

G. SCOTT & ASSOCIATES, ARCHITECTS

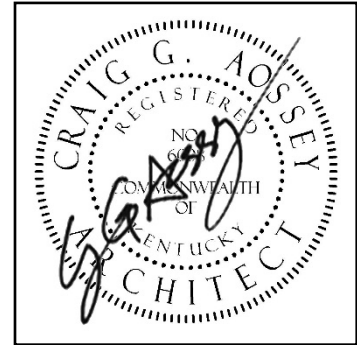
PLC

FRANKLIN COUNTY FISCAL COURT – SIMON HOUSE RENOVATION

ADDENDUM NUMBER ONE

31 MAR 21

The Contract Documents for the above project are amended as described in the following items. All Bidders must acknowledge this Addendum in the "Form of Bid"--failure to acknowledge same will result in disqualification of Bidder. A total of 37 page(s), including 7 Drawing(s) and enclosures, are included this Addendum.



GENERAL

(Add. No. 1 – 31 Mar 21)

Item 1. Contractor's List

- Plan holders list can be viewed online at www.lynnimaging.com

(Add. No. 1 – 31 Mar 21)

Item 2. Pre-Bid Conference

- Contractors present at Pre-Bid:

Name	Company	Phone	Fax	Email
Nick Cline	BEX Construction	859-263-5052	859-263-5065	nick@bexconstruction.net
Shane Wilhoite	AE Electric	502-223-5754		swilhoite@aees.com
William DeVries	AE Electric	502-223-5754		wdevries@aees.com
Doug Bell	John Bell Const.	270-766-7614		john@jbellconstruction.com
Karen Combs	VanHook Enterprises	859-582-7398	606-678-2634	k.combs@yahoo.com
Richard VanHook	VanHook Enterprises	606-678-2737	606-678-2634	vanhookent@windstream.net
Bryan Phillips	Phillips & Sons	502-803-5134		bryanphillips5115@gmail.com
Nathan Hocker	Elaine Allen	859-576-8175		nathan.hocker@elaineallenllc.com
Ervin Manley	Frantz Inc.	859-223-1335		Ervin.manley@franzinc.com
Jason Harrod	BCD Inc.	502-348-2305	502-348-2008	bcd@bardstown.com
Greg Meyer	Meyer Midwest	502-695-8835	502-695-1728	meyerky@aol.com
Stacey Hendricks	TP Mechanical	859-377-0730		stacey.hendricks@tpmechanical.com
Maci Motley	Allen Construction	606-495-5236		Maci.motley@gmail.com

(Add. No. 1 – 31 Mar 21)

Item 3. Advertisement to Bid:

- This is included for your reference.

(Add. No. 1 – 31 Mar 21)

Item 4. Form of Proposal:

- Add this specification, including all references in the Contract Documents

(Add. No. 1 – 31 Mar 21)

Item 5. Specification 002100: Supplemental Form of Proposal.

- Add this specification, including all references in the Contract Documents

(Add. No. 1 – 31 Mar 21)

Item 6. Specification Base Bid

Please revise BASE BID item 1 to read:

“First floor fit up, plus dampers through the second-floor slab at duct penetrations and rated shaft at existing duct in 233 Janitor. Second floor chases as noted on Dwg A-1.02. Base bid will also include second floor fire separation wall between the apartment and administration space both above ceiling (top of wall to deck) and below ceiling (infill at door frame in 204 Office and framing with door frame and hardware at door mar 203). All fire alarm work is included in base bid. All HVAC replacement scope except duct cleaning to be included in base bid. Also, related finish work to HVAC including ceiling repair work is included in base bid.”

(Add. No. 1 – 31 Mar 21)

Item 7. Specification: Alternate Bid

- Please revise Alternate Bids - Item 2 to read “ Alternate #2 – Work related to second floor bathrooms and laundry, new wall, and finishes, including doors, frames and hardware not included in **Alternate 1** (Door Marks 212 and 229).
- Add Alternate Bids – Item 3 to read “Alternate #3 – all work related to duct cleaning per specification Section 230130 HVAC Air Distribution System Cleaning”.

(Add. No. 1 – 31 Mar 21)

Item 8. Specification 230130: HVAC Air-Distribution and System Cleaning (5 pages)

- Add this specification, including all references in the Contract Documents.

(Add. No. 1 – 31 Mar 21)

Item 9. Specification 233800: Split System Heat Pumps (4 pages)

- Add this specification, including all references in the Contract Documents.

(Add. No. 1 – 31 Mar 21)

Item 10. Specification 260923: Lighting Control Devices (5 pages)

- Add this specification, including all references in the Contract Documents.

(Add. No. 1 – 31 Mar 21)

Item 11. Specification 283111: Digital, Addressable Fire-Alarm System (11 pages)

- Add this specification, including all references in the Contract Documents.

DRAWINGS

(Add. No. 1 – 31 Mar 21)

Item 12. Dwg A-5.01 – Door Schedule

- Add General Door Schedule Note #3 to read: “Paint new HM doors and frames. Existing HM doors and HM frames to remain with existing finish”.

END OF ADDENDUM ONE

31 March 2021

ADVERTISEMENT FOR BIDS

FRANKLIN COUNTY FISCAL COURT

RENOVATION OF 231 E. MAIN STREET BUILDING FRANKFORT, KENTUCKY

The Franklin County Fiscal Court is requesting sealed bids for the renovation of the former Health Department building with associated mechanical / electrical / plumbing and site work. Bids shall include any and all costs for items including but not limited to permits, materials, special equipment and shall be itemized on the List of Unit Prices provided in the bid form. Sealed bids will be received by the Franklin County Fiscal Court, ATTN: Huston Wells, Judge/Executive, 321 W. Main Street, Frankfort, Kentucky, until **10:00 a.m. EST, on April 13, 2021**. Bids will thereafter be publicly opened and read aloud. Due to restrictions of the current pandemic, this public bid opening will be live streamed on the Franklin County KY Facebook page at **Facebook.com/fccky**. All submittals shall be clearly marked **“231 E. Main Street renovation”**.

