INSPECTION REPORT FOR:
QUALITY GLASS & MIRROR
OMAHA, NE

PREPARED BY:
RICK VALLEJO

NOVEMBER 29, 2017

THE QUANEX D.O.C. INSPECTION SYSTEM

To our Valued Customers:

At Quanex, our business is making your business better. As part of our continuous improvement initiative, we present the **Quanex D.O.C.** inspection system. Other manufacturers might advertise the lowest cost, or the highest sales volumes, but our belief has always been that the best-performing product proves its value, and a product that lasts will pay for itself in time. So from our insulating glass components, and up through our vinyl profiles, hardware, screens and accessories, we are dedicated to providing best-in-class products for every stage of the fenestration manufacturing process.

Our commitment to quality does not stop at our shipping docks. We know you share that same dedication to making top-quality fenestration products, and we want to be your ally in that effort. That's why we're proud to provide extensive aftermarket support, including regional customer service and a large technical service department to better serve your real-time needs. Our technicians are trained in both the application of Quanex products and the best practices of the fenestration industry. Our goal is to help you make the best use of our products to get the most performance from yours.

For that reason, our representatives do periodic inspections of our customers' manufacturing processes, a value-added service we provide to share our expertise in our own products and alert you to issues that might affect your own long-term product quality. Our new system – the **Quanex Diagnostic Onsite Check-Up (D.O.C.)** – is a software app that runs on the tablets our inspectors carry. Its electronic format makes it easier to complete the inspection, upload it to our service database and create this comprehensive report.

Please look through this report and inform us of any errors, so we can update the inspection and issue a new report. Each inspection is a snapshot of your process that we use when troubleshooting, and we need accurate information in order to give you the best assistance. Also, on rare occasions, your inspection results may lead to some required follow-up actions. In most cases, our recommendations are not mandatory, just suggestions based on experience and/or accepted industry guidelines. We will discuss your inspection results with you, and provide the reasoning behind each recommendation, with the final choice to implement it being yours.

Thank you for the hospitality you provide our representatives, and please feel free to contact me directly with any questions or comments about this system.

Vince Warne
Director of Technical Services
Insulated Glass Systems
800 Cochran Ave
Cambridge, Ohio 43725
P: 740-439-2338

ABOUT THIS AUDIT:

Inspection performed at:	Quality Glass & Mirror Omaha, NE
Contacts present:	Jason Hoover
Report will be sent to:	
Inspection performed by:	Rick Vallejo
Inspection date:	November 29, 2017
Spacers in this inspection:	T-Spacer / T-Spacer Plus

If you have any questions about this report, please contact:

Quanex Technical Services
800 Cochran Avenue
Cambridge, Ohio, 43725
740-439-2338 or Toll Free: 800-233-4383
F: 740.439.0121

Flag	Question	Answer
Glass Cutting		
	Glass edge damage noted (shells, flakes, sharks teeth)	No
	Name of cutting fluid:	Acecut 5503 (Flashing)
	Cutting fluid is water soluble or fully flashing and meets the requirements outlined in the Quanex IGS Tech Bulletins:	Yes
	Name of low-e glass manufacturer(s):	Cardinal
	Sputter (soft) low-e coating is completely edge deleted:	Yes
	Additional information about Glass Cutting?	No
Spacer Receiving, Storage, and Handling		
	Is stock being rotated?	Yes
	Is there any spacer stock onsite beyond its shelf life? Note: Dura = 12 mo., SuperSpacer = 36 mo.	No
	The flexible spacer is being handled correctly to: - prevent damage and contamination of the sealant bond lines, - protect the desiccant from undue exposure, and - maintain an acceptable application temperature for the spacer adhesive	Yes
	Additional information about Spacer Handling?	No
Glass Washing		
	Water quality is within acceptable limits (TDS < 200 PPM, 6 < pH < 8).	Yes
	Rinse tank TDS:	10
	Rinse tank pH:	7

Flag	Question	Answer
	Wash water is hot [120-140°F / 49-60°C] and tank is functioning properly.	Yes
	Wash tank temperature [°F]:	121°F (49°C)
	Detergent is used in the wash tank.	No
	Good wash water flow (all spray nozzles open).	Yes
	Good first rinse water flow.	Yes
	Clear final rinse is operating properly.	Yes
	Glass exiting the washer is clean and dry.	Yes
	Additional information about Glass Washing?	No

