Chemical & Pollutant Source Control
Controllability of Systems: Lighting
Controllability of Systems: Thermal Comfort
Thermal Comfort Design
Thermal Comfort Verification
Daylight 75% of Spaces
Views for 90% of Space
Airflow Monitoring
Furnishood Commissioning
Alarm Systems
4 Innovation Credits
LEED Accredited Professional

Reconciliation of a Score Sheet

Erosion & Sedimentation Control	Green
Site Selection	Green
Development Density	Red
Brownfield Redevelopment	Red
Public Transportation Access	Green
Bicycle Storage & Changerooms	Green
Hybrid and Alternative Fuel Vehicles	Red
Parking Capacity	Green
Protect or Restore Open Space	Red
Development Footprint	Green
Stormwater Management Rate & Quantity	Yellow
Stormwater Management Treatment	Red
Heat Island Effect Non-Roof	Red
Heat Island Effect Roof	Green
Light Pollution Reduction	Green
Safety & Risk Management: Air Effluent	Green
Safety & Risk Management: Water Effluent	Green
Laboratory Equipment Use	Green
Water Efficient Landscaping: Reduce by 50%	Green
No Potable Water Use for Irrigation	Green
Innovative Wastewater Technologies	Green
Water Use Reduction 20% and 30%	Green
Process Water Efficiency: Document Baseline	Red
Process Water Efficiency: 20% Reduction	Red
Fundamental Building Systems Commissioning	Green
Minimum Energy Performance	Green
CFC Reduction in HVAC&R	Green
Assess Minimum Ventilation Requirements	Green
Optimize Energy Performance	Green
Renewable Energy 5%, 10% and 15%	Red
Best Practices Commissioning	Green
Ozone Protection	Green
Measurement & Verification	Yellow
Green Power	Yellow
Energy Supply Efficiency	Red
Improve Laboratory Equipment Efficiency	Yellow
Measure Comparable Lab	Yellow
Metering Provision	Green
Storage & Collection of Recyclables	Green
Hazardous Material Handling	Green
Building Reuse: 75% and 95% of Shell and Structure	Green
Building Reuse: 50% of Interior Elements	Red
Construction Waste Management: 50% and 75%	Red
Resource Reuse: 5% and 10%	Green
Recycled Content: 7.5% and 15%	Green
Regional Materials: 10% and 20%	Green
Rapidly Renewable Materials	Red
Certified Wood	Yellow
Chemical Resource Management	Green
Durable Building	Yellow
Minimum IAQ Performance	Green
Environmental Tobacco Smoke Control	Green
Laboratory Ventilation	Green
Exterior Door Notification System	Green
Carbon Dioxide Monitoring	Green
Ventilation Effectiveness	Yellow
Construction IAQ Management During Construction	Green
IAQ Testing Before Occupancy	Green
Low Emitting Materials: Adhesives & Sealants	Green
Low Emitting Materials: Paints & Coatings	Green
Low Emitting Materials: Carpet	Green
Composite Wood and Laminate Adhesives	Green
Indoor Chemical & Pollutant Source Control	Green
Controllability of Systems: Perimeter Spaces	Yellow
Controllability of Systems: Non-Perimeter Space	Red
Thermal Comfort Compliance: ASHRAE 55: 2004	Green
Thermal Comfort Monitoring	Green
Daylight 75% of Spaces	Yellow
Views for 90% of Space	Red
Airflow Monitoring	Green
Fumehood Commissioning	Green
Alarm Systems	Yellow
4 Innovation Credits	Green
LEED Accredited Professional	Green