A **pre-bid meeting** will be held on **March 30, 2021, 1:00 p.m.** local time at 231 E. Main Street. Interested bidders shall meet at the lower level parking lot on Glens Creek Road and will have the opportunity to review existing site/building conditions and ask questions.

Questions from Bidders shall be submitted in writing no later than **2:00 p.m. on April 6, 2021** to Craig G. Aossey, Architect, 314 Wilkinson Street, Frankfort, KY 40601, or e-mailed to caossey@gscottarch.archi. Letters or e-mails must include a subject title “231 E Main Street BID Question”.

Prospective bidders, subcontractors, and materials suppliers may purchase copies of the CONTRACT DOCUMENTS from Lynn Imaging, 328 Old Vine Street, Lexington, KY 40507, 1-800-888-0693, www.lynnimaging.com.

The CONTRACT DOCUMENTS may be examined at the offices of G. Scott & Associates, Architects, PLC, 314 Wilkinson Street, Frankfort, KY 40601.

The Franklin County Fiscal Court may consider informal any bid not prepared and submitted in accordance with the provisions of this advertisement and/or the specifications and reserves the right to waive informalities and to reject any and all bids. Award of a single contract will be made to the best, lowest, responsive, responsible bidder. Franklin County reserves the right to reject any bid for any reason. Bids not conforming to the specifications contained herein will not be considered.

Franklin County Fiscal Court is an Equal Opportunity Employer. No person, firm, or corporation shall be excluded from participation in or subject to discrimination in providing the indicated services on the basis of race, color, sex, national origin, disability, or sexual orientation.

FORM OF PROPOSAL

Job No. 2020

Date: _____ To: (Owner) Franklin County Fiscal Court

Project Name: Simon House - Renovation Bid Package No. _____

City, County: Frankfort, Franklin

Name of Contractor: _____

Mailing Address: _____

Business Address: _____ Telephone: _____

Contact Person: _____ Email: _____ Cell No. _____

Having carefully examined the Instructions to Bidders, Contract Agreement, General Conditions, Supplemental Conditions, Specifications, and Drawings, for the above referenced project, the undersigned bidder proposes to furnish all labor, materials, equipment, tools, supplies, and temporary devices required to complete the work in accordance with the contract documents and any addenda listed below for the price stated herein.

Addendum _____ (Insert the addendum numbers received or "none" if no addendum received.)

BASE BID: For the construction required to complete the work, in accordance with the contract documents, I/We submit the following lump sum price of:

Use Figures

_____ Dollars & _____ Cents

Use Words

Use Words

ALTERNATE BIDS: (If applicable and denoted in the Bidding Documents)
 For omission from or addition to those items, services, or construction specified in Bidding Documents by alternate number, the following lump sum price will be added or deducted from the base bid.

Alternate Bid No.	Alternate Description	+ (Add to the Base Bid)	- (Deduct from the Base Bid)	No Cost Change from the Base Bid
Alt. Bid No. 1	Second floor doors & hardware excl. 212&229			<input type="checkbox"/>
Alt. Bid No. 2	Work related to bathrooms & laundry			<input type="checkbox"/>
Alt. Bid No. 3	Duct Cleaning			<input type="checkbox"/>
Alt. Bid No. 4				<input type="checkbox"/>
Alt. Bid No. 5				<input type="checkbox"/>
Alt. Bid No. 6				<input type="checkbox"/>
Alt. Bid No. 7				<input type="checkbox"/>
Alt. Bid No. 8				<input type="checkbox"/>
Alt. Bid No. 9				<input type="checkbox"/>

A maximum of 10 Alternate Bids will be acceptable with each Base Bid. Do not add supplemental sheets for Alternate Bids to this document.

FORM OF PROPOSAL

LIST OF PROPOSED SUBCONTRACTORS:

List on the lines below each major branch of work and the subcontractor involved with that portion of work. If the branch of work is to be done by the Contractor, so indicate.

The listing of more than one subcontractor in a work category shall invalidate the bid.

The listing of the bidder as the subcontractor for a work category certifies that the bidder has in current employment, skilled staff and necessary equipment to complete that category. The architect/engineer will evaluate the ability of all listed subcontractors to complete the work and notify the owner. Listing of the bidder as the subcontractor may invalidate the bid should the architect's review indicate bidder does not have skilled staff and equipment to complete the work category at the time the bid was submitted.

A maximum of 40 subcontractors will be acceptable with each bid. Do not add supplemental sheets for subcontractors to this document.

The bidder shall submit the list of subcontractors with the bid.

	<u>BRANCH OF WORK</u> (to be filled out by the Architect)	<u>SUBCONTRACTOR</u> (to be filled out by the contractor)
1.	Concrete	
2.	Concrete Polishing	
3.	Masonry	
4.	Carpentry	
5.	Aluminum Storefront	
6.	Doors & Hardware	
7.	Ceramic Tile	
8.	Paint	
9.	HVAC Test & Balance	
10.	Electrical	
11.	Fire Alarm	
12.	Plumbing	
13.	Mechanical	
14.		
15.		
16.		
17.		

FORM OF PROPOSAL

LIST OF PROPOSED SUPPLIERS AND MANUFACTURERS:

List on the lines below each major material category for this project and the suppliers and manufacturers involved with that portion of work. Listing the supplier below means the Contractor is acknowledging authorization from the Supplier to include the Supplier in this bid.

The listing of more than one supplier or manufacturer in a material category shall invalidate the bid.

A maximum of 40 suppliers and manufacturers will be acceptable with each bid. Do not add supplemental sheets for suppliers to this document.

The bidder shall submit the list of suppliers and manufacturers within one (1) hour of the bid.

