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# ARCHITECTURE INDUSTRY TRENDS

AS TOLD BY INDUSTRY LEADERS

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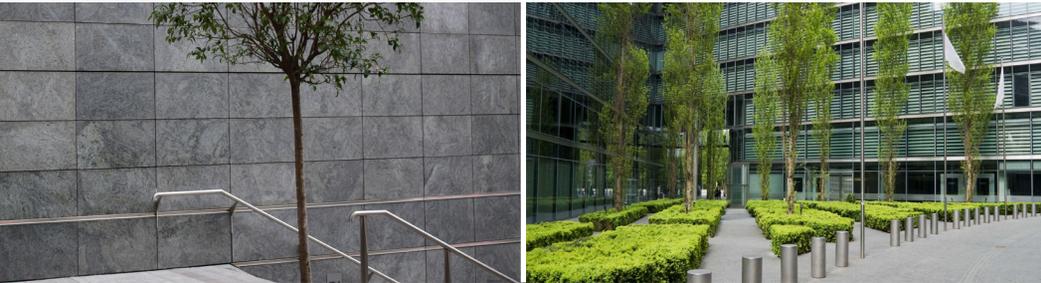
**We pride ourselves on being at the cutting edge of innovation and technology in architecture.** With new advancements taking place at an ever quickening pace that have the potential to impact the entire industry, it's more important than ever to stay up to date with architectural news and trends. *In an effort to stay on top of the industry, and to see what is out there, we invited a select few of our most reputable contacts and leaders in architecture to have their say through a short survey.*

**THESE ARE OUR FINDINGS.**



# DESIGN

**Prominent among current architectural design trends are a focus on usability, efficiency, and aesthetics that create a sense of welcome, place, and nostalgia. Interestingly, these trends tend to interconnect - to complement one another and contribute to the movement towards sustainability.**



**Durability of the aesthetic is the #1 deciding factor when choosing an exterior finish. If the look doesn't last, then what's the point?**

- Trish Bolen, Associate/LEED AP BD+C, ACI Architects Inc.

## COMMUNITY IDENTITY

In the past, design and architecture tended to focus solely on form; they were designed to be iconic and interesting but failed to consider how they shape people's experience, how they make people feel. Now, architecture of place (a focus on function and community building) is becoming more and more prominent. The industry trend is growing to encompass open spaces for community use that invite public use and engagement. For example, creating pedestrian oriented environments and ground level aesthetics (views and vistas like sculptures, greenery, and fountains) that create a visual connection from the street to the building. Designing buildings that not only encourage social contact, but also create a strong sense of place – a memorability or even nostalgia – is where current architectural design is headed. The new goal is to design buildings that inspire community identity in order to create neighbourhoods with distinctive character and public appeal.

## MODULAR CUSTOM DESIGN

**I expect to see more modular custom design and engineering solutions for the building construction industry this year.**

- Dr. Yongsheng Ma, Professor in the Department of Mechanical Engineering at the University of Alberta

Modular custom design is becoming more and more popular as it offers endless configurations and quick assembly. In modular construction, buildings are constructed in controlled plant conditions and then delivered to site. Between accelerated project schedules, exceptional quality, and cost savings, this style of design and construction is slow to gain momentum, but gradually becoming more widely used. While the cookie cutter modules are often criticized for lacking artistic flair, modular construction offers both flexibility and versatility. Creative architects design endlessly innovative buildings using modular custom design. From under-floor heating to living roofs, the possibilities for aesthetically pleasing sustainable design are countless. Canadian examples of ingenious modular custom design include Toronto's Humber River Hospital which boasts a modular green roof; the Victoria Shipyards Office Complex, a two storey project with an elevator, an aluminum storefront entrance, and marble flooring; the Aviara Sales Centre in Burnaby which features a custom entry and patio; and the York University Robotics Pavilion which features a sleek, geometric design and switchblade layout.



## RETRO DESIGN MOTIFS

Nostalgia and historic aesthetics are currently trending in design. Architects and interior designers are melding past with present by infusing vintage and retro elements with modern techniques. But perfecting this trend is all about balance: sleek and minimalist buildings with bands of brick, canopies, or copings or smooth stone floors accented with glass blocks or brass and gold fixtures. Retro design motifs and related building materials are used in modern adaptations that embody the nuance and aesthetic of past eras. For example, the Art Deco period's opulence is employed in a muted, toned down style, using accents like staircases and wallpapers but with high-tech or sustainable materials – retro vibes with a modern twist. For example, Frank Architecture and Interiors in Calgary is paying homage to retro design motifs on projects like Royale, High Rollers, and Model Milk.