DESIGN DEVELOPMENT FLOORING CONCEPT PLAN

Key Functional Group Area: Lobby Area

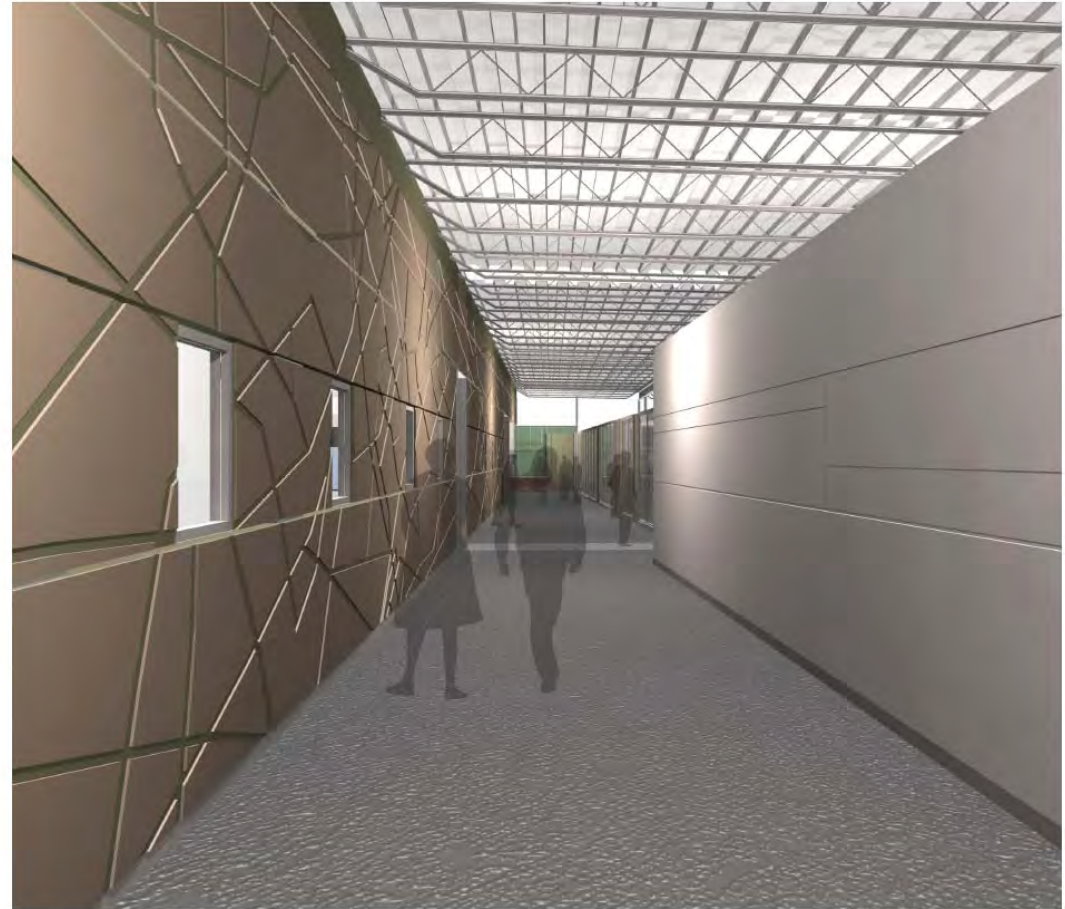
Key Impact Space
Highly Visible from Logan Avenue



Key Functional Group Area: Lobby



Key Functional Group Area: Lunch Room & Poster Area



Key Functional Group Area:

Lunch Room, Resource Room & Poster Area



Key Functional Group Area:

Lunch Room, Resource Room & Poster Area



Key Functional Group Area:

Lunch Room, Resource Room & Poster Area



Key Functional Group Area:

HIV and Human Genetics



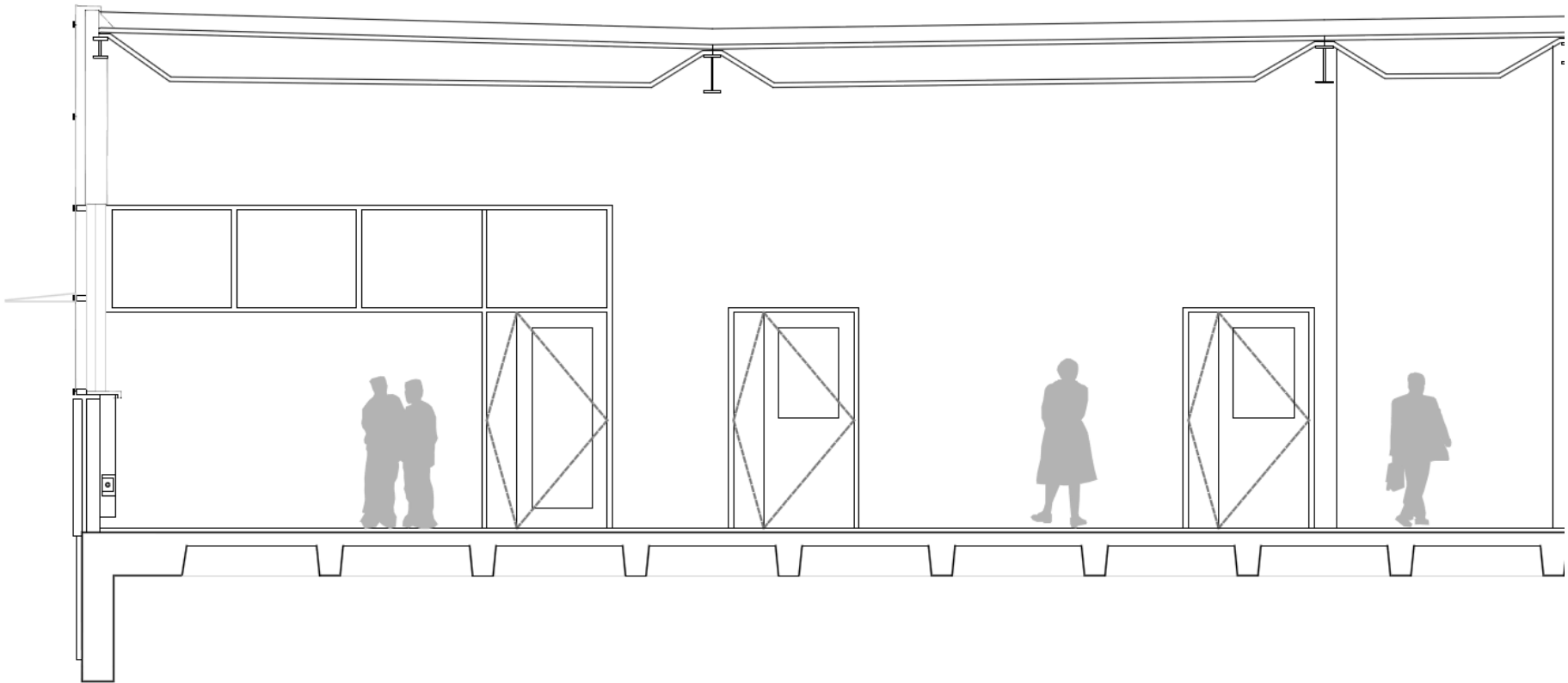
Key Functional Group Area:

HIV and Human Genetics



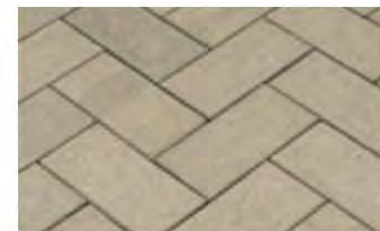
Key Functional Group Area:

HIV and Human Genetics



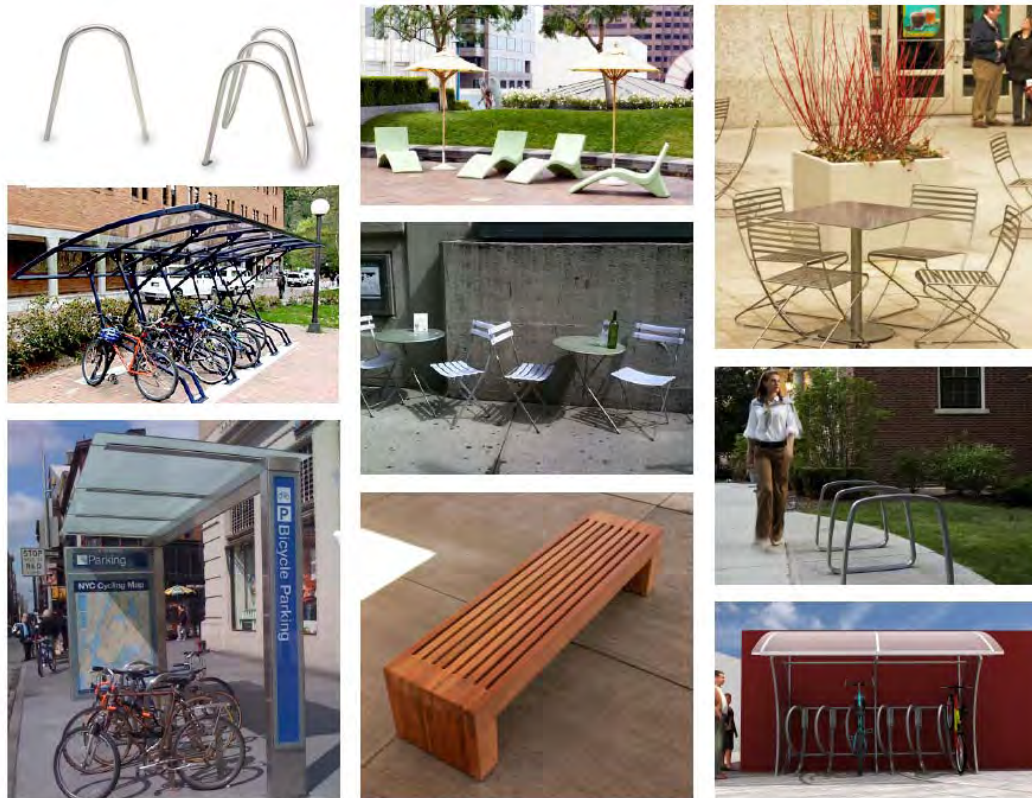
Site & Landscape Design Update

SITE MATERIALS PALETTE



Site & Landscape Design Update

SITE FURNITURE

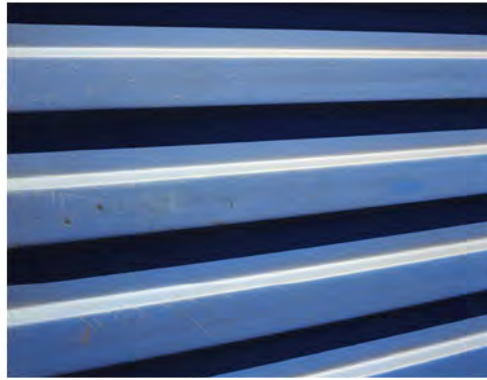




