

Partnering with Municipalities in Finding Housing Solutions



Table of Contents

- Introduction 2
- Creating innovative solutions through community-based research 3
- Partnering with local industry and communities 8
- Supporting student housing 11
- Developing highly skilled talent in housing and planning 13
- Appendix 16

Introduction

Ontario's regions and municipalities are taking transformative actions to create affordable housing and remove barriers to rent, buy and build homes that meet the needs of all Ontarians. As municipalities continue to work on housing needs, Ontario's universities are creating impactful partnerships within these communities to help achieve these goals.

These important collaborations enable regions across the province to leverage collective expertise and resources to find innovative solutions to housing challenges. By creating communal living spaces, building fast and cost-effective emergency housing, boosting mixed-use development and creating 3-D printed housing projects – Ontario's universities are addressing critical challenges to help ensure housing needs are met.

Universities will continue to work with local municipalities and industry to implement housing solutions that will ultimately lead to improved affordability, accessibility and sustainability for our communities and province.

This booklet features some of the many examples of research, innovative programs and work underway at our universities that can help towns and cities continue to build housing for their communities and find solutions that are responsive to their specific needs. Also included is the contact information for the university research and program leads, so you can access resources to help address the unique challenges your community is facing.



Creating innovative solutions through community-based research

Ontario's universities are developing innovative solutions and making research discoveries to help address the housing crisis. From 3-D printed housing and energy efficient retrofits to mixed-use development models, universities are conducting ground-breaking research to help find answers to local housing challenges.

Developing affordable, energy-efficient new homes and housing retrofits

A strong housing sector strengthens all our communities and directly improves the lives of Ontarians.

To help strengthen the sector, Carleton University professor Cynthia Cruickshank is finding innovative materials and design strategies for completing retrofits and building new homes in ways that prioritize affordability and energy conservation.

Researchers at Cruickshank's new Centre for Advanced Building Envelope Research will explore how heat, air and moisture move through materials and highly insulated wall systems, and how these elements contribute to resident health, comfort and building science risks.

Through collaborations with industry, government and academia, Cruickshank is creating learning opportunities for workers, including construction trades, building designers, engineers, project managers and building science researchers.

For more information, contact Cynthia Cruickshank, Professor, Department of Mechanical and Aerospace Engineering, Carleton University at Cynthia.Cruickshank@carleton.ca



Revolutionizing construction methods in Ontario's north

Many northern communities face challenges, including limited access to digital technology, dependence on southern markets and a scarcity of technical expertise. It is why Laurentian University's Dr. Steven Beites' research has the potential to create a substantial impact by revolutionizing human-robot interaction and collaboration in Ontario's northern communities.

A key focus is on developing a portable and modular cable-driven parallel robot (CDPR) capable of large-scale fabrication and assembly. This innovation could revolutionize construction methods, offering efficient and advanced solutions for addressing the housing crisis in remote areas. Additionally, the project seeks to bridge the gap between traditional craftsmanship and digital fabrication by integrating a brain-machine interface. Moreover, the endeavor encompasses a community-based material production model driven by renewable energy and locally-sourced raw materials.

Dr. Beites' research has the power to shape a more sustainable, technologically empowered, and resilient future for these communities, catalyzing positive change on multiple fronts.

For more information, contact Dr. Steven Beites, Assistant Professor, McEwen School of Architecture, Laurentian University at sbeites@laurentian.ca



Co-creating national solutions to adequate housing

Addressing large-scale challenges to housing, such as ensuring widespread housing security across Canada, requires national collaboration.

It is why Adrienne Pacini, an [OCAD University](#) graduate in the Strategic Foresight and Innovation Program and partner at SHS Consulting, is bringing people together with lived experience, subject matter experts, as well as those from the non-profit and community housing sectors to address this challenge.

She is leading a series of innovation labs on topics such as creating new housing tenure models, scaling a community land trust, levelling the playing field in the housing development sector and realizing the right to housing in Canada.

Many of these initiatives have led to new approaches to involving the community in conversations about the future of housing, renewed strategies for non-profit housing providers and a shift in the national dialogue about the role of the community housing sector.

For more information, contact the Communications department, OCAD University at communications@ocadu.ca



Helping youth transition out of homelessness

Improving community interventions that ultimately help youth exit homelessness is critical. It is why [Ontario Tech University's](#) Dr. Tyler Frederick is leading a national research project to explore the paths of youth who are able to exit homelessness.

