TRADING UP

Equipping Ontario Trades with The Skills of the Future

ABOUT THE CANADA GREEN BUILDING COUNCIL (CAGBC)

CaGBC is a not-for-profit, national organization working to advance green building and sustainable community development practices in Canada

CaGBC consists of industry-led, cross-sectoral stakeholders and members focusing on delivering market-based solutions

Current membership spans:

- 12 provinces and territories
- 1,300 national member companies and 4,000 chapter members
- 10,000+ LEED accredited professionals involved in designing, building and operating buildings, homes and communities

Since 2004, CaGBC has educated over 45,000 green professionals to answer the demand for knowledge and jobs in the green marketplace

CaGBC is also the license holder for the LEED green building rating system in Canada and recently launched CaGBC's Zero Carbon Building Standard – Canada's first green building program to make carbon emissions the key indicator for building performance

CAGBC CORPORATE MEMBERSHIP

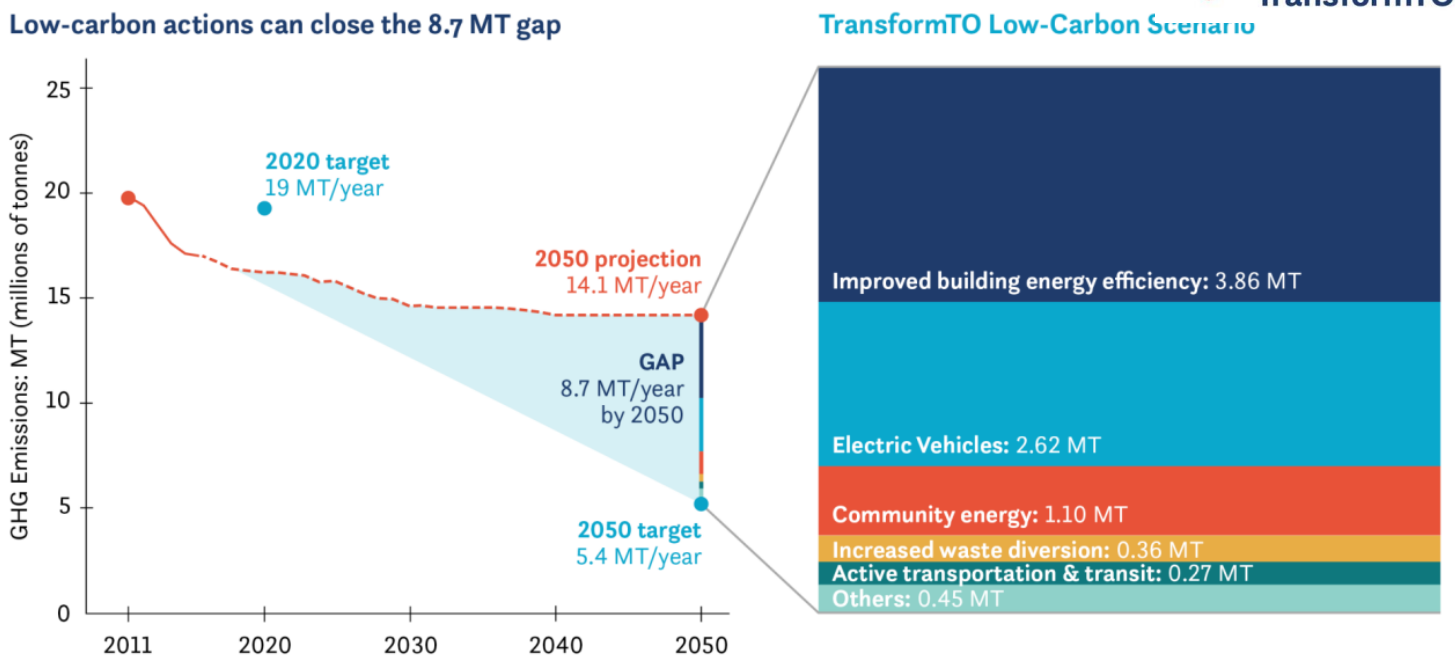
PROFESSIONAL TRAINING LANDSCAPE IN ONTARIO