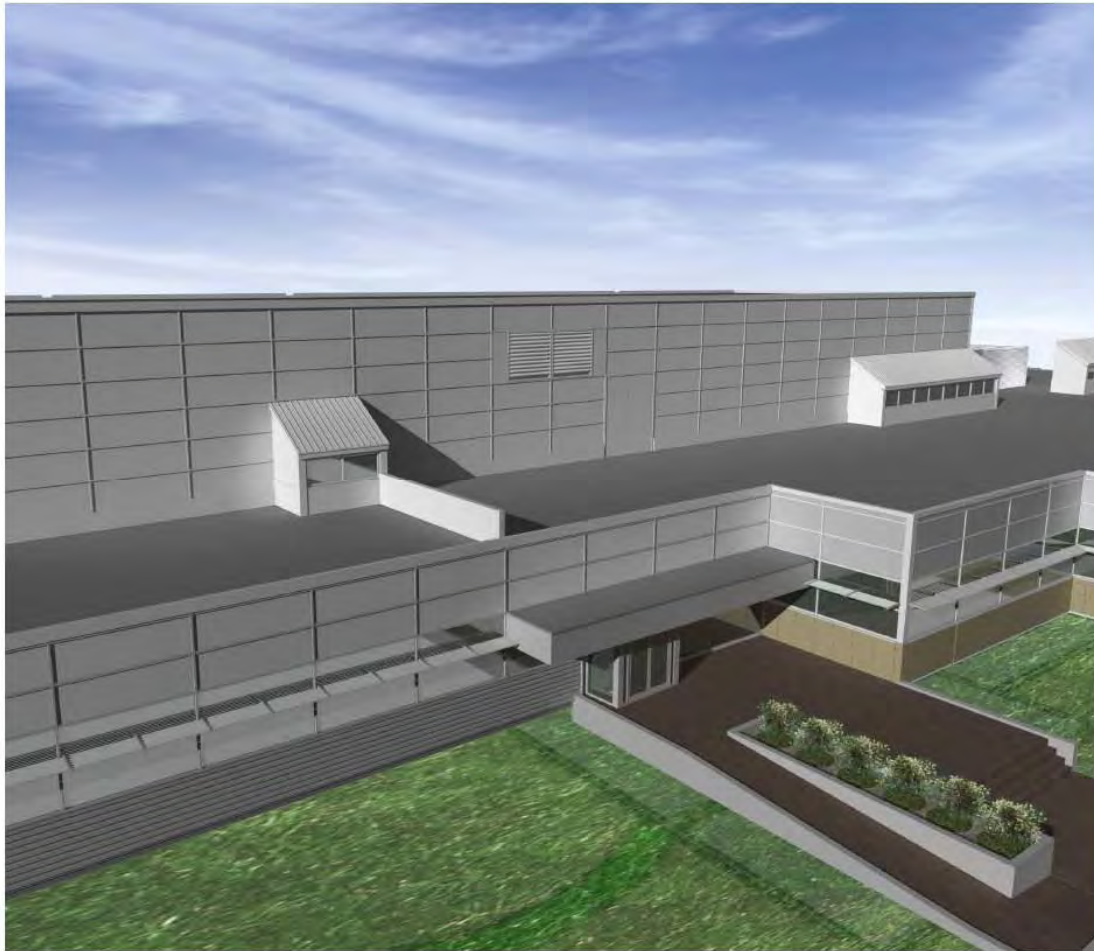
Exterior Design & Materials

GLAZING & METAL CLADDING CONCEPTS

RIGHT (TOP): blue glass in aluminum curtain wall framing.
RIGHT (BOTTOM): Concept for corrugated steel paneling.
LEFT (TOP): Corrugated steel profile.
LEFT (MIDDLE): Corrugated steel profile.
LEFT (BOTTOM): Curtain wall glazing.