The project follows young people for three years, and explores the impact of quality of life, COVID-19, social supports, community integration, housing stability and other key factors, on the transition out of homelessness. This multisite study will gather information that will inform the design of policies and interventions for successful and lasting exits from homelessness.

In addition to leading the national study, Dr. Frederick works on collaborative and co-designed research with cities and municipalities, ensuring that his efforts have immediate and tangible impact in the university's surrounding community.

He recently co-led a Mitacs Accelerate project evaluating a micro-homes pilot project in Durham Region to address chronic homelessness. The co-designed engagement framework produced by that project is already being used in the design of a new project aimed at community-building in downtown Oshawa. The research program will improve the reach, impact and relevance of community interventions in order to lead to sustainable positive outcomes for people exiting homelessness.

For more information, contact Dr. Tyler Frederick, Associate Professor and Undergraduate Program Director, Criminology and Justice, Ontario Tech University at tyler.frederick@ontariotechu.ca



Finding solutions to maximize underused spaces

Providing a range of housing options that meet the everyday needs of Ontarians is crucial to establishing robust communities and improving quality of life throughout the province.

That is why the University of Toronto's School of Cities has released a plan to boost mixed-use development in Toronto, co-locating housing with businesses, non-profits and government buildings. The university is partnering with the City's real estate agency on public property development projects, such as fire and paramedic stations with affordable housing built above them.

By co-locating housing with these underused lands through a mixed-use model, municipalities can make more efficient use of limited space, unlock new opportunities for the development of affordable housing that meets the diverse needs of residents and foster complete communities.

For more information, contact Karen Chapple, Director, School of Cities, University of Toronto at karen.chapple@utoronto.ca



Breakthroughs in brick manufacturing

By reducing carbon emissions from production, while also finding new raw materials that are carbon-neutral, the Bio-Brick is tackling two problems at once.

The Bio-Brick is an innovation born out of MicroBuild Masonry – a start-up created by two University of Waterloo students, Adrian Simone and Rania Al-Sheikhly – after Simone was inspired by his co-op work term on a construction site.

Simone is now working on a process to form the brick into masonry units with the same strength and durability as regular bricks with the goal of making the manufacturing process completely sustainable.

For more information, contact Michele Van Dyke, Manager, Industry Partnerships, Faculty of Engineering, University of Waterloo at mvandyke@uwaterloo.ca

Providing insights on the National Housing Strategy

Tens of thousands of people across Canada are experiencing homelessness at any given time, and any proposed solution must be carefully considered to ensure optimal outcomes for those in need and for our communities more broadly.

Researchers at Western University have carefully studied the federal government's National Housing Strategy to provide constructive insights regarding affordable housing and supportive housing models that have been proven effective in jurisdictions around the world.

Leveraging the expertise of Ontario researchers, the university is taking the most effective course of action in addressing this critical issue.

For more information, contact Abe Oudshoorn, Associate Professor, The Arthur Labatt Family School of Nursing, Western University at aoudsho@uwo.ca



Empowering students to develop unique housing solutions

Providing students with the environment to create can lead to innovative solutions to challenges, such as affordable housing. It was in this type of environment that Kuponya Innovations was created.

Developed by a Wilfrid Laurier University student, Jordan Prentice, with the support of Enactus Laurier, Kuponya Innovations is addressing the housing crisis in Indigenous communities. The enterprise is partnering with the community of Fort Good Hope in the Northwest Territories, where in consultation with architects, engineers, municipal officials, Indigenous leaders and residents, the partnership aims to build 20 energy-efficient tiny homes.

Kuponya Innovations will then work with community partners to train residents to help assemble and maintain the homes, enhancing self-sufficiency.

For more information, contact Laura Allan, Laurier Enactus Advisor and Assistant Professor, Lazaridis School of Business and Economics, Wilfrid Laurier University at lallan@wlu.ca

Partnering for Canada's first on-site 3-D printed housing

In order to support its growing population, Ontario will need to rapidly increase the supply of housing throughout the province. That is why the University of Windsor is working with partnered organizations through a public-private partnership (P3) on a 3-D printed housing project in Leamington.

