E-BRIEF

NORTHWEST OHIO INNOVATION CONSORTIUM

POWERING INNOVATION TOGETHER

JANUARY

UPDATE FROM THE INNOVATION HUB

While the weather outside is frightful, the fire in our glass melting furnaces is delightful! We're excited to continue our momentum with a busy year ahead of technical research endeavors, project expansion, and community collaboration. Several projects made notable advancements over the holiday season and so far this year already. Read on for an overview of each pillar's milestone achievements to date.

NOIC couldn't accomplish this progress without our partners – thank you to all who continue to put in the time, effort, and funding to bring innovation to the glass and solar industries and surrounding community. We have so much gratitude for the passion and dedication from our partners driving these projects forward.

PILLAR PROGRESS

Recycling:

GRIT Powered by NOIC:

The recycling program has partnered with Recycle Services to expand local glass collection sites from 6 to 24+, design and optimize a collection system for bars and restaurants, and launch renewed GRIT branding (Glass Recycling in Toledo).The program collected over 6 tons of clean container glass in just the first month of operation. The team recently applied for the Glass Recycling Foundation's Annual Glass Recycling Support Grant for additional infrastructure and education funding to further expand their reach.

Consumer Education:

The Consumer Education initiative aims to increase glass recycling rates locally and educate the public on proper recycling practices to improve the quality of residential recycled glass. The team is currently commissioning a docu-series which will communicate the life cycle of key glass products throughout our region's glass-shed. The first episode can currently be viewed on NOIC's LinkedIn page (YouTube and Instagram coming soon)! The Consumer Education team also partners with Recycle Services and Lucas County to co-develop education materials for a unified message across our region.

MRF & Sorting Optimization:

The MRF & Sorting Optimization project works to create cullet streams for solar and flint container glass, define cullet baselines, and create sorting technology specifications and innovative methods for CSP removal. The team has completed an audit of the glass waste stream in Lucas County and recently kicked off an industry-wide cullet quality, sizing, and testing specification and sampling process with the support of UToledo and CelSian. They are currently gathering proposals for optimized MRF cullet handling and sorting by color and granuality, and have recently begun exploring opportunities for glass container recycled content optimization with Pepsi Co.

AI Process Control:

IRIS Expert Chatbot:

The AI Chatbot project aims to develop an AI-powered chatbot to serve as a centralized resource, giving NOIC members quick access to technical knowledge and support in glass technology and manufacturing. Phase 1 of development is nearly complete, having refined methodologies and metrics used to assess performance and accuracy, and the pilot group of testing engineers will soon be expanded. The team has determined two strong options for operation and support services from NOIC partners and is working to negotiate the inclusion of GMIC content in the bot's knowledge.

AI Furnace Optimization:

The furnace control portion of the Process AI pillar aims to reduce average furnace energy usage by four percent per melted ton while maintaining high quality levels and furnace stability. The team will develop and implement state-of-the-art sensor systems and data models to achieve energy reduction and optimize furnace recovery from upset. The project has completed phase 1 of Actual Reality's furnace optimization model and prediction application for review by O-I and will soon finalize phase 1 of the transient CFD model by CelSian to complete Celfos deployment at the OC Delmar plant furnace.

Furnace Improvement:

Melter Sidewall Wear Monitoring:

The Furnace Improvement team is set to design, build, and validate an in-house melter sidewall wear monitoring system on Libbey's Toledo F furnace. The system will monitor wear to the refractory by measuring refractory thickness and aims for system installation later this year.

Insulation Optimization:

The Furnace Improvement team has also begun an insulation optimization project which will develop and validate a multiphysics thermal model of the Libbey furnace wall to evaluate refractory and insulation configurations under realistic operating conditions. The model will simulate multiple material configurations, evaluate heat flux, thermal gradients, and material cost sensitivity, and create rankings based on overall cost-performance efficiency. This will identify practical design pathways for the Libbey 2027 Furnace B rebuild with potential for replication in other furnaces.

Glass Surface Treatment:

The Glass Surface Treatment program has kicked off two projects for First Solar in collaboration with UToledo and BGSU regarding glass edge strength improvement, and laser/glass interactions. The team is currently developing scopes for three further initiatives that will start this year: glass strengthening with Pepsi Co., soda-lime-silica glass formulation for improving ion exchange kinetics with UToledo, and glass weathering prevention enhancement with O-I.

Talent Development:

Educational Architecture:

The Educational Architecture project aims to strengthen the education-to-industry pipeline by aligning education with workforce needs and advancing STEM talent through cross-sector collaboration and the development of a scalable K-PhD curriculum model. The team has completed 90% of industry interviews which help to identify local job placement pipelines, determine skillset and capability needs in industry, ensure curriculum aligns with industry opportunities, and create a blueprint for engagement between education and industry.

K-12 Summer Academy:

The K-12 Summer Academy initiative aims to engage young students in STEM topics, familiarize them with career options in the glass and solar industries, and prepare them with the knowledge and skills necessary to succeed in a trades career or STEM undergraduate studies. The project has so far sponsored 7 STEM camps spanning all age groups, impacting 130 students. The team will soon approve 2026 sponsored camps, of which the list has already doubled. The team is also determining methods for preparing curriculum models to add STEM and glass-specific content to camps or use a building blocks for the creation of new camps.

Skilled Trades & Workforce Development:

The Skilled Trades project works to create pipelines from education into pre-apprenticeship programs and skilled trades careers, determine improved methods for recruiting qualified trades instructors, and work with partner companies to build custom trades training programs around industry-specific needs. The team recently completed a survey of local trades instructors to understand barriers to teaching and how best to assist aspiring instructors to ease the shortage. The team has also interviewed instructors of past earn & learn models to determine how to successfully relaunch a pre-apprenticeship program locally.

Internships & Co-ops:

The Internships program sponsors 90 interns annually across partner companies to prepare the incoming workforce of engineers and STEM graduates to succeed in local industry and become well-rounded future leaders and innovators. The program has already increased available sponsored positions by 50% due to overwhelming demand and currently sponsors interns at all partner manufacturers participating in the talent program.

Graduate Assistantships:

UToledo recently welcomed Dr. Zhao to reinstate glass curriculum in our region, assist with NOIC research, and mentor NOIC-sponsored graduate assistants. Several assistantships will be filled this semester, and Dr. Zhao's materials science courses will begin this year.

UPCOMING EVENTS

March 7th: Glass City Wine Festival

Toledo's annual wine festival offer tastings from over 20 wineries & several local food options. Shop with small business vendors & enjoy live music while you sip.

NOIC will be on site collecting recyclable glass & is looking for volunteers! If you are interested in assisting NOIC's glass recycling efforts please contact Haley Lindow, Project Manager of Recycling Consumer Education to register: hlindow@nwoinnovation.org

March 9th-12th: CelSian Course – Glass Melting Technologies

This introductory training covers key concepts in melting furnace operation, glass glow, combustion, and heat transfer. Perfect for those seeking a solid foundation in the science behind the melt.

March 19th: Center to Advance Manufacturing Webinar – Mastering Change in Fast-Paced Manufacturing

Discover how manufacturing teams can harness strategic pauses to move from reacting under pressure to responding with confident clarity, turning chaotic change into deliberate action that delivers stronger results.

Sincerely,

The NOIC Team

If you want to go fast, go alone. If you want to go far, go together.