

Associate Member Webinar Series – BMH Systems



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- Approximately 40 minute webinar with Q & A at the end, followed by a Kahoot! Pop Quiz
- All participants are muted
- Questions? Use the GoToWebinar 'Questions' Pane
- Webinar will be recorded and posted on the Concrete Ontario website along with a PDF copy of the presentation.
- <https://www.rmcao.org/publications/webinar-presentations/>

Presenter



Harpreet Singh



Regional Sales Director



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CONCRETE BATCH PLANTS

DESIGN & MANUFACTURE
OF HIGH-PERFORMANCE
PLANTS

AGENDA



- ✓ **BMH Corporate Overview**
- ✓ **Evolution**
- ✓ **Where to start**
- ✓ **Dry batch plants**
- ✓ **Central-Mix plants**
- ✓ **Retro-fitting**
- ✓ **Mobile batch plant**
- ✓ **Other Considerations**
- ✓ **Trends**

BMH SYSTEMS – CORPORATE OVERVIEW

- Founded in 1979
- Head office located in Quebec
- Manufacturing facility also in Quebec
- 400+ Batch plants in North America
- 1000+ projects across the globe
- Specialize in Equipment for the Ready-Mix Concrete, Mining, Infrastructure and Bagging Plant Industries



Acquired by ASTEC INDUSTRIES INC. in 2020!

We now have Con-e-co, Rexcon, and BMH under the #OneAstec name Brand!

SOCIAL MEDIA

- **Website:** www.bmrhsystems.com
- **LinkedIn:** <https://www.linkedin.com/company/bmh-systems-inc-/>
- **Youtube:** https://www.youtube.com/channel/UCfAWcauIB8kNyGMIPb_hTrw



ASSOCIATIONS AND INDUSTRY EVENTS

- Active membership in all provinces
- World Of Concrete in Las Vegas (Annual)
- Con-Agg in Las Vegas (Every 3 years)
- Other region-specific industry events (annual)

PAST PROJECTS

THE NEED

The Hibernia gravity base oil drilling platform in Newfoundland, Canada, totally made of high-strength concrete, had to be poured with a slip form system in over three hundred feet of water off the Atlantic coast.

BMH SOLUTION

BMH Systems supplied a twin central mix batch plant mounted on a barge, with two 3 yd³ twin shaft mixers, 1,320 ton of aggregate storage and 220 ton of cement storage. This turnkey project also included an automation system capable of batching in the harsh environment of the ocean with very strict tolerances and, had to be able to withstand the worst possible storms.



THE NEED

Located offshore Newfoundland and Labrador, the drilling platforms were developed using a stand-alone concrete gravity based structure (GBS). Totally made of high-strength concrete, the concrete had to be poured with a slip form system. A modularized construction was needed to facilitate the relocation of the twin batch plants to the barge to allow the oil platform to be completed offshore.

BMH SOLUTION

BMH provided two modular concrete batch plants used to produce the concrete for the construction of the GBS. BMH Systems supplied a twin central mix batch plant mounted on a barge, with two 5,4 yd³ twin shaft mixers, 935 tons of aggregate storage and 1,800 tons of cement storage. This turnkey project also included an automation system capable of batching in the harsh environment of the ocean with very strict tolerances and, had to be able to withstand the worst possible storms.

HEBRON - KKC

- 2 Twin Shaft mixers 5,4 yd³ capacity (4 m³)
- 2 aggregate and water heating systems of 3 MW (Polarmatic Heating System)
- Total cement storage capacity of 1,800 tons (1,633 tonnes)
- Total fly ash storage capacity of 325 tons (295 tonnes)
- Total silica fume storage capacity of 160 tons (145 tonnes)
- Total aggregate storage capacity of 935 tons (850 tonnes)
- Two ice plants generating 100 tons of ice/day (90 tonnes)
- Modularized admixture system
- Computerized batch control system
- Control room



CHALLENGES

- Not in my backyard!
- Delivery of material to our sites and to our customers
- Big jobs that our current facility may not be able to handle
- Remote work
- Labour (driver/plant personnel)
- Concrete recycling
- Year-round operation

OUT WITH OLD, IN WITH THE NEW



DETERMINE YOUR NEED

- What are my requirements - production rate, budget, site restrictions, preference, type of work, etc. etc. etc.
- Do I need a new plant? Can I Retro-fit my existing facility? Can I add a mobile plant on the site?
- How big of a plant do I need? How much storage?
- Do I need to go dry-batch, or do I need a central-mix?
- Do I prefer a low-profile design or a gravity feed?
- Do I need just the equipment or will I need other assistance? i.e. installation, site supervision, startup assistance...
- Will I operate in the winter?