This ground-breaking effort represents a number of firsts – it is the first housing project printed on site in Canada, as well as the first multiplex and the first printed building to use traditional concrete in North America. 3-D printed housing has the potential to make residential construction faster, easier and more affordable, opening the door to the rapid delivery of housing that is accessible to Ontarians throughout the province.

For more information, contact Gillian Heisz, Vice President, Finance and Operations, University of Windsor at Gillian.heisz@uwindsor.ca



Partnering with local industry and communities

From finding sustainable housing solutions that can survive harsh winters to finding new tools to address affordable housing challenges, partnering with local industry and communities enables Ontario's universities to ensure their research is addressing the unique challenges that regions are facing.

Students working to improve Indigenous housing challenges

Through collaboration and consultation with Indigenous communities, Brock University students are working with these communities to help address a range of urban housing challenges.

Students heard from several Indigenous leaders and then developed policy briefs and recommendations on various local housing challenges. The project culminated in a community event at the Niagara Regional Native Centre that featured a traditional lunch, student policy presentations and roundtable discussions with members of Indigenous communities and the regional government.

Some of the issues that the students explored included examining barriers to housing in the judicial system and land allocation, as well as inclusive housing policy development. The briefs will now be used by a number of local Indigenous organizations and will help support Indigenous-led conversations around housing.

For more information, contact Joanne Heritz, Assistant Professor, Political Science, Brock University at jheritz@brocku.ca or contact Liam Midzain-Gobin, Assistant Professor, Political Science, Brock University at lmidzaingobin@brocku.ca



Innovative designs to improve housing in northern communities

The unique housing challenges faced by northern communities require unique solutions. By developing code-compliant modular housing, Lakehead University is helping find these solutions with far-reaching implications.

The design is carefully crafted to address multiple factors. Modules that are lightweight and relatively small in size make it feasible for transportation to remote regions, while incorporating essential features, such as wind resistance and effective insulation against extreme cold temperatures. Furthermore, the modularity allows for rapid deployment, catering to the short construction season typical for these communities. In addition, the use of cost-effective construction materials and systems ensures affordability. What sets this project apart is its pioneering methodology – the research team leverages cutting-edge techniques, including accurate simulation of aerodynamic and structural performance through models, coupled with state-of-the-art optimization and AI-based regression methods.

The project is done in collaboration and consultation with Indigenous communities, with members of these communities participating as researchers and industry partners.

For more information, contact Ahmed Elshaer, Associate Professor, Department of Civil Engineering, Lakehead University at aelshaer@lakeheadu.ca



Partnering with municipalities to solve real-world problems

From addressing housing to helping the City of Hamilton mitigate climate change, CityLAB is a critical partnership between the City and McMaster University.

Since 2017, CityLAB has created more than 159 projects across Hamilton with its 2022 projects focused directly on housing — from exploring the rental marketplace to finding tools for affordable housing in Hamilton.

The initiative fosters critical insights and data, where students gain invaluable work-integrated learning experience by engaging deeply in Hamilton's urban environment while the City gains invaluable solutions.

For more information, contact Randy Kay, Outreach Director, CityLab Semester in Residence, McMaster University at kayrl@mcmaster.ca

Drawing insights on homelessness in Nipissing

Homelessness in Ontario has been a subject of significant concern and research. Scholars, professionals, and local authorities have been actively addressing this complex issue. Notably, Nipissing University's alumna Megan Odd has conducted innovative research that sheds light on homelessness within the Nipissing region.

Through her work as a Housing and Homelessness Planner and Analyst at the District of Nipissing Social Services Administration Board, Odd coordinated the most recent point-in-time count of homelessness in the Nipissing region, submitting provincial shelter reports and co-developing the district's first Coordinated Access service system. In addition, her thesis explored the barriers and factors that are associated with becoming homeless or remaining homeless, in order to gain a deeper understanding of the population and find solutions.

For more information, contact Christopher Greco, Assistant Professor and Program Chair, School of Criminal Justice, Nipissing University at christog@nipissingu.ca



Collaborating to build Indigenous community infrastructure

Fostering sustainable housing solutions and addressing pressing infrastructure challenges faced by Indigenous communities is critical.

The University of Ottawa's Centre for Indigenous Community Infrastructure is partnering with Indigenous communities and programs across the university to build relationships and collaborative partnerships, foster an Indigenous innovation ecosystem and improve practice through research and knowledge exchange. The Centre has taken on several projects related to housing, including a collaborative project with Indigenous Services Canada aimed at accelerating efforts to support improved First Nations housing across Canada.