Application Area

Flag	Question	Answer
	Application area is in an isolated environment.	No
	It is strongly recommended that the application area, from the washer exit to the topping station, be located in an isolated environment. Vinyl or wood particulates from nearby cutting operations, as well as just common dust, can contaminate the recently washed glass prior to spacer application or topping. This can be a concern for spacer bonding, but it can also affect the overall appearance of the finished IG unit. A fully enclosed application clean room is preferred; but if that is not feasible, at the least the application area should be well away from cutting operations, as well as sources of external dust like open bay doors.	
	There is significant dust / contamination of application area from surrounding areas.	No
	Application area is temperature controlled.	Yes
	Application area is clean and free of aerosol lubricants.	Yes
	Additional information about Application Area?	No

Spacer Application - SuperSpacer

Flag	Question	Answer
	Spacer is oriented correctly (foil to outside).	Yes
	Corners are formed at 90 degrees, not rounded or distorted. (Not applicable for shapes or rounds.)	Yes
	Edges are straight and not wavy or deformed.	Yes
	Spacer inset (edge of glass to outside edge of spacer) is ≥ 3/16" (This should be 1/4" for polysulfide or polyurethane backfills).	Yes
	Corner is clean, with no adhesive smear from dragging spacer across glass.	Yes
	Glass/sealant bond area is clean and contaminant free. (Especially note manual contact, which can leave fingerprints or oils on the bonding surface.)	Yes
	The Quanex SuperSpacer Application Manual is on site.	Yes
	Additional information about SuperSpacer Application?	No
Application Equipment - Auto		
	Application equipment manufacturer:	Lisec
	All guide wheels are in good condition and not worn.	Yes
	Application surface is in good condition.	Yes
	Cutting blades are sharp and do not deform spacer.	Yes
	Additional equipment service required.	No
	Additional information about Automatic Application Equipment?	No
Muntin Installation		
	Muntins are painted or anodized aluminum; no plastic or PVC muntins in use.	Yes

Flag	Question	Answer
	Muntin clip manufacturer/model:	Quanex IntelliClips (SuperSpacer)
	Clips are used according to Quanex guidelines.	Yes
	Scratched muntins are discarded, or sent back for offline touch-up.	Yes
	Muntin cut back is correct.	Yes
	Additional information about Muntin Installation?	No
Matching / Topping		
	Specify topping equipment/method:	Automated
	The top and bottom lites are properly aligned.	Yes
	Additional information about Matching / Topping?	No
Compression - SuperSpacer		
	Specify compression method:	Automatic Assembly Press
	Compression equipment is clean and well maintained.	Yes
	Spacer properly compressed to achieve necessary wet-out.	Yes
	Additional information for SuperSpacer Compression and Wet-Out?	No
Final Corner Seal - SuperSpacer		

Flag	Question	Answer
	Barrier tape is used on the final corner (may be after filling process if gas-filled).	Yes
	The proper Mylar tape is being used.	Yes
	Barrier tape on final corner is 1/16" under spacer size.	Yes
	Barrier tape application quality is good.	Yes
	Additional information about SuperSpacer Final Seal?	No
Gas Filling		
	Specify gas filling method:	Auto Topping Chamber
	Specify insertion method:	None/Chamber
	Specify filling equipment manufacturer (if known):	Lisec (Auto Line)
	Additional information about Gas Filling?	No
Secondary Seal - SuperSpacer		
	Material Category:	Hot Melt Butyl
	Manufacturer:	H.B. Fuller
	Part Number:	HL 5153-B149
	Material verified for use with this spacer.	Yes
	Sealant applied at recommended temperature (+/- 5%).	Yes
	Recommended temperature [°F]:	224°F (106°C)
	Measured temperature [°F]:	224°F (106°C)

Flag	Question	Answer
	Sealant application method:	Auto
	Auto-application equipment:	Lisec Sealing Robot
	Sealant source for auto equipment:	Unknown/Generic 55 Gallon Pump
	Sealant depth is correct: - 3/16" for hot-melt butyl - 1/4" for polysulfide / polyurethane	Yes
	Sealant application quality is good.	Yes
	Additional information about Secondary Seal?	No
	Sealant Data Sheets (Ref Only)	
Unit Storage and Shipping		
	90° racks/carts used to fully support lites and minimize sealant contact.	Yes
	Additional information about Unit Storage and Shipping?	No
Quality Control and Marking		
	Desiccant levels are monitored and recorded daily.	Yes
	Quality test procedures (Bulletin IG018) performed regularly, and results are logged.	Yes
	IG unit or sash/frame is marked for warranty identification.	Yes
	Marking method:	Laser
	IG units are certified.	Yes
	Specify certifying authority:	ALI
	Customer provided copy of last certification test results:	No

Flag	Question	Answer
	Additional information about Quality Control and Marking?	No