	<u>MATERIAL DESCRIPTION BY SPECIFICATION DIVISION AND CATEGORY</u> (to be filled out by the Architect or Contractor)	<u>SUPPLIER</u> (to be filled out by the Contractor)	<u>MANUFACTURER</u> (to be filled out by the Contractor)
1.	Ceramic Tile		
2.	Paint		
3.	Aluminum Entrance and Storefront Doors & Frames		
4.	Hardware: Locksets		
5.	Hardware: Closers		
6.	Exhaust Fans & Louvers		
7.	Supply/Return/Exhaust Grilles		
8.	Electrical Panels		
9.	Light Fixtures – Provide List of All		
10.	Fire Alarm		
11.			
12.			
13.			
14.			
15.			
16.			
17.			

FORM OF PROPOSAL

UNIT PRICES:

Indicate on the lines below those unit prices to determine any adjustment to the contract price due to changes in work or extra work performed under this contract. The unit prices shall include the furnishing of all labor and materials, cost of all items, and overhead and profit for the Contractor, as well as any subcontractor involved. These unit prices shall be listed in units of work.

A maximum of 40 unit prices will be acceptable with each bid. Do not add supplemental sheets for unit pricing to this document.

The bidder shall submit the list of unit prices within one (1) hour of the bid.

	<u>WORK</u> (to be filled out by the Architect)	<u>PRICE / UNIT</u> (to be filled out by the Contractor)	<u>UNIT</u> (to be filled out by the Contractor)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			

DIRECT MATERIAL PURCHASES:

FORM OF PROPOSAL

Indicate on the lines below those materials to be purchased directly by the Owner with a Purchase Order to be issued by the Owner to the individual suppliers. The value of the direct Purchase Order cannot be less than \$5,000. Following the approval of bids, the Contractor shall formalize this list by completing and submitting the electronic Purchase Order Summary Form provided by KDE. Listing the supplier below means the Contractor is acknowledging authorization from the Supplier to include the Supplier in this bid.

A maximum of 50 POs will be acceptable with each bid. Do not add supplemental sheets for additional POs to this document.

The bidder shall submit the list of Purchase Orders within four (4) days of the bid.

	<u>SUPPLIER</u> (to be filled out by the Contractor)	<u>PURCHASE ORDER DESCRIPTION</u>	<u>PURCHASE ORDER AMT.</u> (to be filled out by the Contractor)
1.		Concrete	
2.		HM Doors & Frames	
3.		Aluminum Store Front, Doors and Frames	
4.		Plumbing Fixtures	
5.		Electric – Light Fixtures & Switchgear	
6.		HVAC Equipment	
7.		Metal Railings	
8.		Glass/Glazing System	
9.		Masonry	
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			

FORM OF PROPOSAL

TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS:

In the event that a bidder's proposal is accepted by the Owner and such bidder should fail to execute the contract within ten (10) consecutive days from the date of notification of the awarding of the contract, the Owner, at his option, may determine that the awardee has abandoned the contract. The bidder's proposal shall then become null and void, and the bid bond or certified check which accompanied it shall be forfeited to and become the property of the Owner as liquidated damages for failure to execute the contract.

The bidder hereby agrees that failure to submit herein above all required information and/or prices can cause disqualification of this proposal.

Submitted by:

NAME OF CONTRACTOR / BIDDER: _____

AUTHORIZED REPRESENTATIVE'S NAME: _____
Signature

AUTHORIZED REPRESENTATIVE'S NAME (printed): _____

AUTHORIZED REPRESENTATIVE'S TITLE: _____

NOTICE: Bid security must accompany this proposal if the Base Bid price is greater than of \$25,000.

This form shall not be modified.

1 002100 – SUPPLEMENTAL FORM OF PROPOSAL

2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55

1. Allowances: None

2. Alternate Bids:

Alternate Bids shall, for the purposes of this Form of Proposal, indicate specific changes to be incorporated into the work. Bidders are responsible for reviewing the Contract Documents for appropriate information. The order presented does not necessarily reflect the order of acceptance.

a. Base Bid shall be for all work as described and indicated in the Contract Documents. Base Bid plus accepted alternates will be basis for contract award. All alternates area described as "Add" alternates, and will be in addition to the Base Bid. The purpose of add alternates is to first ensure that a construction contract can be initiated after the bid, and second to accept as much work as possible within the Owner's local funding capability.

b. Bidders are notified that any change in subcontractors relative to alternate bid values must be indicated by writing the selected subcontractor on the bid form adjacent to the alternate bid value.

Alternate #1: Second floor doors and hardware excluding doors 212 and 229.

Alternate #2: Work related to second floor bathrooms and laundry, new wall, and finishes, including doors, frames, and hardware not included in Alternate 1 (Door Marks 212 and 229).

Alternate #3: Duct Cleaning

3. Provide listing of five (5) previous projects of similar scope, along with the name, address, and phone number of the Owner or representative who can verify workmanship and quality.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

4. Provide listing of current projects and their size, and estimated completion date of each.

- a. _____
- b. _____

- 1 c. _____
- 2 _____
- 3 d. _____
- 4 _____
- 5 e. _____
- 6 _____

7
8 5. Affidavit of Assurances: Provide completed Affidavit of Assurances as attachment to the Form of Proposal.

9
10
11 END OF SECTION

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

SECTION 230130 - HVAC AIR-DISTRIBUTION SYSTEM CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes cleaning HVAC air-distribution equipment, ducts, plenums, and system components for all existing which remain after selective demolition and removal. See Mechanical Plans for locations and sizes of all Fan Coil Units, supply air ducts, return air ducts, exhaust ducts, and outside air ducts.

1.3 DEFINITIONS

- A. ASCS: Air systems cleaning specialist.
- B. NADCA: National Air Duct Cleaners Association.

1.4 SUBMITTALS

- A. Qualification Data: For an ASCS.
- B. Strategies and procedures plan.
- C. Cleanliness verification report.