- CaGBC - Green Building, LEED, Zero Carbon, EWRB
- Passive House Canada - PH, TEDI
- CIET – Building Operators, Energy Management
- EnerQuality – ENERGY STAR
- Building Knowledge – Residential Building Science
- Endeavour Centre – Natural Building
- TRCA/STEP – Site and Stormwater
- ASHRAE – HVAC
- NAIMA – Insulation & Air Sealing
- NRCAN – Energy Management, Benchmarking
- Green Roofs for Healthy Cities – Green Roofs

- **Professional Associations** (OAA, OALA, BOMA)
- **College and Universities** (Cert's, Degrees and Con-Ed)
- **Apprenticeships & Unions**
- **Vendors & Consultants**

TORONTO'S 2050 GHG FORECAST
CLOSING THE CARBON GAP

TransformTO



GETTING TO ZERO CARBON

ALL NEW BUILDINGS DESIGNED TO **ZERO CARBON BY 2030**

EXISTING BUILDINGS ½ ENERGY USE & **ZERO CARBON 2050**

THE ZERO CARBON BUILDING STANDARD

- Uses Carbon as the main performance metric.
- Is broadly applicable to all types of buildings, new and existing.
- Recognizes the inherent differences in regional energy sources, including local electricity production.
- Is flexible enough to allow all buildings to participate, regardless of local grid constraints.