Additionally, 40 new clusters of 10 residential homes are being proposed for remote communities north of 60 degrees. As part of the project, students will examine new housing approaches suitable for such communities and develop a feasibility report and design report for one cluster to effect positive change through collaborative innovation and knowledge-driven progress.

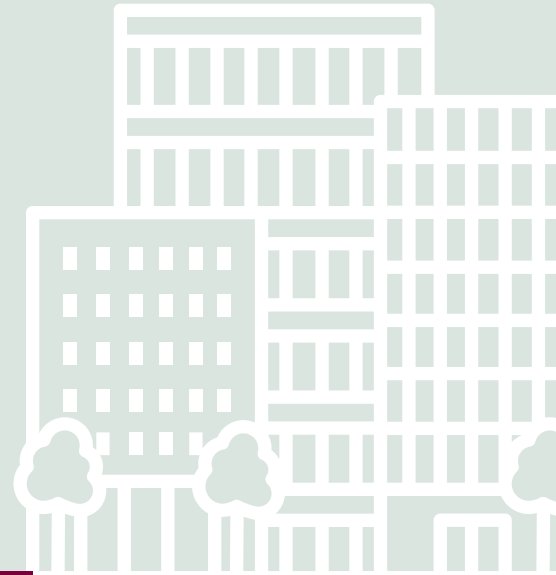
For more information, contact Joseph Wabegijig, Centre Coordinator, Centre for Indigenous Community Infrastructure, University of Ottawa at cici@uOttawa.ca



Supporting Student Housing

Student access to housing is vital for retaining and attracting talent and promoting community well-being in the province. Ontario's universities remain dedicated to collaborating with the province, municipalities and partners to enhance housing options, including purpose-built accommodations, for both local and international students.

Below are a few examples highlighting how universities are supporting the growing demand for student housing in their local community.



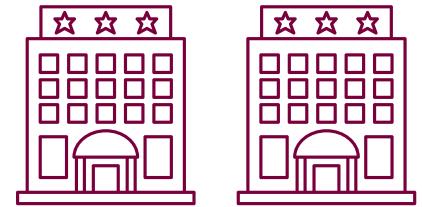
GTA, HAMILTON-NIAGARA REGION

\$80 million dollars is the amount **Brock University** has invested in expanding on-campus housing, resulting in the university's largest move-in weekend ever, in 2022.

Brock now offers 2,800 beds across eight housing complexes, including 308 beds at its brand-new Residence 8 semi-suite-style building.

The **University of Toronto** is committed to increasing housing options for all students across its three campuses and completing best-in-class residences and homes. Residences at the university are setting new benchmarks in creative and sustainable design, such as a new residence at the St. George campus which integrates 508 student units with homes for faculty and has a geothermal energy system.

At the Scarborough campus, a 750-bed residence opening later this year will have the energy consumption of 40-60 per cent of conventional buildings.



McMaster University will be opening two new residences, creating almost 2,000 new beds for students. Located at 10 Bay Street, this state-of-the-art 30-story building and the university's first dedicated graduate residence, will create 644 new beds in downtown Hamilton.

Construction is also set to begin on Lincoln Alexander Hall, a new 1,366-bed undergraduate residence that will open in the fall of 2026.

York University partnered with a private student housing developer to build The Quad residences, which opened Phase 1 in 2017. Two new buildings opened at The Quad in September 2022, increasing the available beds from 800 to just over 1500 in four buildings. The project offers an assortment of single, double, triple, and quad units on their Keele campus.

In addition, York is currently re-envisioning their Keele campus, which contemplates the creation of four distinct but interconnecting complete neighbourhoods. While unique in type and purpose, all four neighbourhoods will share some consistent features: each will have a range of housing options, as well as service retail to meet the day-to-day needs of a healthy, pedestrian-oriented community. Each neighbourhood will enjoy convenient connection to all elements and amenities on the academic campus, as well as access to transit service in the GTHA. All will be welcoming to neighbours in nearby communities, including Jane and Finch, the Village at York, and many others. And all will provide opportunities to further realize York's commitment to Indigenous reconciliation, from acknowledging or incorporating traditional land practices to offering spaces for Indigenous peoples and/or for art and cultural expression.