1.5 QUALITY ASSURANCE

- A. ASCS Qualifications: A certified member of NADCA.
 - 1. Certification: Employ an ASCS certified by NADCA on a full-time basis.
 - 2. Supervisor Qualifications: Certified as an ASCS by NADCA.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine HVAC air-distribution equipment, ducts, plenums, and system components to determine appropriate methods, tools, and equipment required for performance of the Work.
- B. Perform "Project Evaluation and Recommendation" according to NADCA ACR 2006.
- C. Prepare written report listing conditions detrimental to performance of the Work.
- D. Proceed with work only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare a written plan that includes strategies and step-by-step procedures. At a minimum, include the following:
 - 1. Supervisor contact information.
 - 2. Work schedule including location, times, and impact on occupied areas.
 - 3. Methods and materials planned for each HVAC component type.
 - 4. Required support from other trades.
 - 5. Equipment and material storage requirements.
 - 6. Exhaust equipment setup locations.
- B. Use the existing service openings, as required for proper cleaning, at various points of the HVAC system for physical and mechanical entry and for inspection.
- C. Comply with NADCA ACR 2006, "Guidelines for Constructing Service Openings in HVAC Systems" Section.

3.3 CLEANING

- A. Comply with NADCA ACR 2006.
- B. Remove visible surface contaminants and deposits from within the HVAC system.
- C. Systems and Components to Be Cleaned:
 - 1. Air devices for supply and return air.
 - 2. Ductwork:
 - a. Supply-air ducts, including turning vanes, to the air-handling unit.
 - b. Return-air ducts to the air-handling unit and including the return air fan.
 - 3. Air-Handling Units:
 - a. Interior surfaces of the unit casing.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

- b. Coil surfaces compartment.
 - c. Condensate drain pans and condensate lines.
 - d. Fans, fan blades, and fan housings.
 - e. Zone dampers.
- 4. Fan Coil Units with cooling and heating coils:
 - a. Interior surfaces of the unit casing.
 - b. Coil surfaces compartment.
 - c. Cooling coils.
 - d. Heating coils.
 - e. Condensate drain pans and condensate lines.
 - f. Fans, fan blades, and fan housings.
- 5. Filters and filter housings.
- D. Collect debris removed during cleaning. Ensure that debris is not dispersed outside the HVAC system during the cleaning process.
- E. Particulate Collection:
 - 1. For particulate collection equipment, include adequate filtration to contain debris removed. Locate equipment downwind and away from all air intakes and other points of entry into the building.
 - 2. HEPA filtration with 99.97 percent collection efficiency for particles sized 0.3 micrometer or larger shall be used where the particulate collection equipment is exhausting inside the building,
- F. Control odors and mist vapors during the cleaning and restoration process.
- G. Mark the position of manual volume dampers and air-directional mechanical devices inside the system prior to cleaning. Restore them to their marked position on completion of cleaning.
- H. System components shall be cleaned so that all HVAC system components are visibly clean. On completion, all components must be returned to those settings recorded just prior to cleaning operations.
- I. Clean all air-distribution devices, registers, grilles, and diffusers.
- J. Clean visible surface contamination deposits according to NADCA ACR 2006 and the following:
 - 1. Clean air-handling units, airstream surfaces, components, condensate collectors, and drains.
 - 2. Ensure that a suitable operative drainage system is in place prior to beginning wash-down procedures.
 - 3. Clean evaporator coils, and other airstream components.
- K. Duct Systems:
 - 1. Create service openings in the HVAC system as necessary to accommodate cleaning.
 - 2. Mechanically clean duct systems specified to remove all visible contaminants so that the systems are capable of passing the HVAC System Cleanliness Tests (see NADCA ACR 2006).

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

- L. Debris removed from the HVAC system shall be disposed of according to applicable Federal, state, and local requirements.

- M. Mechanical Cleaning Methodology:
 - 1. Source-Removal Cleaning Methods: The HVAC system shall be cleaned using source-removal mechanical cleaning methods designed to extract contaminants from within the HVAC system and to safely remove these contaminants from the facility. No cleaning method, or combination of methods, shall be used that could potentially damage components of the HVAC system or negatively alter the integrity of the system.
 - a. Use continuously operating vacuum-collection devices to keep each section being cleaned under negative pressure.
 - b. Cleaning methods that require mechanical agitation devices to dislodge debris that is adhered to interior surfaces of HVAC system components shall be equipped to safely remove these devices. Cleaning methods shall not damage the integrity of HVAC system components or damage porous surface materials such as duct and plenum liners.
 - 2. Cleaning Mineral-Fiber Insulation Components:
 - a. Fibrous-glass thermal or acoustical insulation elements present in equipment or ductwork shall be thoroughly cleaned with HEPA vacuuming equipment while the HVAC system is under constant negative pressure and shall not be permitted to get wet according to NADCA ACR 2006.
 - b. Cleaning methods used shall not cause damage to fibrous-glass components and will render the system capable of passing the HVAC System Cleanliness Tests (see NADCA ACR 2006).
 - c. Fibrous materials that become wet shall be discarded and replaced.

- N. Coil Cleaning:
 - 1. Measure static-pressure differential across each coil.
 - 2. See NADCA ACR 2006, "Coil Surface Cleaning" Section. Type 1, or Type 1 and Type 2, cleaning methods shall be used to render the coil visibly clean and capable of passing Coil Cleaning Verification (see applicable NADCA ACR 2006).
 - 3. Coil drain pans shall be subject to NADCA ACR 2006, "Non-Porous Surfaces Cleaning Verification." Ensure that condensate drain pans are operational.
 - 4. Electric-resistance coils shall be de-energized, locked out, and tagged before cleaning.
 - 5. Cleaning methods shall not cause any appreciable damage to, cause displacement of, inhibit heat transfer, or cause erosion of the coil surface or fins, and shall comply with coil manufacturer's written recommendations when available.
 - 6. Rinse thoroughly with clean water to remove any latent residues.