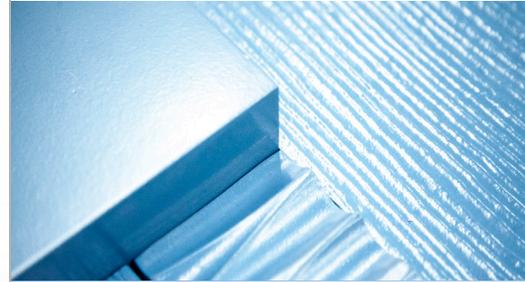


## UNIVERSAL DESIGN

Universal design demands that architecture be designed to inherently accommodate all people – this trend is all about inclusion and creating spaces that can be used easily and comfortably with minimal effort. The concept is not a style, but rather an orientation to design based on the assumption that disability is commonplace, ordinary, and affects almost all people at some point; that a design that accommodates disabilities works better for everyone; and that usability and aesthetics can dovetail seamlessly. Universal design reduces hazards and increases space, making environments approachable, reachable, and usable to users despite differences in size, posture, or mobility. Examples include raising the height of electrical receptacles, using wider doors, designing flat entrances, installing louver or loop handles, and designing storage spaces within reach for various heights. Universal design lends itself towards sustainability in that both emphasize occupant health and wellness. Environments designed for user flexibility and health (air quality, daylighting, automated features, sound quality and insulation) tend to be sustainable in nature.

**A key factor in establishing consistent standards in the architecture industry is using universal design and universal living standards during the schematic phase of a project.**

**- William Allen, CEO, William A. Allen Consulting**



## ENERGY EFFICIENT DESIGN

The greatest opportunity to create a sustainable, energy efficient building is during the schematic design phase. The earlier that sustainability is considered in the design process, the better the chances of cost savings, design efficiency, and optimum building performance. If the design is well executed and integrates sustainable criteria from conception, the project team will continually make decisions that enhance building performance and increase energy efficiency. During the schematic design phase, architects must conduct a start-up meeting that includes all energy objectives to develop a plan for achieving those objectives, to investigate sustainable design concepts that consider sustainable performance features and strategies, and to create a work scope, budget, and schedule that will accommodate energy-efficient strategies and achieve energy objectives.

← DESIGN CONT'D

# ENVIRONMENT

**In keeping with the industry's emphasis on sustainability and environmentally friendly design and construction are eco-friendly policies, materials, and methods.**



## NATIONAL ENERGY CODE FOR BUILDINGS (NECB)

Effective November 1, 2016 the National Energy code of Canada for Buildings (NECB) became mandatory. A construction code that regulates new buildings' energy efficiency, it was developed by the National Research Council and Natural Resources Canada to improve Canadian buildings' energy efficiency and to reduce greenhouse gas emissions. Spanning a range of building components and systems (building envelope, lighting, HVAC, and service water heating) the code offers three compliance paths for building design and construction: prescriptive, trade-off, and performance compliance. The prescriptive path is the simplest to follow, but isn't appropriate for all building types. The trade-off path allows for a more flexible design by letting architects trade elements within the same part of the code; it's a calculation that demonstrates energy consumption compliance despite not meeting prescriptive requirements. The performance path offers the most design flexibility by allowing architects to demonstrate that their design won't consume more energy than a similar building construction to prescriptive requirements – this is demonstrated using an hourly building energy simulation tool. Architects in Alberta should familiarize themselves with these three paths to appropriately determine the correct path for their project.

**There needs to be more thought in the schematic phase regarding energy efficiency in order for architects to make the most of this movement toward enduring, sustainable design.**

- Ross Britton, Managing Partner, U.S. Ecologic

## BUILDING ENVELOPE AND SUSTAINABILITY

Because the building envelope is what separates the interior and exterior of a building, it encompasses walls, floors, roofs, fenestrations (windows, skylights, etc), and doors. The building envelope is integral to both design and functionality since its job is to provide shelter, security, solar and thermal control, moisture control, indoor air quality control, daylight access, fire resistance, acoustics, cost effectiveness, and aesthetics. Consequently, designing the building envelope directly impacts the building's energy efficiency and sustainability. A well-designed building envelope considers the local climate – for Alberta, this means creating a closed shell, air tight envelope that maximizes insulation and uses windows for solar gain. Because of the varied and sometimes competing functions associated with the building envelope, a sustainable design approach considers building's total life cycle and increases commitment to an eco-friendly building.

**Building envelope technology has advanced at such a rapid pace over the past few years that it's now a major contributing factor to environmental sustainability in the architecture industry.**

- Mike Sczesny, Principal FUSE Architecture + Design



## TRIPLE GLAZED WINDOWS AND SUSTAINABILITY

Triple pane windows offer the most energy efficient glazing option because it has two insulating gaps to provide optimal insulation. Because triple windows are heavier, they are stronger, and when paired with fiberglass frames, they enhance thermal resistance (fiberglass is longer lasting and doesn't offgas). Triple pane windows are better heat insulators and have lower U-values (heat transfer coefficient) and often have argon gas between panes to further reduce heat transmission.



**I think triple glazed windows with fiberglass frames will become the new standard. This is due to the aluminium becoming the weak point once it goes to triple glazing, and fiberglass has a lower temperature transmittance.**

- Trish Bolen, Associate/LEED AP BD+C, ACI Architects Inc.