NEXT STEPS –

- Detailed Site requirements and restrictions
 - ✓ Permits and zoning
 - ✓ Footprint, Height, and other space restrictions, traffic flow
 - ✓ Noise, dust, other environmental issues that may need to be addressed
- Budgeting
 - ✓ Site Services – water, hydro, gas, etc.
 - ✓ Permitting process
 - ✓ Engineering Services
 - ✓ Other services, equipment and facilities that may/will be needed for operation
 - ✓ Winter operation
 - ✓ Batch controls
- Types of Consulting/Engineering Services
 - ✓ City Permitting applications
 - ✓ ECA applications
 - ✓ Civil for Foundation design
- Contracts
 - ✓ Material only vs. Turn-key
 - ✓ After sales service
 - ✓ Maintenance service

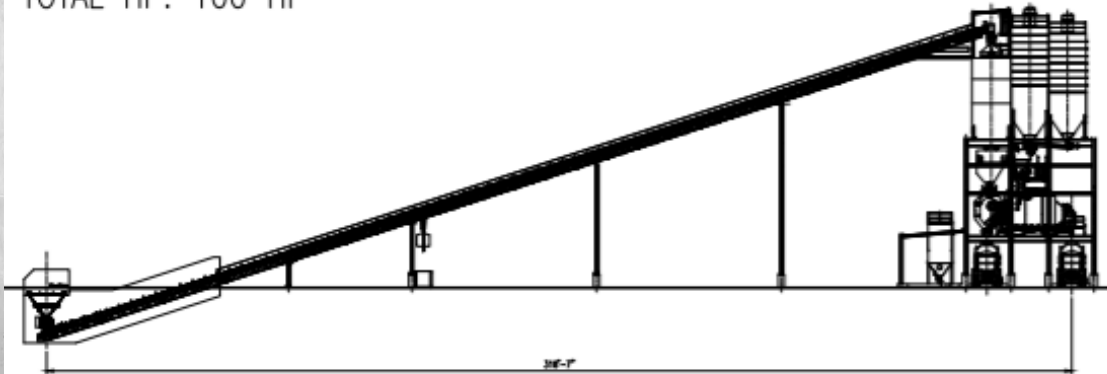


GRAVITY VS. LOW-PROFILE

GRAVITY PLANT (INLINE)

TOTAL LENGTH LOAD POINT TO MIXER DISCHARGE: 316'-7"

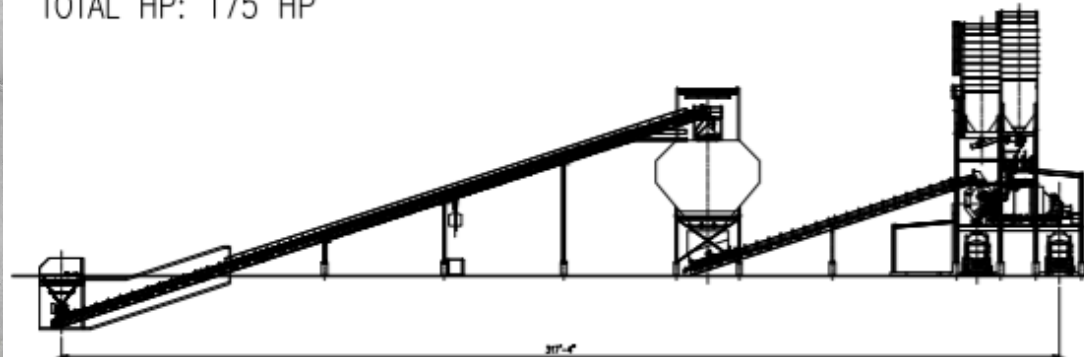
TOTAL HP: 100 HP



LOW PROFILE PLANT (INLINE)

TOTAL LENGTH LOAD POINT TO MIXER DISCHARGE: 317'-4"

TOTAL HP: 175 HP



DRY BATCH PLANTS



250+ yd³/hr ► High Prod

100% Tailored to Your Needs

- Gravity or low profile, you choose

High Production

- Up to 250 yd³/hr (191 m³/hr)