- O. Antimicrobial Agents and Coatings:
 - 1. Apply antimicrobial agents and coatings if active fungal growth is reasonably suspected or where unacceptable levels of fungal contamination have been verified. Apply antimicrobial agents and coatings according to manufacturer's written recommendations and EPA registration listing after the removal of surface deposits and debris.
 - 2. When used, antimicrobial treatments and coatings shall be applied after the system is rendered clean.
 - 3. Apply antimicrobial agents and coatings directly onto surfaces of interior ductwork.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

4. Sanitizing agent products shall be registered by the EPA as specifically intended for use in HVAC systems and ductwork.

3.4 CLEANLINESS VERIFICATION

- A. Verify cleanliness according to NADCA ACR 2006, "Verification of HVAC System Cleanliness" Section.
- B. Verify HVAC system cleanliness after mechanical cleaning and before applying any treatment or introducing any treatment-related substance to the HVAC system, including biocidal agents and coatings.
- C. Perform visual inspection for cleanliness. If no contaminants are evident through visual inspection, the HVAC system shall be considered clean. If visible contaminants are evident through visual inspection, those portions of the system where contaminants are visible shall be re-cleaned and subjected to re-inspection for cleanliness.
- D. Prepare a written cleanliness verification report. At a minimum, include the following:
 1. Written documentation of the success of the cleaning.
 2. Site inspection reports, initialed by supervisor, including notation on areas of inspection, as verified through visual inspection.
 3. Surface comparison test results if required.
 4. Gravimetric analysis (nonporous surfaces only).
 5. System areas found to be damaged.

END OF SECTION 230130

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

SECTION 233800 – SPLIT SYSTEM HEAT PUMPS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electric Heat Pumps with Electric Backup Heat and Controls.
- B. Refrigerant cooling coils.
- C. Air cooled condensing units.

1.2 RELATED SECTIONS

- A. Section 230513 - Motors: Evaporator and condenser fan motors.
- B. Section 230548 - Vibration Isolation.
- C. Section 230713 - Ductwork Insulation.
- D. Section 262700 - Equipment Wiring Systems: Electrical characteristics and wiring connections and installation and wiring of thermostats and other controls components.

1.3 REFERENCES

- A. ARI 270 - Sound Rating of Outdoor Unitary Equipment.
- B. ARI 520 - Positive Displacement Refrigerant Compressors, Compressor Units and Condensing Units.
- C. ASHRAE 14 - Methods of Testing for Rating Positive Displacement Condensing Units.
- D. ASHRAE 15 - Safety Code for Mechanical Refrigeration.
- E. ASHRAE 52 - Method of Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter.
- F. ASHRAE 90A - Energy Conservation in New Building Design.
- G. ASHRAE 103 - Heating Seasonal Efficiency of Central Furnaces and Boilers, Methods of Testing.
- H. NEMA MG 1 - Motors and Generators.
- I. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- J. NFPA 90B - Installation of Warm Air Heating and Air Conditioning Systems.
- K. UL 207 - Refrigerant-Containing Components and Accessories, Non-Electrical.
- L. UL 303 - Refrigeration and Air-Conditioning Condensing and Compressor Units.

1.4 SUBMITTALS FOR REVIEW

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

- A. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.
- B. Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.
- C. Design Data: Indicate refrigerant pipe sizing.
- D. Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.

1.5 OPERATION AND MAINTENANCE

- A. Project Record Documents: Record actual locations of components and connections.
- B. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.
- C. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Owners name and registered with manufacturer.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.7 WARRANTY

- A. Provide five year manufacturers warranty for heat exchangers.
- B. Provide five year manufacturers warranty for condensing units and compressors.

2 PART 2 PRODUCTS

2.1 HEAT PUMPS

- A. Manufacturer:
 - 1. Lennox
 - 2. Carrier
 - 3. Trane
- B. Units: Split System, factory assembled, pre-wired unit consisting of gas furnace cabinet, supply fan, controls, side filter kit, and accessories; wired for single power connection with control transformer.
 - 1. Air Flow Configuration: Upflow/Horizontal Flow.
 - 2. Heating: Heat Pump with Electric Backup.
 - 3. Electric Refrigeration: Refrigerant cooling coil and outdoor package containing compressor, condenser coil and condenser fan.
- B. Cabinet: Steel with baked enamel finish, easily removed and secured access doors, glass fiber insulation and reflective liner.
- C. Supply Fan: Centrifugal type rubber mounted with direct drive motor.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

- D. Motor: NEMA MG 1; 1750 rpm two-speed.
- E. Electric Heater: See Drawings for performance.
- F. Heater Operating Controls:
 - 1. Low voltage adjustable room thermostat energized gas heating stages in sequence with pre-determined delay between heating stages.
 - 2. Supply fan starts before elements are energized and continues operating after thermostat is satisfied until temperature reaches minimum setting. Include manual switch for continuous fan operation.
- G. Air Filters: MERV 8, 1 inch thick, pleated, disposable type arranged for easy replacement.
- H. Performance:
 - 1. Refer to Heat Pump Schedule on Drawings.

2.2 EVAPORATOR COIL UNITS

- A. Construction and Ratings: In accordance with ARI 210/240 , and UL 207 and UL 303.
- B. Evaporator Coil: Copper tube aluminum fin assembly, galvanized drain pan, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve, steel cabinet with baked enamel finish and insulation.