## SOLAR ORIENTATION IN ARCHITECTURE

**There is no doubt that solar orientation is becoming a major trend in the architecture industry, especially as we place more emphasis on the impact our buildings have on the environment.**

- Ross Britton, Managing Partner, U.S. Ecologic

Passive heating and daylighting offer the advantage of solar orientation for energy efficiency in architectural design. Beginning design by considering the sun's orientation and movement allows architects to optimize the design to best consider the sun's impact on heating and cooling. Selective siting, shading, and construction strategies can also create cost savings over the building's lifecycle. Considering how the sun will impact building users during design creates more efficient use of light, heating, and cooling. For example, the sun is strongest on the south wall making this the best area for day use whereas north walls get the least amount of light, making them good locations for bathrooms, storage rooms, and entries. By considering how light enters a structure during the design phase, architects can make the sun work for the building.

← ENVIRONMENT CONT'D

## LOCAL MATERIALS AND SUSTAINABILITY

Sourcing building materials locally boosts sustainability, largely due to limiting travel time and associated greenhouse gas emissions. Programs like LEED® provide credit for regional materials defined as "building materials or products that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% or 20%, based on cost, of the total materials value." Using heavy regional materials – brick, concrete, steel, glass, wood, and sheetrock – reduces the environmental impact of transportation, ultimately creating a smaller carbon footprint for the project. Including local materials in the project's design may limit options, but starting at the design stage allows for adjustments. Employing local materials also supports the local economy, creates jobs, improves social capital and wellbeing, and creates a more resilient building supply chain. Many natural materials, such as trees, rocks, and sand, are inexpensive and inexhaustible and also contribute to creating a sense of place in the design.

# RECYCLED MATERIALS AND RECLAIMED RESOURCES

Sourcing salvaged materials and reclaimed resources positively impacts the environment through waste reduction while also offering architects unique materials like old growth lumber. By incorporating recycled and reclaimed materials into a project's design, architects can reduce material and waste disposal costs, increase their competitive advantage, reduce emissions, and meet sustainability requirements and goals. Recycled and reclaimed materials include glass, plasterboard, plastics, wood, steel, copper shingles, aggregates, paper, compost and organics, rubber, and ash or furnace slag. Not to mention that innovative new products like bricks (made from newspaper or cigarette butts) are continually being created using recycled materials. Through deconstruction, as well, salvaged materials such as plywood, lumber, flooring, bricks, windows, concrete, plumbing fixtures, doors and knobs, paneling, hinges, insulation, stairs, railings, roof tiles, moldings, baseboards, and countertops can be purchased and reused in new construction, effectively reducing material costs and construction waste. All in all, sourcing recycled materials and reclaimed resources right from the design stage offers environmental, economic, and performance benefits.



# TECHNOLOGY

**There are unbelievable opportunities available to companies in this field that embrace change and innovation.**

- Mark Tisdall, Product Development/Technical Advisor,  
DIRTT Environmental Solutions

## MgO NON-COMBUSTIBLE SUBSTRATES

Magnesium oxide boards (MgO board) is a technologically advanced, environmentally friendly building material that is used instead of gypsum drywall for wall and ceiling applications. A mineral-based, non-toxic, green building material, MgO board does not delaminate and is impervious to water, fire, insects, chemicals, mould, and mildew. Additionally, MgO has great adhesion values, making stucco, acrylic stucco, wallpaper, stone, tile, and brick easy to apply and durable. MgO construction applications include interior walls, ceilings, backer board, underlay, exterior wall cladding, soffit, siding, and trim.



**Using software and technology to minimize waste is one of the easiest ways the architecture industry can become sustainable over the long term.**

- Mark Tisdall, Product Development/Technical Advisor,  
DIRTT Environmental Solutions

## MINIMIZING WASTE THROUGH SOFTWARE AND TECHNOLOGY

Building information modelling and 3D virtual design software are excellent design advancements that contribute to waste reduction by providing project teams with robust, accessible models. Because 10-15% of construction waste results from communication and time management inefficiencies, 3D virtual design and BIM models can be used to reduce errors and increase efficiency. Comprehensive BIM models improve visualization and reduce material quantities, which also reduces rework during both design and construction. Communicating design and coordination in 3D models, which hold all of the project data in one place, allows team members to use their time solving design issues rather than chasing down information. Plus, BIM encourages a collaborative approach to design and construction that includes input from architects, construction managers, and subtrades.

## ONLINE SELECTION PROCESS FOR ARCHITECTS AND DESIGNERS

Online selection processes like CADdetails are growing in popularity for architects and designers. Sites like CADdetails provide AEC professionals with tools, information, resources, and services that simplify the design and procurement process. CADdetails provides manufacturer-specific building product information and high quality planning documents to architects. By consolidating this material into one site, CADdetails bridges manufacturers and designers, connecting industry professionals with high-quality CAD drawings, 3D models, BIM files, specifications, images, and files in multiple formats in addition offering an intuitive search engine, manufacturer microsites, and sustainable products. Subscription also includes news on industry trends, software reviews, trade show reports, and new content.

SUMMARY + CONTACT

Right now is an exciting time in the world of architecture. The explosion of green construction practices and globalization have increased demand for powder coatings as a viable option for better aesthetics, improved performance and sustainable design goals.

GET STARTED, AND  
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