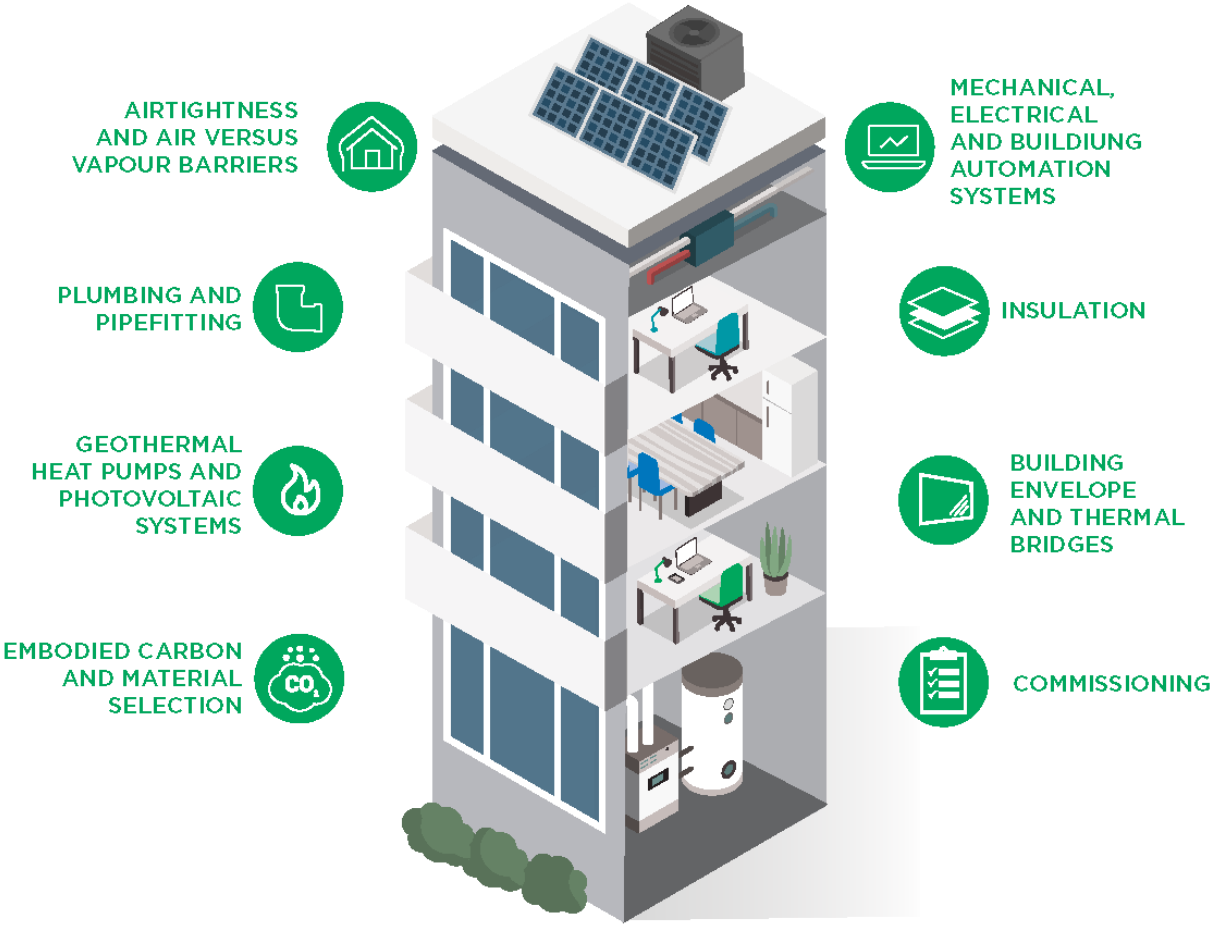
ZERO CARBON BUILDING

A high-performing building is defined as one that is highly energy-efficient and produces on-site, or procures, carbon-free renewable energy in an amount sufficient to offset the annual carbon emissions associated with its operations.