2.3 CONDENSING UNITS

- C. Construction and Ratings: In accordance with ARI 210/240 , and UL 207 and UL 303. Testing: ASHRAE 14.
- D. Compressor: Heat pump, scroll compressor, 3600 rpm, resiliently mounted integral with condenser, with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling and rapid speed changes.
- E. Air Cooled Condenser: ARI 520; aluminum fin and copper tube coil, with direct drive axial propeller fan resiliently mounted, galvanized fan guard.
- F. Refrigeration Operating Controls
 - 1. Room Thermostat: Cycles condensing unit and supply fan to maintain room temperature setting.
 - 2. Low Ambient Kit: Provide refrigerant pressure switch to cycle condenser fan on when condenser refrigerant pressure is above 285 psig and off when pressure drops below 140 psig for operation to 0 degrees F.

2.4 THERMOSTATS

- A. Adjustable Programmable Room Thermostat: Low voltage, to control burner operation, heater stages in sequence with delay between stages, compressor and condenser fan and supply fan to maintain temperature setting. Include system selector switch (heat-off-cool) and fan control switch (auto-on). Provide automatic switching from heating to cooling, set-up for four separate temperatures per day, instant override of setpoint for continuous or timed period, short cycle protection, programming based on weekdays, Saturday and

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

Sunday, selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, fan on-auto, battery replacement without program loss, and thermostat display:

- a. Time of day.
- b. Actual room temperature.
- c. Programmed temperature.
- d. Programmed time.
- e. Duration of timed override.
- f. Day of week.
- g. System mode indication: heating, cooling, auto, off, fan auto, fan on.

3 PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that floors are ready for installation of units and openings are as indicated on shop drawings.
- B. Verify that proper power supply is available for air handling unit and heat pump package.

3.2 INSTALLATION

- A. Install in accordance with NFPA 90A, NFPA 90B, and International Mechanical Code and manufacturer's instructions.
- B. Install refrigeration systems in accordance with ASHRAE 15.
- C. Pipe drain from cooling coils to nearest floor drain, unless indicated otherwise on drawings.
- D. Mount air cooled condenser-compressor package on ½ inch thick foam vibration isolators on 4 inch thick concrete pad.
- H. Contractor shall be licensed to install HVAC equipment in the State of Kentucky.

END OF SECTION 233800

SECTION 260923 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Time switches.
2. Photoelectric switches.
3. Indoor occupancy sensors.
4. Lighting contactors.

B. Related Requirements:

1. Division 26 Section "Wiring Devices" for wall-box dimmers, wall-switch occupancy sensors, and manual light switches.
2. Division 26 Section "Network Lighting Controls"

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show installation details for occupancy and light-level sensors.
 1. Interconnection diagrams showing field-installed wiring.
 2. Include diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each type of lighting control device to include in emergency, operation, and maintenance manuals.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

PART 2 - PRODUCTS

2.1 INDOOR OCCUPANCY SENSORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Hubbell Building Automation, Inc.
 2. Lightolier Controls.
 3. Lithonia Lighting; Acuity Lighting Group, Inc.
 4. Sensor Switch, Inc.
 5. Watt Stopper.
- B. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power pack.
1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
 3. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the power pack.
 4. Power Pack: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
 5. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Relay: Externally mounted through a 1/2-inch (13-mm) knockout in a standard electrical enclosure.
 - c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
 6. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
 7. Bypass Switch: Override the "on" function in case of sensor failure.
 8. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc (21.5 to 2152 lux); turn lights off when selected lighting level is present.
- C. Dual-Technology Type: Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in the field by operating controls on unit.
1. Sensitivity Adjustment: Separate for each sensing technology.
 2. Detector Sensitivity: Detect occurrences of 6-inch- (150-mm-) minimum movement of any portion of a human body that presents a target of not less than 36 sq. in. (232 sq. cm), and detect a person of average size and weight moving not less than 12 inches (305 mm) in either a horizontal or a vertical manner at an approximate speed of 12 inches/s (305 mm/s).
 3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. (93 sq. m) when mounted on a 96-inch- (2440-mm-) high ceiling.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

2.2 SWITCHBOX-MOUNTED OCCUPANCY SENSORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Hubbell Building Automation, Inc.
 2. Leviton Mfg. Company Inc.
 3. Lightolier Controls.
 4. Lithonia Lighting; Acuity Lighting Group, Inc.
 5. Sensor Switch, Inc.
 6. Watt Stopper.
- B. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single gang switchbox.
1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F (0 to 49 deg C).
 3. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W incandescent.
- C. Wall-Switch Sensor Tag WS1:
1. Standard Range: 180-degree field of view, field adjustable from 180 to 40 degrees; with a minimum coverage area of 900 sq. ft. (84 sq. m).
 2. Sensing Technology: Dual technology - PIR and ultrasonic.
 3. Switch Type: Single or Double pole as indicated, field selectable automatic "on," or manual "on" automatic "off."
 4. Voltage: 120 V; dual-technology type.
 5. Ambient-Light Override: Concealed, field-adjustable, light-level sensor from 10 to 150 fc (108 to 1600 lux). The switch prevents the lights from turning on when the light level is higher than the set point of the sensor.
 6. Concealed, field-adjustable, "off" time-delay selector at up to 30 minutes.
 7. Adaptive Technology: Self-adjusting circuitry detects and memorizes usage patterns of the space and helps eliminate false "off" switching.

2.3 CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."
- B. Classes 2 and 3 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 18 AWG. Comply with requirements in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."
- C. Class 1 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 14 AWG. Comply with requirements in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

PART 3 - EXECUTION

3.1 SENSOR INSTALLATION

- A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression systems, and partition assemblies.
- B. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.

3.2 CONTACTOR INSTALLATION

- A. Mount electrically held lighting contactors with elastomeric isolator pads to eliminate structure-borne vibration, unless contactors are installed in an enclosure with factory-installed vibration isolators.