NORTHERN REGION

Algoma University is partnering with the Canadian Homestay Network (CHN) to expand their homestay program at their Sault Ste. Marie and Brampton campuses.

This program supports international students who live in homestay accommodations with host families, who help them adapt to living and learning in a new country.

EASTERN REGION

Queen's University has created the role of the Off-Campus Living Advisor (OCLA) within their Housing department to provide students looking to live off-campus with the support and guidance that is typically limited to students living on-campus. The OCLA helps students living off-campus with everything from advice on looking for housemates to subletting over the summer.

Trent University is creating 700 new on-campus residence spaces at its Peterborough campus, including the building of a brand-new residence, which will be Trent's sixth college. At its Durham campus, Trent has opened its new 200-bed Durham Residence and Academic Building, an innovative building designed to holistically integrate academic success and overall well-being.



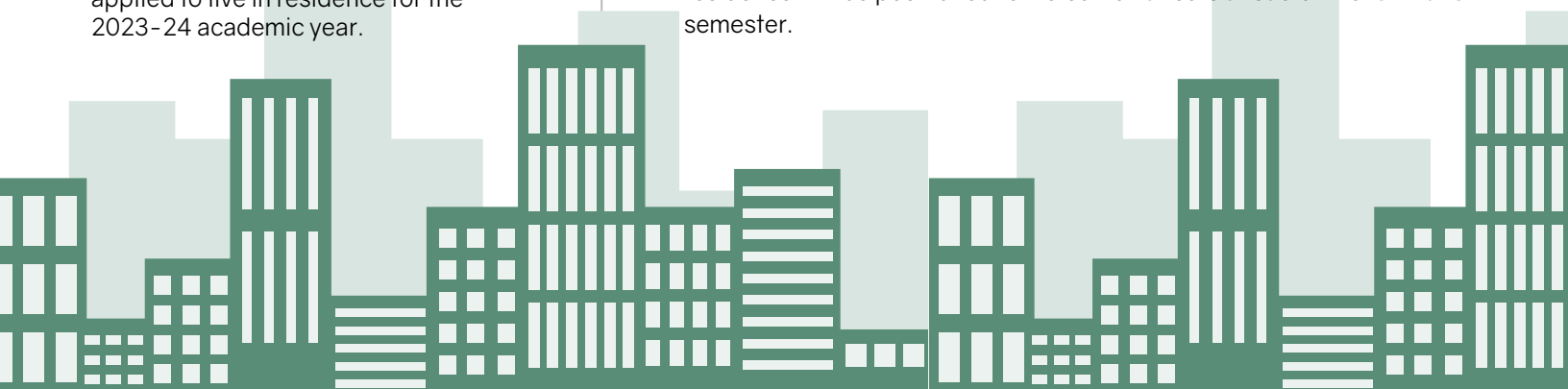
SOUTHWESTERN REGION

The **University of Guelph** is developing a new Student Housing Strategy that aims to establish sustainable, long-term housing solutions for the entire student population. The first phase of the strategy consists of a comprehensive housing demand study.

Meanwhile, the university has also taken steps to support their students in the short-term. The university recently worked with the City to expand student housing by leasing a nearby property that has operated as a hotel. This has enabled U of G to accommodate all students who have applied to live in residence for the 2023-24 academic year.

Western University is currently planning two new residences to add to its large and diverse housing portfolio. Western operates the largest housing fleet in the province, second nationally only to University of British Columbia. Western also offers off-campus housing services to assist students in transitioning from residence to off-campus life.

In June 2023, the **University of Windsor** broke ground on its newest residence, a 452-bed residence that will include 68 barrier-free units across 226 suites. The residence is being built as part of an innovative public-private partnership with Tilbury Capital. This will be the largest residence on Windsor's campus by over 100 beds and will help transform the student housing landscape in the city. The state-of-the-art residence will be positioned to welcome Lancers ahead of the fall 2025 semester.



Developing highly skilled talent in housing and planning

Through innovative programs, work-integrated learning opportunities and student entrepreneurship, Ontario's universities are helping equip the next generation of talent with the skills they need to help Ontario address housing challenges and provide solutions.



Gaining hands-on experience for real estate students

Gaining critical hands-on experience is crucial when developing a real estate plan that can positively impact a community.

The University of Guelph's student-run Undergraduate Real Estate Case Competition (URECC) within the Gordon S. Lang School of Business and Economics challenges undergraduate students to create a full-scale development proposal for an existing real estate site in Ontario.