Impressive Quality

- A dry batch plant to last decades



180 yd³/hr ► Med+ Prod

Pre-Engineered with Lots of Options

- Where value meets quality

Med+ Means Production

- Up to 180 yd³/hr (138 m³/hr)

Lots of Capacity Options

- 4 aggs, unlimited cementitious



180 yd³/hr ► Med Prod

Pre-Engineered with Lots of Options

- Where value meets quality

Value Plants for Valuable Markets

- Up to 180 yd³/hr (138 m³/hr)

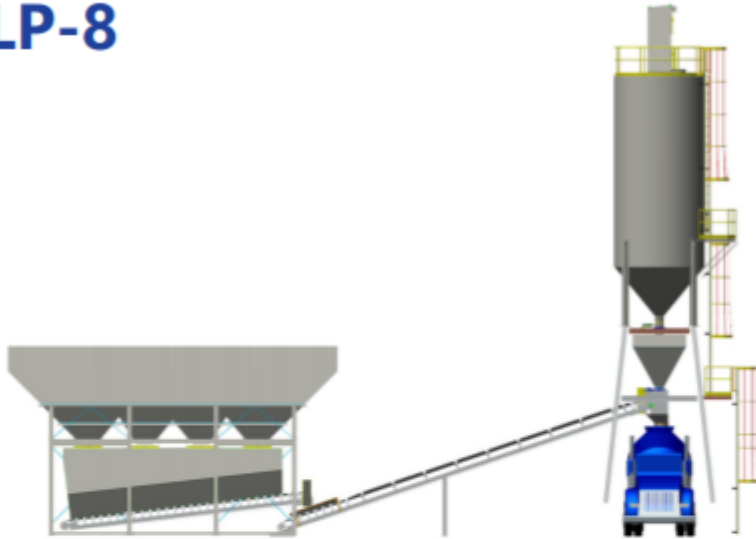
When You Know What You Need

- 3 aggs, unlimited cementitious

BUY STANDARD

STATIONARY

LP-8



PLANT CAPACITY

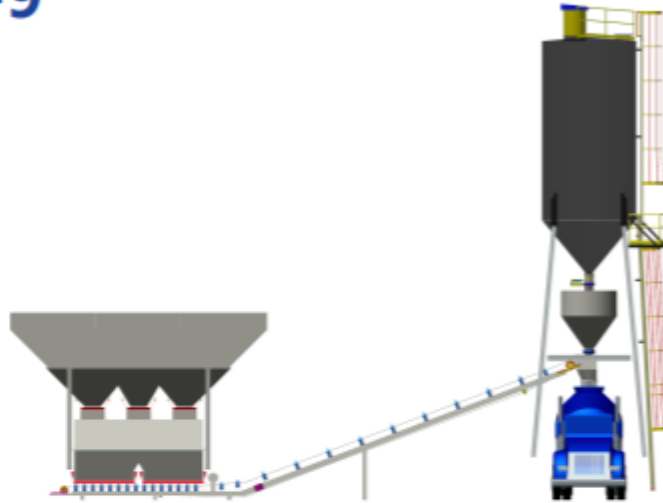
- ▶ Up to 180 yd³/hour (138 m³/hour)

FEATURES

- ▶ Low-profile design
- ▶ 2 belt conveyors, 30" (760 mm)
- ▶ Electronic water meter, 3" (75 mm)
- ▶ Cement silo, 100 tons (90 metric tonnes)
- ▶ Direct front-end loader charging of aggregates
- ▶ Aggregate bin, 4 compartments, 130 tons (120 metric tonnes)
- ▶ Aggregate and cement weigh hoppers, 12 yd³ (9 m³)

STATIONARY

LP-9



PLANT CAPACITY

- ▶ Up to 180 yd³/hour (138 m³/hour)

FEATURES

- ▶ Low-profile design
- ▶ Belt conveyor, 30" (760 mm)
- ▶ Electronic water meter, 3" (75 mm)
- ▶ Cement silo, 88 tons (80 metric tonnes)
- ▶ Direct front-end loader charging of aggregates
- ▶ Aggregate bin, 3 compartments, 115 tons (105 metric tonnes)
- ▶ Aggregate and cement weigh hoppers, 12 yd³ (9 m³)

CUSTOM TAILOR IT TO YOUR NEED



DRY BATCH

- Majority of plants operating in Ontario today
- Typically, simple and versatile in design and function
- Concrete is mixed using the mixing action of the truck mixer

PROS

- Cost effective
- Simple design
- Small footprint
- Less power requirements
- Production rates limited
- Lesser Maintenance
- Can be customized for storage, speed, site etc.