3.3 WIRING INSTALLATION

- A. Wiring Method: Comply with Division 26 Section "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size is 1/2 inch (13 mm).
- B. Wiring within Enclosures: Comply with NECA 1. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.
- C. Size conductors according to lighting control device manufacturer's written instructions unless otherwise indicated.
- D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

3.4 IDENTIFICATION

- A. Identify components and power and control wiring according to Division 26 Section "Identification for Electrical Systems."
 - 1. Identify controlled circuits in lighting contactors.
 - 2. Identify circuits or luminaires controlled by photoelectric and occupancy sensors at each sensor.
- B. Label time switches and contactors with a unique designation.

3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Lighting control devices will be considered defective if they do not pass tests and inspections.
 - C. Prepare test and inspection reports.

3.6 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.
 1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.
 2. For daylighting controls, adjust set points and deadband controls to suit Owner's operations.

3.7 DEMONSTRATION

- A. Coordinate demonstration of products specified in this Section with demonstration requirements for low-voltage, programmable lighting control systems specified in Division 26 Section "Network Lighting Controls."
- B. Train Owner's maintenance personnel to adjust, operate, and maintain lighting control devices.

END OF SECTION 260923

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fire-alarm control unit.
 - 2. Manual fire-alarm boxes.
 - 3. System smoke detectors.
 - 4. Heat detectors.
 - 5. Notification appliances.
 - 6. Addressable interface device.
 - 7. Digital alarm communicator transmitter.

1.3 DEFINITIONS

- A. LED: Light-emitting diode.
- B. NICET: National Institute for Certification in Engineering Technologies.

1.4 SYSTEM DESCRIPTION

- A. Noncoded addressable system, with automatic sensitivity control of certain smoke detectors and multiplexed signal transmission, dedicated to fire-alarm service only.

1.5 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Fire-alarm control unit and raceways shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

- B. Shop Drawings: For fire-alarm system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Comply with recommendations in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72.
 - 2. Include voltage drop calculations for notification appliance circuits.
 - 3. Include battery-size calculations.
 - 4. Include performance parameters and installation details for each detector, verifying that each detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
 - 5. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits.

- C. General Submittal Requirements:
 - 1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
 - 2. Shop Drawings shall be prepared by persons with the following qualifications:
 - a. Trained and certified by manufacturer in fire-alarm system design.
 - b. NICET-certified fire-alarm technician, Level III minimum.
 - c. Licensed or certified by authorities having jurisdiction.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Seismic Qualification Certificates: For fire-alarm control unit, accessories, and components, from manufacturer.
- C. Field quality-control reports.

1.8 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
 - 1. Comply with the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.
 - 2. Provide "Record of Completion Documents" according to NFPA 72 article "Permanent Records" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter.
 - 3. Record copy of site-specific software.
 - 4. Provide "Maintenance, Inspection and Testing Records" according to NFPA 72 article of the same name and include the following:
 - a. Frequency of testing of installed components.
 - b. Frequency of inspection of installed components.
 - c. Requirements and recommendations related to results of maintenance.
 - d. Manufacturer's user training manuals.
 - 5. Manufacturer's required maintenance related to system warranty requirements.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

6. Abbreviated operating instructions for mounting at fire-alarm control unit.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
- B. Source Limitations for Fire-Alarm System and Components: Obtain fire-alarm system from single source from single manufacturer. Components shall be compatible with, and operate as, an extension of existing system.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. NFPA Certification: Obtain certification according to NFPA 72 by an NRTL.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Edwards, a United Technologies Corporation.
 2. NOTIFIER; a Honeywell company.
 3. SimplexGrinnell LP; a Tyco International company.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

- A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:
 1. Manual stations.
 2. Heat detectors.
 3. Smoke detectors.
 4. Duct smoke detectors.
 5. Verified automatic alarm operation of smoke detectors.
 6. Automatic sprinkler system water flow.
- B. Fire-alarm signal shall initiate the following actions:
 1. Continuously operate alarm notification appliances.
 2. Identify alarm at fire-alarm control unit.
 3. Transmit an alarm signal to the remote alarm receiving station.
 4. Release fire and smoke doors held open by magnetic door holders.
 5. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
 6. Close smoke dampers in air ducts of designated air-conditioning duct systems.
 7. Record events in the system memory.
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
 1. Valve supervisory switch.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

2. Low-air-pressure switch of a dry-pipe sprinkler system.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of primary power at fire-alarm control unit.
4. Ground or a single break in fire-alarm control unit internal circuits.
5. Abnormal ac voltage at fire-alarm control unit.
6. Break in standby battery circuitry.
7. Failure of battery charging.
8. Abnormal position of any switch at fire-alarm control unit or annunciator.
9. Low-air-pressure switch operation on a dry-pipe or preaction sprinkler system.

E. System Trouble and Supervisory Signal Actions: Initiate notification appliance and annunciate at fire-alarm control unit. Record the event on system printer.

2.3 FIRE-ALARM CONTROL UNIT

A. General Requirements for Fire-Alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864 and listed and labeled by an NRTL.
 - a. System software and programs shall be held in flash electrically erasable programmable read-only memory (EEPROM), retaining the information through failure of primary and secondary power supplies.
 - b. Include a real-time clock for time annotation of events on the event recorder and printer.
2. Addressable initiation devices that communicate device identity and status.
 - a. Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at fire-alarm control unit.
 - b. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.
3. Addressable control circuits for operation of mechanical equipment.

B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 2 line(s) of 40 characters, minimum.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands and to indicate control commands to be entered into the system for control of smoke-detector sensitivity and other parameters.