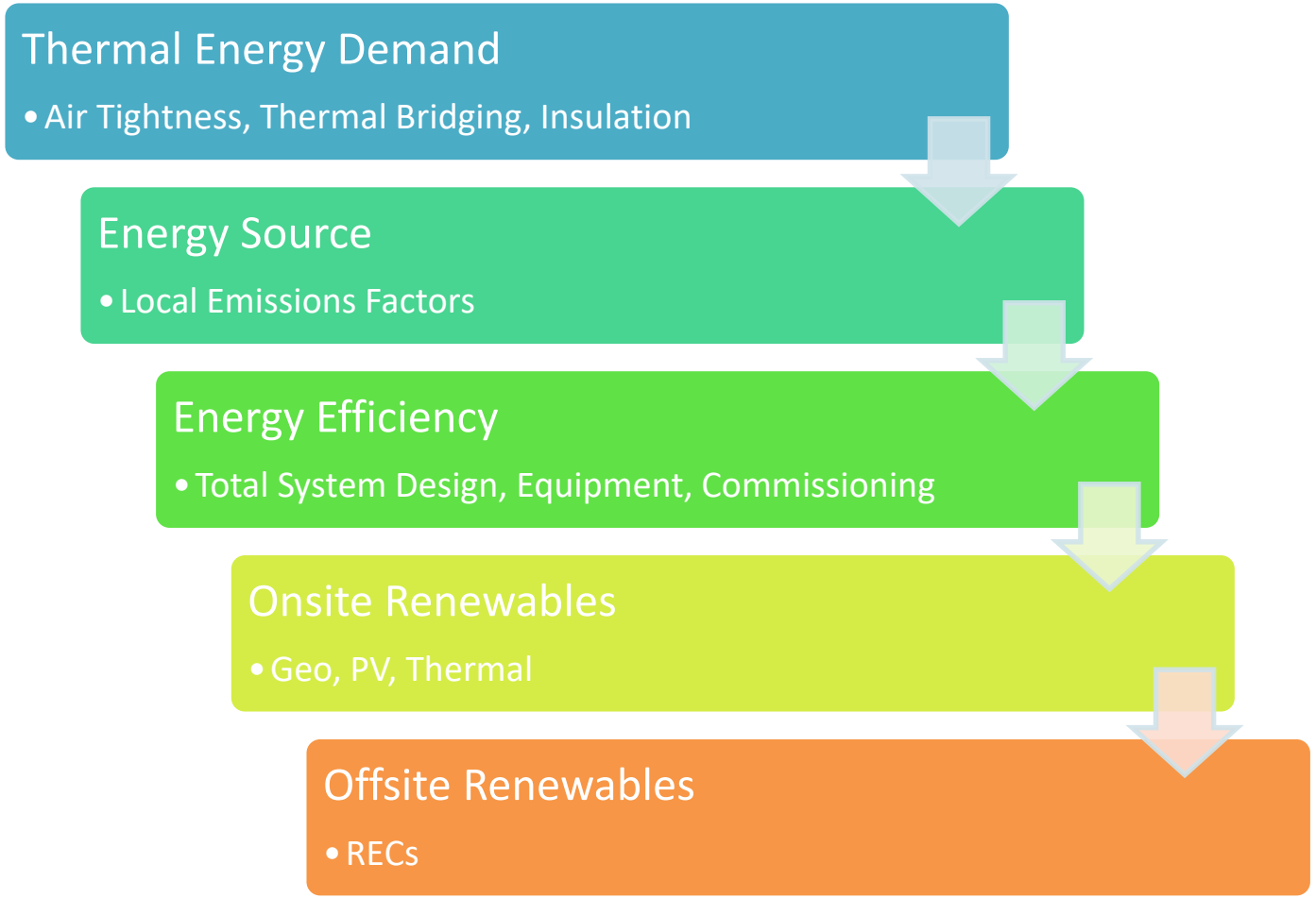
THE PURPOSE OF THE RESEARCH REPORT

- Describe the skills training required to meet the demand for the construction of low-carbon buildings.
- Identify the barriers to the uptake of low-carbon building skills training among tradespeople.
- Propose the delivery models necessary to optimize training uptake.
- Create an actionable education roadmap for Ontario labour, government, educational institutions, and industry to use to drive low-carbon skills development.

TECHNICAL SKILLS GAPS FOR HIGH-PERFORMING BUILDINGS



PRIORITIES

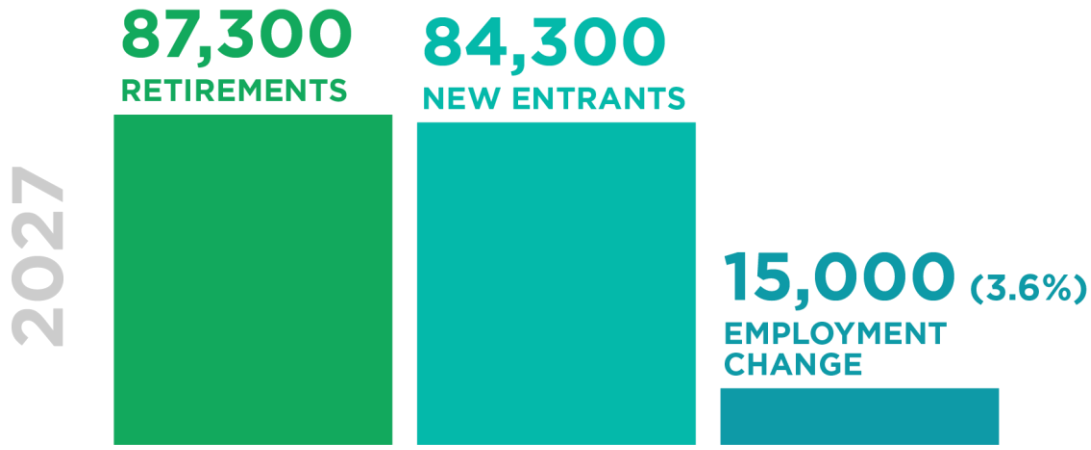

Thermal Energy Demand
• Air Tightness, Thermal Bridging, Insulation
Energy Source
• Local Emissions Factors
Energy Efficiency
• Total System Design, Equipment, Commissioning
Onsite Renewables
• Geo, PV, Thermal
Offsite Renewables
• RECs