POSSIBLE CONS

- Still require foundations
- Permitting process – Site plan approvals etc.
- Training very important for drivers
- Somewhat older tech vs. Central-mix
- Possible quality issues due to variance in process

DECISIONS!

- How do I want to load the aggregate?
- How many and how much of aggregates and cement do I need?
- How much do I want to produce per hour, per day, per year...
- What is my budget?
- What is a need and
- what is a want!





CENTRAL-MIX/WET BATCH PLANTS

WET BATCH PLANTS



300+ yd³/hr ► Gravity

100% Tailored to Your Needs

► Meets every aspect of what you want in a plant

High Production

► 300+ yd³/hr (231+ m³/hr)

High Capacities

► Unlimited agg and cement storage



300+ yd³/hr ► Low Profile

100% Tailored to Your Needs

► Meets every aspect of what you want in a plant

High Production

► 300+ yd³/hr (231+ m³/hr)

High Capacities

► Unlimited agg & cement storage



150 yd³/hr ► Low Profile

Quality Control without High Production Needs

► Reduce driver errors, increase customer confidence

Impressive Performance

► 150+ yd³/hr (115+ m³/hr)

Produce Better Concrete at Lower Cost

► Central mix will give you savings at every roll

CENTRAL MIX

- More and more in Ontario!
- More complex in design and operation
- Concrete is mixed using the mixing action of a central mixer incorporated in the plant design
- Allows for both wet and dry production

PROS

- More uniform production with positive effects on quality
- Speed!
- Less driver involvement
- Sizeable time savings per load
- Other cost savings for ROI

POSSIBLE CONS

- Cost
- Bigger footprint. Foundations, power requirements
- Permitting process – Site plan approvals etc.
- Maintenance and overall operation training required for efficient production

CENTRAL MIX BATCH PLANTS

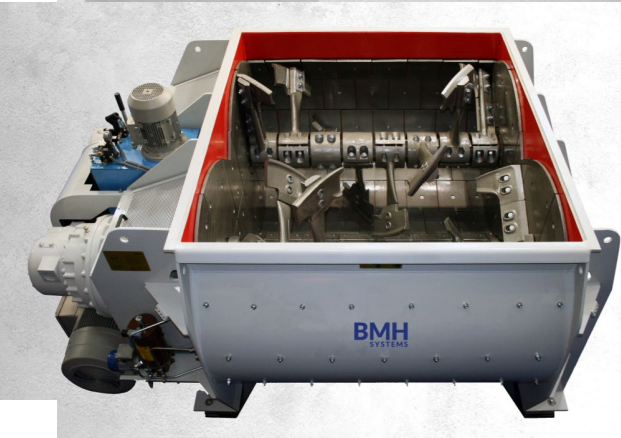


DECISIONS!

- How do I want to load the aggregate?
- How many and how much of aggregates and cement do I need?
- How much do I want to produce per hour, per day, per year...
- Do I want gravity feed or low profile design
- What is my budget?
- What type of work am I going after
- What type of mixing technology do I prefer?

TYPES OF MIXERS – CENTRAL MIX PLANTS

- **HRM – Horizontal Reversing Mixer**
 - Available in various sizes – 3 to 12 cu. M (4 to 16 cu. Yds)
- **Twinshaft**
 - Available in various sizes – 2 to 9 cu. M (2.6 to 12 cu. Yds)
 - Used in RM and Mining applications
- **Tilt**
 - Available in various sizes –
 - Widely used in U.S.



DUTCH BROS – LONDON, ONTARIO



RETROFITTED DRY-WET PLANTS



250 yd³/hr ► High Prod

100% Tailored to Your Needs

- Exactly what yaou need

High Production

- 250+ yd³/hr (192+ m³/hr)

High Performance

- More concrete produced



150 yd³/hr ► Med Prod

100% Tailored to Your Needs

- Exactly what you need

High Production

- Up to 150 yd³/hr (115 m³/hr)

High Performance

- More concrete produced

RETRO-FITTING

- Simply repair, replace, paint
- Add on storage. Easier with cement, harder with aggregates
- Make additions to speed up the plant – Wider conveyors, water
- Remove and replace sections – Aggregate section!
- Winterize
- Turn a Dry batch plant into a Central-mix

PROS

- Cost effective
- Permits, ECA etc. in place
- Possible use of existing foundations
- Production and storage gain
- Year-round operation

POSSIBLE CONS

- Some equipment still older
- Permits
- At some point, costs vs. benefit doesn't make sense

CENTRAL MIX BATCH PLANTS



DECISIONS!

