


COUNCIL COMMUNICATION

 CITY OF DES MOINES OFFICE OF THE CITY MANAGER	Number:	22-409	Meeting:	September 12, 2022
	Agenda Item:	64H	Roll Call:	22-1458
	Submitted by:	James M. Hoff, Facilities Manager		

AGENDA HEADING:

Approving procurement of insulated glazing units and installation services from Forman Ford in the total amount of \$77,406.

SYNOPSIS:

Recommend accept and approve the low dollar compliant bid from Forman Ford (89 University Avenue, Des Moines, IA 50314; Jim Farley, President) for Insulated Glazing Unit Replacement, including new insulated glazing units and installation, at the Richard A. Clark Municipal Service Center, 1551 East Martin Luther King Jr. Parkway, for the total amount of \$77,406.

FISCAL IMPACT:

Amount: \$77,406

Funding Source: 2022-23 CIP, Page 52, Municipal Building Improvements, BL085, General Obligation Bonds

ADDITIONAL INFORMATION:

- The Procurement Division solicited bids by email and advertisement on the Procurement Division electronic procurement platform, IonWave, Request for Bid J23-051 to potential bidders. Two (2) bids were received; one (1) was non-compliant. The low dollar compliant bid was received from Forman Ford.
- Low dollar compliant bid is below estimated cost of \$80,000.
- Bid includes materials and labor to install replacement glazing at seven (7) locations throughout the Richard A. Clark Municipal Service Center (MSC) that experienced spontaneous glass breakage 2019-2022. Replacement includes double- and triple-glazed insulated units to match performance requirements of existing adjacent construction, in a range of sizes to match existing openings.
- To date, a total of 16 windows in this building have experienced what is called “spontaneous breakage” in which a tempered lite suddenly shatters. In all cases, this has occurred at the innermost glass lite, which is tempered. The exterior layers of glass have remained intact, so

the breakage affects thermal performance but does not directly expose interior spaces to the outside weather. Repair requires replacement of the full unit. Nine (9) have been replaced previously, and seven (7) require replacement through this current replacement project.

- Facilities staff recommends replacement of these units, some of which are quite large, to maintain the integrity and thermal performance of the building envelope.
- In 2016-17, and again in 2021, Facilities staff consulted with various curtain wall glazing experts to determine the cause of these breaks. The primary cause identified is nickel sulfide (NS) inclusions, an impurity in the glass material. In tempered glazing, these inclusions may create a weak point that can cause spontaneous breakage. This conclusion is supported by the break pattern observed in the broken glass.
- Additional background notes:

Original construction project

- The original building project in 2013-14 included a team well-known for quality work and service, with established national reputations. These included: Neumann Brothers (general contractor), Architectural Wall Systems-AWS (curtain wall installer), Wausau Window and Wall Systems (curtain wall manufacturer) and Oldcastle Building Envelope (glass supplier). Curtain wall shop drawings were reviewed by SystemWorks, a reputable commissioning and building enclosure consultant.
- There was no indication during the initial construction phase that details, materials, or installation were out of compliance with sound building practice.

Warranties

- The original building project included industry-standard warranty provisions. These included warranty against failure of the seal and warranty against excessive degradation of framing finish. Spontaneous glass breakage due to nickel sulfide inclusions and associated insulating glazing unit replacement repairs are outside these provisions, and as a result, are not covered.
- Industry standard warranties from glass suppliers do not cover nickel sulfide inclusions.
- The five (5) year correction period for defective work related to curtain wall construction has expired.

Heat soak process

- There is one (1) process available to identify nickel sulfide inclusions at the time of manufacture, called “heat soaking”. This process subjects glass to additional stress in an attempt to find whether NS inclusions are present. It does not find all inclusions, and it comes at a very high cost. In many cases, the relatively low risk of US-produced glass having NS inclusions is not worth the high cost of adding this process to a project, especially since it may not identify all instances of these inclusions. Heat soaking was not specified for the glass in this project.
- It is our understanding that glass was fabricated in the US. It is unusual for US-fabricated glass to have nickel sulfide inclusions.

Additional investigation

- In 2021, City staff contacted W.J. Higgins & Associates, Inc., for additional opinion on glass breakage. They are a highly regarded exterior wall enclosure expert. After review of available documents and breakage history, they could not discern a pattern to the breakage beyond the likelihood that nickel sulfide inclusions in the glass material was a primary factor in most cases of glass breakage.
- Breakage of up to one (1) percent of glazing units is considered typical. We have experienced breakage of approximately two (2) percent of units in the project, in excess of what may be considered standard, but a small percentage of total units.
- None of the previously replaced units have failed. All remain intact.

PREVIOUS COUNCIL ACTION(S): NONE

BOARD/COMMISSION ACTION(S): NONE

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS: NONE

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