The competition provides participants with an authentic experience, giving them a true-to-life representation of the process involved in producing a development plan. Each proposal encompasses a comprehensive analysis that considers factors affecting development feasibility, such as market analysis, sustainability, physical constraints, financial viability and government regulations. Teams are judged by industry leaders on their ability to develop and effectively communicate a development plan that is legally, physically and financially feasible and positively impacts the greater community.

For more information, contact the Undergraduate Real Estate Case Competition, University of Guelph at urecc@uoguelph.ca

Training the next generation of community developers

Equipping students with the knowledge and skills to approach housing issues within a broader context is critical.

It is why Algoma University's Community Economic and Social Development (CESD) program is providing students with work-integrated learning opportunities that allow them to apply their interdisciplinary training and gain valuable hands-on work experience in economic and social development roles that help address local issues, such as housing, in their local communities. Past students have worked with organizations such as Habitat for Humanity and the NORDIK Institute, allowing them to develop their skills while helping make a positive change in areas such as community development and housing across the province.

For more information, contact the Community, Economic, and Social Development Program, Algoma University at info@algomau.ca





Innovative designs for the future

Addressing the challenges facing our province today and into the future will depend on Ontario's ability to continue to develop the talent and innovation that has driven Ontario's successes to date.

Students like Nicolas Burbano Diaz, who is pursuing his passion for design at Toronto Metropolitan University, exemplify the highly skilled talent that will drive Ontario forward. Diaz's work emphasizes the potential of interior and spatial design to improve lives, creating spaces that respond to the unique and changing needs of their occupants and the community more broadly.

The designs Diaz has created during his studies at Toronto Metropolitan University, including a laneway home with movable walls that allow expansion and contraction depending on resident needs, as well as a co-living space that provides small private rooms and communal living areas, exemplify the forward-thinking and innovative approaches that can help Ontario's communities address housing challenges. For this work, Diaz was recently named as one of the 2023 Metropolis Future100.

For more information, contact the School of Interior Design, Toronto Metropolitan University at Interiordesign@torontomu.ca

Addressing homelessness

As communities throughout the province work towards an end to homelessness, understanding its various causes and impacts is a critical first step.

Trent University's Dr. Kristy Buccieri, who has made education about homelessness a focus of her career, worked with a team of colleagues to develop a free online educational resource called Understanding Homelessness in Canada: From the Street to the Classroom for this very reason. This "talking textbook" provides students with a greater understanding of homelessness informed by those with lived experiences.

This innovative resource has demonstrated its value to students and the academic community alike, receiving the award for Excellence in Online and Blended Learning Innovation from the Online Learning Consortium.

For more information, contact Dr. Kristy Buccieri, Associate Professor, Sociology, Trent University at kristybuccieri@trentu.ca





Fueling the talent pipeline of urban planners

To help address Ontario's immediate and future shortages in professional planners, York University is working to fuel the talent pipeline within this in-demand field.

Through its Bachelor of Environmental Studies in Cities, Regions and Planning, as well as a Master in Environmental Studies in Planning, students receive invaluable work-integrated learning opportunities with urban planning organizations and graduate job-ready, equipped to tackle the challenges that today's planners face.

In addition, students in both programs can participate in the City Institute at York University, which facilitates critical and collaborative research, providing new knowledge and innovative approaches to the issues urban areas are facing.

For more information, contact Luisa Sotomayor, Associate Professor, Director, The City Institute at York University, at sotomay@yorku.ca and Laura Taylor, Associate Professor, Planning Program Coordinator, at taylorl9@yorku.ca

Appendix

See below for how to get in touch with Ontario's university housing researchers and learn more about partnership opportunities.

Creating innovative solutions through community-based

Carleton University

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Partnering with local industry and communities

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Centre Coordinator, Centre for
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Developing highly skilled talent in housing and planning

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Community, Economic, and Social Development
Program

University of Guelph

urecc@uoguelph.ca

Undergraduate Real Estate Case Competition

Toronto Metropolitan University

Interiordesign@torontomu.ca

School of Interior Design

Trent University

Dr. Kristy Buccieri, kristybuccieri@trentu.ca

Associate Professor, Sociology

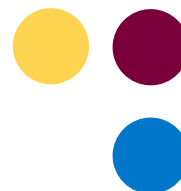
York University

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