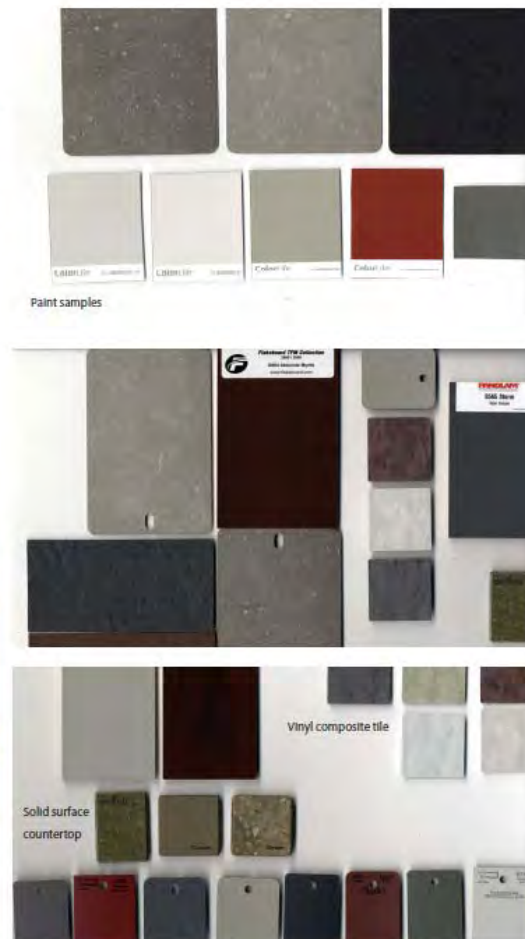


Exterior Design & Materials



CLOCKWISE FROM LEFT
1. Aerial perspective at south entrance.
2. Corner detail.
3. View of southwest corner.

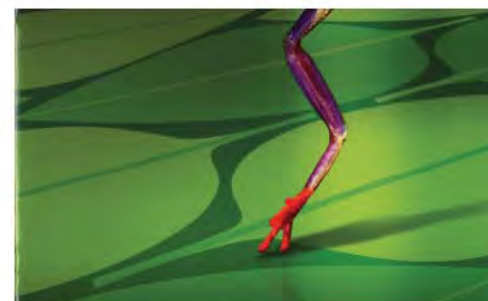
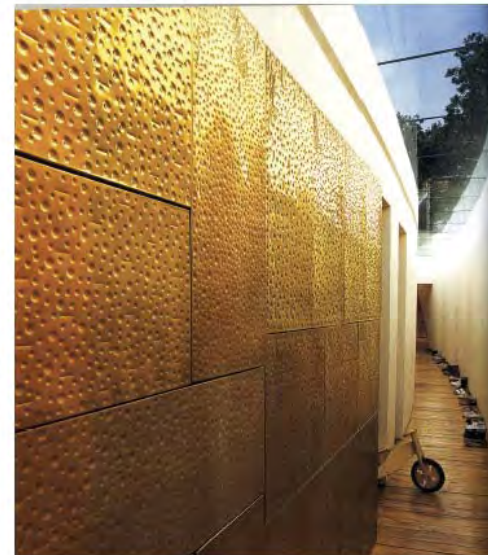
Interior Design & Materials



Interior Design & Materials

COLOUR & TEXTURE

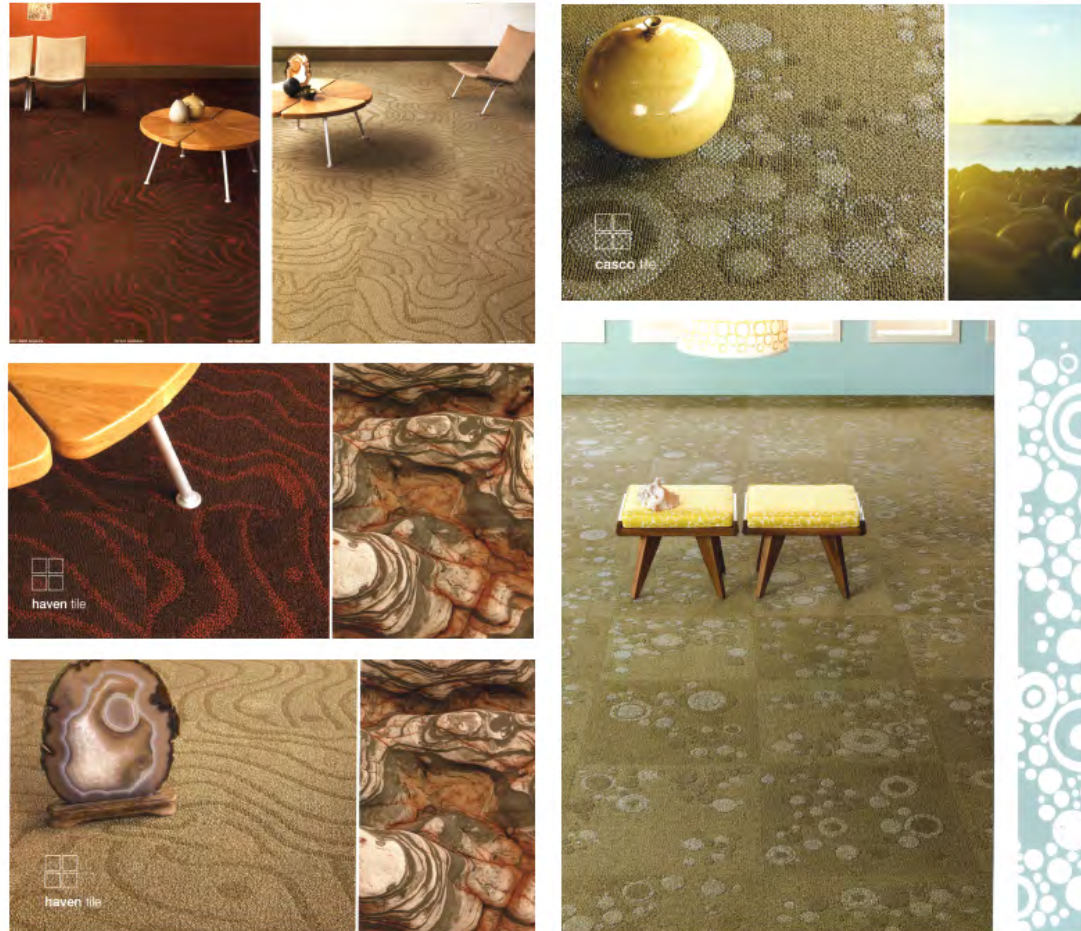
The following images represent a sampling of the colours and materials under review by the team for inclusion in the JC Wilt Lab.