LOW CARBON BUILDING WORKFORCE

Workforce Members	Planning & Design	Construction	Operations	Retrofits	Demolition
Architects, Engineers, Designers	◆	◆		◆	
Contractors, PMs		◆		◆	◆
Construction Trades		◆	◆	◆	◆
Building Officials	◆	◆	◆	◆	◆
Commissioning Agents		◆	◆	◆	
Developers, Finance	◆	◆	◆	◆	
Building Operators			◆	◆	
Property/Facility Managers			◆	◆	
Equipment Suppliers, Manufacturing, Service	◆	◆	◆	◆	
Real-Estate, Leasing			◆		

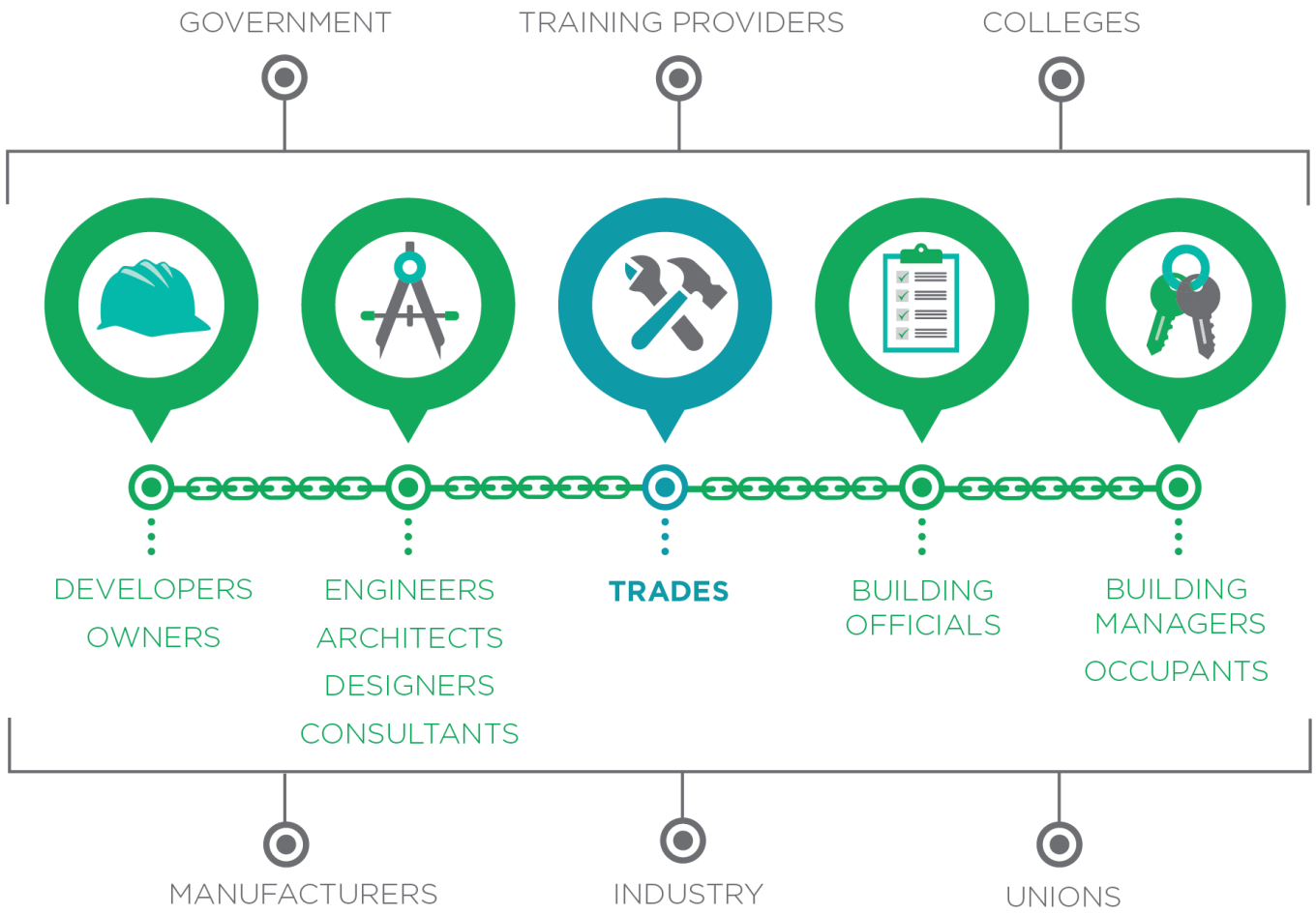
CONSTRUCTION INDUSTRY IN ONTARIO

- **520,000 people** are working in Ontario's construction industry
- Value of industry is **99 billion**
- **40% of the jobs** that will be created in Canada over the coming decade will be **skilled trade positions**.
- **85,000 retirements** are forthcoming and a need for **80,000 new recruits** needed by 2026 to sustain the sector.
- The construction sector already has a **workforce utilization rate of 93%.**
- The impact of the skills gap in Ontario is estimated at **$24.3 billion of GDP** in foregone company revenues, with an additional **$3.7 billion lost** in foregone taxation