- What is the budget?
- How will this affect my approvals in place?
- Increase in material storage required?
- Desired increase in production per hour, per day, per year...
- What type of new work am I going after
- Do I need a Central-mix?



MOBILE BATCH PLANTS



250+ yd³/hr ► Modular

Production Capacity

► Up to 250 yd³/hr (191 m³/hr)

Superior Flexibility

► Up to 6 aggs and 7 cementitious (3 gravity)

Exclusive Design

► No foundation needed, no crane and no agg handling system needed



65 yd³/hr ► Light Prod

Production Capacity

► Up to 65 yd³/hr – (50 m³/hr)

Compact Technology

► 8' wide, compact but powerful

Built for the Road

► Easily movable under any road conditions



150 yd³/hr ► Med Prod

Production Capacity

► Up to 150 yd³/hr (115 m³/hr)

Convenient

► Ready to use in a snap

Portable

► Move your job to any site

MOBILE VS. PORTABLE

- Vast majority of older plants are “portable”
- New lines of truly mobile plants gaining popularity
- Much quicker and easier setup and tear down
- Typically 1-2 loads with add-on options
- Typically no foundations, or cranes required
- Dry or wet operation options
- Various sizes of production/hr, per batch size should be considered



PROS

- Take on remote and special work
- Increase production to existing site
- No foundations, cranes, major installation involved
- Possible permitting advantages
- Space savings

POSSIBLE CONS

- Cost vs. similar sized dry batch plant
- Some setup and site considerations

DECISIONS!

- How much do I want to produce per hour, per day, per year...
- Do I need dry or wet production
- What is my budget?
- What type of work am I going after
- How often will I need to move the plant?
- How much live storage do I require



INNOCON (LAFARGE) – DOWNTOWN TORONTO



OTHER CONSIDERATIONS

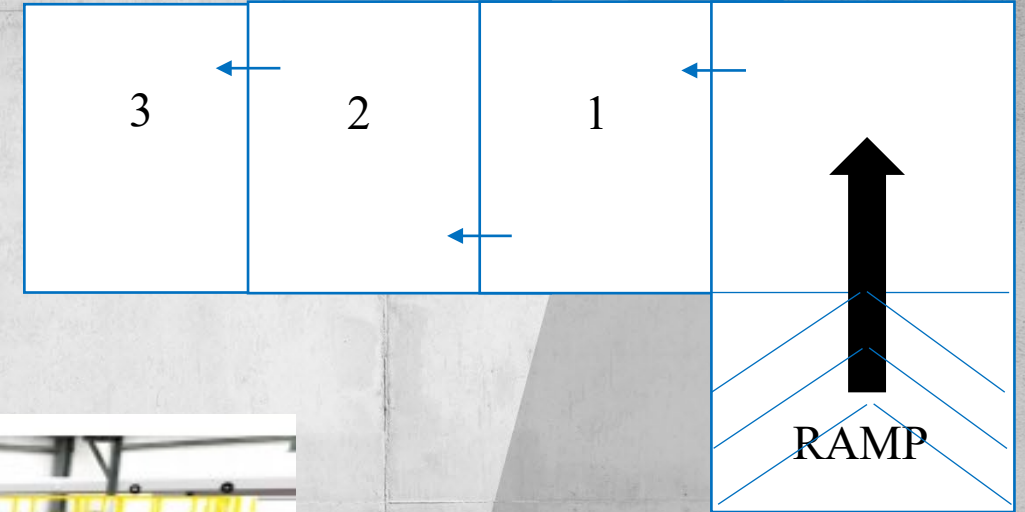
BEFORE, DURING, AND AFTER-SALES SERVICES

- **Plant Equipment only OR full “turn-key”**
 - ✓ Assistance in permitting, engineering process prior to install
 - ✓ Site supervision
 - ✓ Startup and commissioning
 - ✓ Training
 - ✓ After Sale Service availability
- **Parts availability**



CONCRETE RECYCLING

- Site specific issue
- Simple option: In ground Washout
- If needed: Concrete Reclaimer



TRENDS - TODAY INTO THE FUTURE

- “Smaller” Dry batch plants without Aggregate handling systems
- Drive over dumping hoppers
- Truly Mobile plants that are easy to setup and easy to move
- More automation, utilization of sensors etc.
- Manual control panels less and less
- **SAFETY!**
- Plants that produce minimum 120m³/hr
- Bigger storage on-site





THANK YOU

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Questions?