Interior Design & Materials

FLOORING

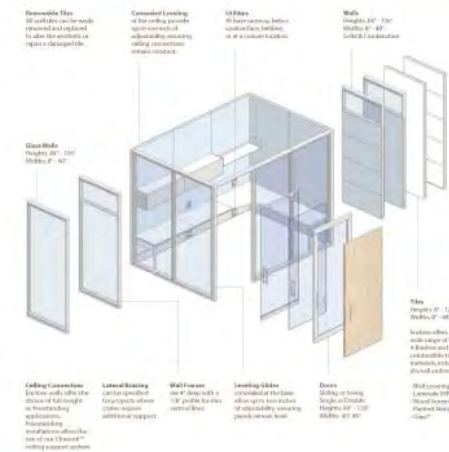
The following images reflect the carpet tiles which have been selected for the administrative area. Patterns and colours are in keeping with the nature-based theme and texture focus.



Interior Design & Materials

OFFICE CONCEPTS

A visual sampling of movable wall systems.



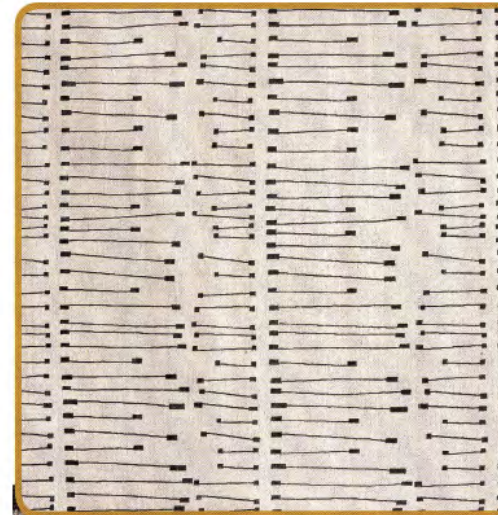
Interior Design & Materials



Interior Design & Materials

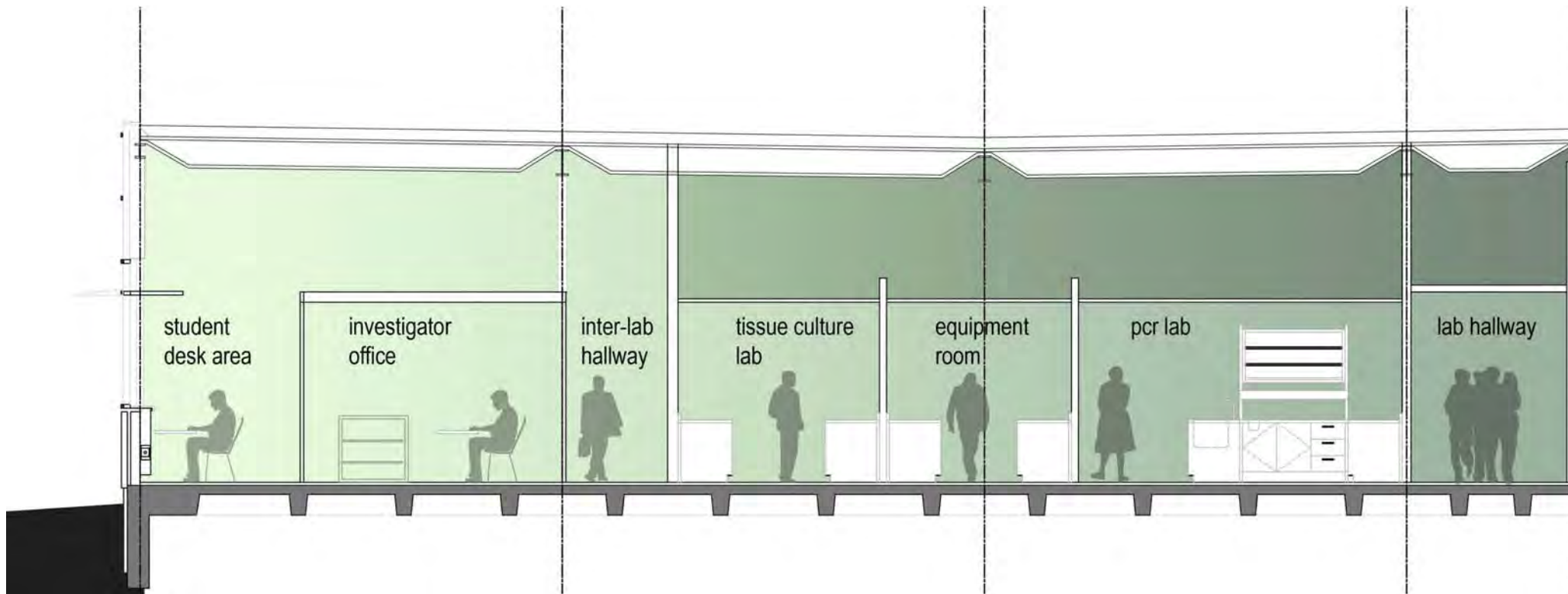
PATTERN CONCEPTS

As a way of adding interest to communal spaces, the design team is investigating the use of visual and material texture. These textures are natural in origin.



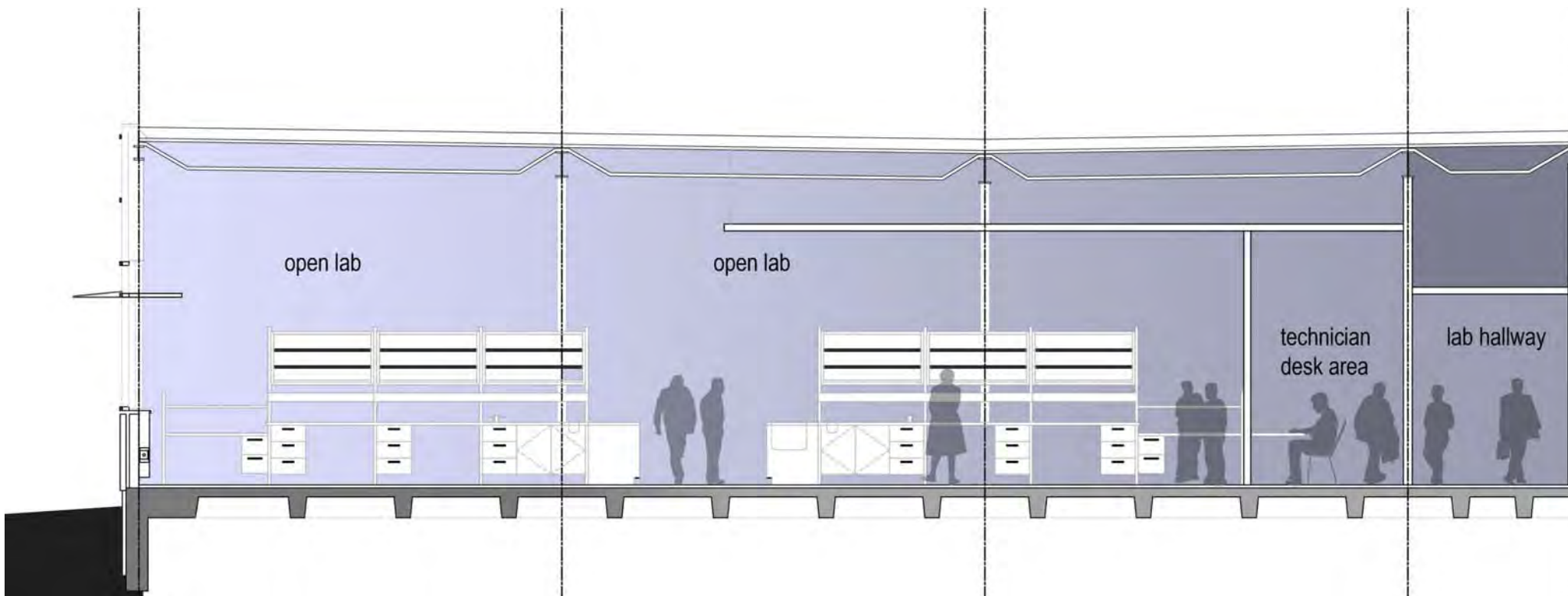
Diagrammatic Section:

Specialty Labs – Neighborhood Boundaries



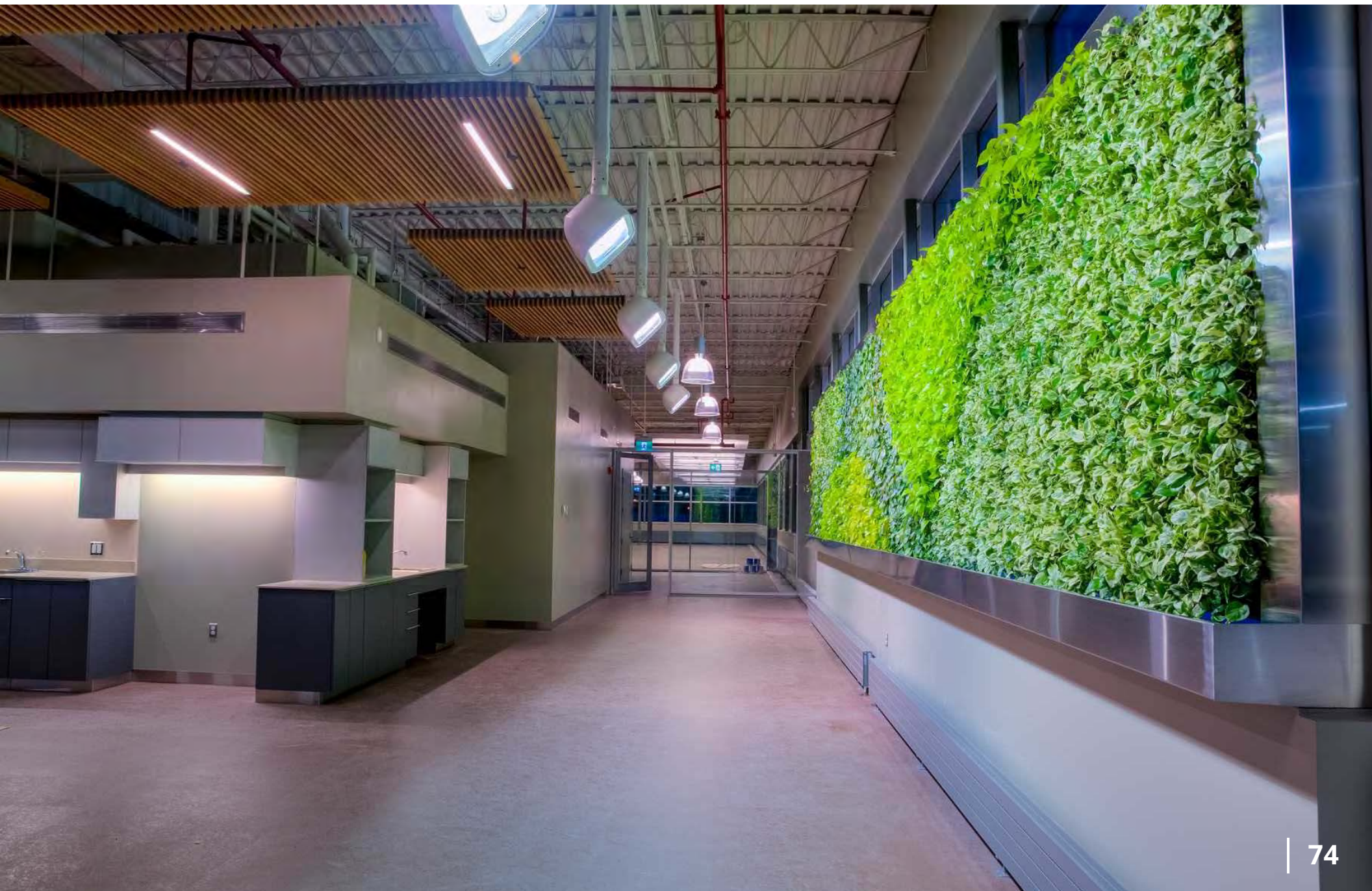
Diagrammatic Section:

Open Lab Areas

















On the outside we are a design-forward national architecture practice with focused expertise. Inside we embody the Canadian principles of honesty, diversity, practicality and regionalism.

12 LOCATIONS / 300 EMPLOYEES

National Sectors

Health Care
Science and Technology
Security and Defence
Sports and Entertainment
Hospitality
Transportation

Regional Sectors

Cultural
Commercial
Educational
Historical
Residential
Industrial