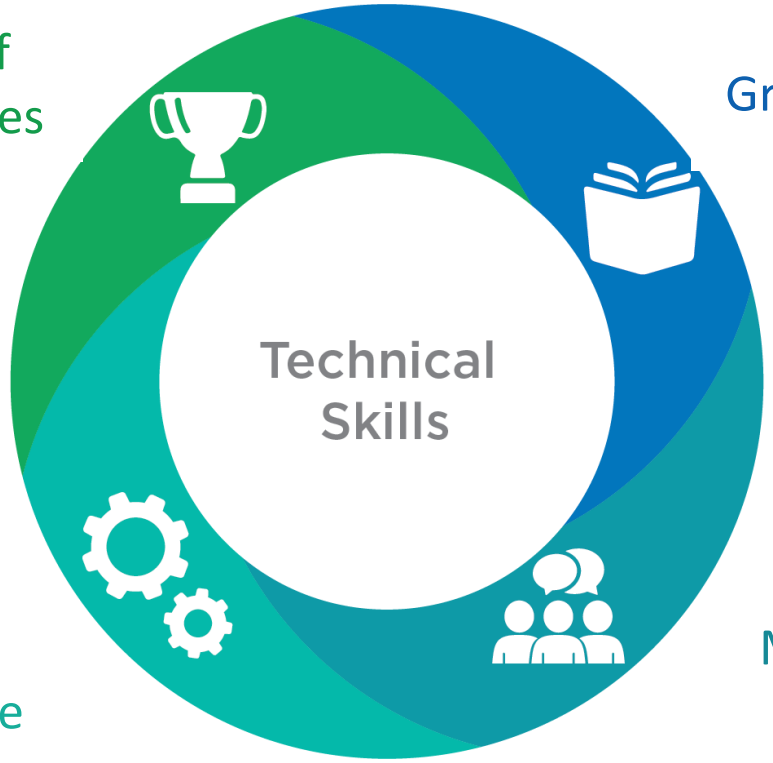


10-YEAR WORKFORCE OUTLOOK FOR ONTARIO

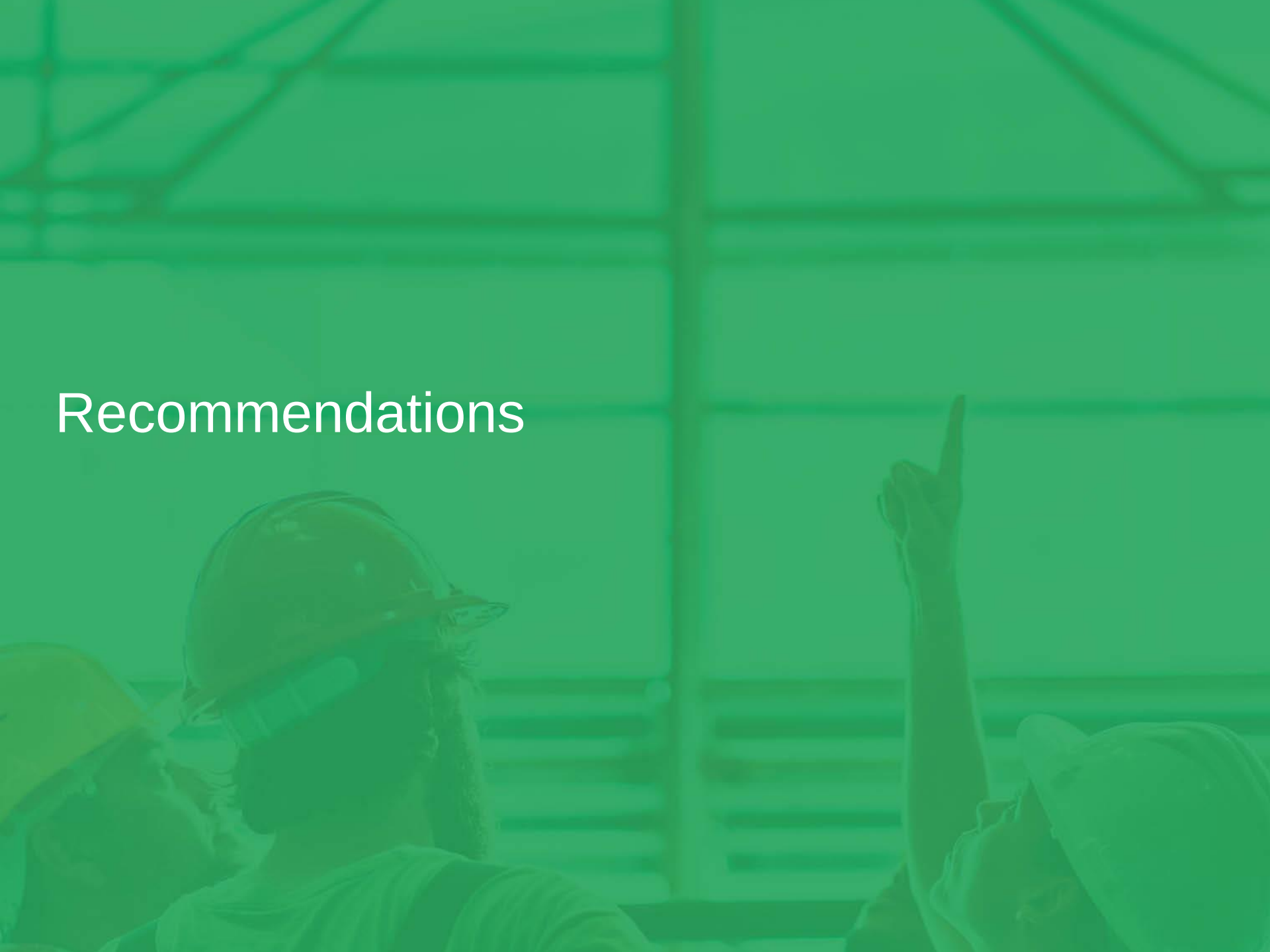
THE CONSTRUCTION ECOSYSTEM



BARRIERS


Lack of Incentives
Green Illiteracy
Technical Skills
Market Infrastructure
Modes of Training

Recommendations



AMEND THE MODES OF TRAINING

Integrate low-carbon skills into the existing design and construction education

Make continuing education credentials mandatory for trades

Consider making more construction apprenticeships compulsory

Leveraging existing education infrastructure

Train multiple trades in cross-disciplinary, hands-on training

Support a diversity of media and formats

Train the trainer: create a peer-network for trainers, professors and coaches

Embrace digitalization and new technologies

ADDITIONAL RELEVANT RECOMMENDATIONS OF TRADING UP

IMPROVING GREEN LITERACY

Foster a broader ecological mindset and awareness throughout the construction industry.

Train other stakeholders in ecosystem, such as building officials and building managers

Train the trainer: create a peer-network for trainers, professors and coaches

ADAPT THE MARKET INFRASTRUCTURE

Work with an integrated design approach

Improve communication and collaboration on-site and during construction

Change bidding and hiring processes and contract agreements

IDENTIFY AND CREATE INCENTIVES

Leverage government funds to subsidize training and lower the cost barriers for trades to participate

Develop a certificate for low-carbon skills

Further research into training programs and opportunities

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