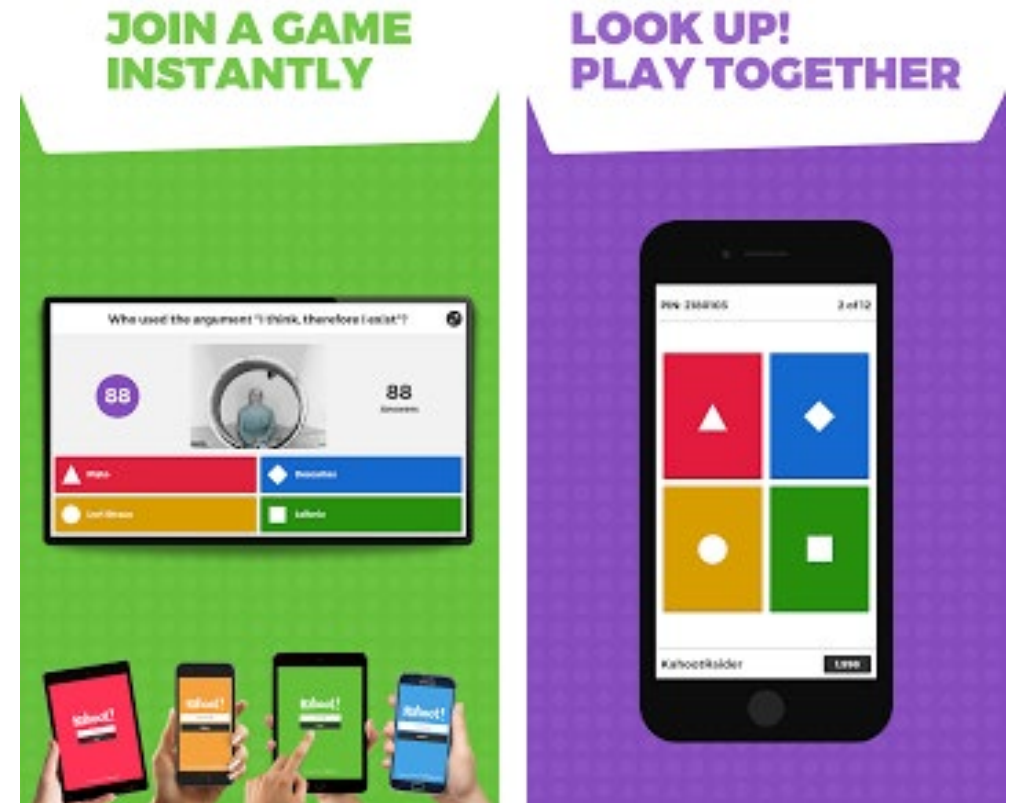


Concrete Ontario Pop Quiz

Please use your smart phone to access the following website:

www.kahoot.it

- Please enter the Game “**Pin**” that will be shown on the screen shortly
- Enter both your email address (so we can send you a prize if you finish in the top three) and your “**Nick Name**” (please think of your **HR** department and don’t use something you will regret!)
- The faster you answer each question the more points you can earn for correct answers



Concrete Ontario Pop Quiz

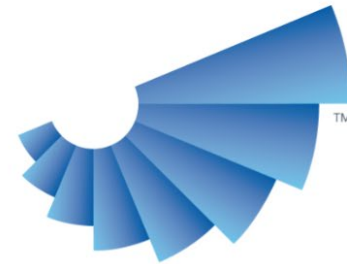
Amazon Gift Cards for Today's Competition

- First Place = \$150
- Second Place = \$100
- Third Place = \$50



Next Webinar

- **June 17th 2021** at 10:00 am – 11:00 am
- **GCP Applied Technologies**



gcp applied technologies

Thank you!