C. Circuits:

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

1. Initiating Device, Notification Appliance, and Signaling Line Circuits: NFPA 72, Class B.
 - a. Initiating Device Circuits: Style B Style C.
 - b. Notification Appliance Circuits: Style Y.
 - c. Signaling Line Circuits: Style 4.
 - d. Install no more than 50 addressable devices on each signaling line circuit.
 2. Serial Interfaces: Two RS-232 ports for printers.
- D. Notification Appliance Circuit: Operation shall sound in a temporal pattern.
- E. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke barrier walls shall be connected to fire-alarm system.
- F. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out the final adjusted values on system printer.
- G. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.
- H. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory and digital alarm communicator transmitters shall be powered by 24-V dc source.
 1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.
- I. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.
 1. Batteries: Sealed lead calcium.
- J. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.
- 2.4 MANUAL FIRE-ALARM BOXES
- A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.
 1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
 2. Station Reset: Key-operated switch.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

3. Indoor Protective Shield: Factory-fabricated clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.
 - a. Rate-of-rise temperature characteristic shall be selectable at fire-alarm control unit for 15 or 20 deg F (8 or 11 deg C) per minute.
 - b. Fixed-temperature sensing shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F (57 or 68 deg C).
 - c. Provide multiple levels of detection sensitivity for each sensor.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - a. Primary status.
 - b. Device type.
 - c. Present average value.
 - d. Present sensitivity selected.
 - e. Sensor range (normal, dirty, etc.).

C. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - a. Primary status.
 - b. Device type.
 - c. Present average value.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

- d. Present sensitivity selected.
 - e. Sensor range (normal, dirty, etc.).
3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector.
 4. Each sensor shall have multiple levels of detection sensitivity.
 5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
 6. Relay Fan Shutdown: Rated to interrupt fan motor-control circuit.

2.6 HEAT DETECTORS

- A. General Requirements for Heat Detectors: Comply with UL 521.
- B. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F (57 deg C) or a rate of rise that exceeds 15 deg F (8 deg C) per minute unless otherwise indicated.
 1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
 2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.7 NOTIFICATION APPLIANCES

- A. General Requirements for Notification Appliances: Connected to notification appliance signal circuits, zoned as indicated, equipped for mounting as indicated and with screw terminals for system connections.
 1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated and with screw terminals for system connections.
- B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet (3 m) from the horn, using the coded signal prescribed in UL 464 test protocol.
- C. Visible Notification Appliances: Xenon strobe lights comply with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.
 1. Rated Light Output:
 - a. 15/30/75/110 cd, selectable in the field.
 2. Mounting: Wall mounted unless otherwise indicated.
 3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
 4. Flashing shall be in a temporal pattern, synchronized with other units.
 5. Strobe Leads: Factory connected to screw terminals.
 6. Mounting Faceplate: Factory finished, red.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

2.8 ADDRESSABLE INTERFACE DEVICE

- A. Description: Microelectronic monitor module, NRTL listed for use in providing a system address for alarm-initiating devices for wired applications with normally open contacts.
- B. Integral Relay: Capable of providing a direct signal to circuit-breaker shunt trip for power shutdown.

2.9 DIGITAL ALARM COMMUNICATOR TRANSMITTER

- A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632 and be listed and labeled by an NRTL.
- B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture two telephone line(s) and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.
- C. Local functions and display at the digital alarm communicator transmitter shall include the following:
 - 1. Verification that both telephone lines are available.
 - 2. Programming device.
 - 3. LED display.
 - 4. Manual test report function and manual transmission clear indication.
 - 5. Communications failure with the central station or fire-alarm control unit.
- D. Digital data transmission shall include the following:
 - 1. Address of the alarm-initiating device.
 - 2. Address of the supervisory signal.
 - 3. Address of the trouble-initiating device.
 - 4. Loss of ac supply or loss of power.
 - 5. Low battery.
 - 6. Abnormal test signal.
 - 7. Communication bus failure.
- E. Secondary Power: Integral rechargeable battery and automatic charger.
- F. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.
- G. Central Receiving Station Service: The contractor shall provide reporting service from a U.L. Listed central receiving station as part of his bid. The date of service shall start from the date of beneficial occupancy and shall continue for a period of one year. The contractor shall included in his operation and maintenance manuals documentation and receipt of service for the selected service provider with contact information

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

2.10 DEVICE GUARDS

- A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.
 - 1. Factory fabricated and furnished by manufacturer of device.
 - 2. Finish: Paint of color to match the protected device.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

- A. Comply with NFPA 72 for installation of fire-alarm equipment.
- B. Install wall-mounted equipment, with tops of cabinets not more than 72 inches (1830 mm) above the finished floor.
 - 1. Comply with requirements for seismic-restraint devices specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- C. Smoke- or Heat-Detector Spacing:
 - 1. Comply with NFPA 72, "Smoke-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for smoke-detector spacing.
 - 2. Comply with NFPA 72, "Heat-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for heat-detector spacing.
 - 3. HVAC: Locate detectors not closer than 3 feet (1 m) from air-supply diffuser or return-air opening.
 - 4. Lighting Fixtures: Locate detectors not closer than 12 inches (300 mm) from any part of a lighting fixture.
- D. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct.
- E. Remote Status and Alarm Indicators: Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.
- F. Audible Alarm-Indicating Devices: Install not less than 6 inches (150 mm) below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.
- G. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches (150 mm) below the ceiling.
- H. Device Location-Indicating Lights: Locate in public space near the device they monitor.
- I. Fire-Alarm Control Unit: Surface mounted, with tops of cabinets not more than 72 inches (1830 mm) above the finished floor.

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

3.2 CONNECTIONS

- A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Division 08 Section "Door Hardware." Connect hardware and devices to fire-alarm system.
 - 1. Verify that hardware and devices are NRTL listed for use with fire-alarm system in this Section before making connections.
- B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 3 feet (1 m) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.
 - 1. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.
 - 2. Supervisory connections at valve supervisory switches.
 - 3. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
- C. Provide two (2) communication lines from telephone equipment board. Provide two (2) RJ-31X jacks at the interface. Coordinate with telephone company for service

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."
- B. Install framed instructions in a location visible from fire-alarm control unit.

3.4 GROUNDING

- A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

3.5 FIELD QUALITY CONTROL

- A. Field tests shall be witnessed by authorities having jurisdiction.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- D. Tests and Inspections:
 - 1. Visual Inspection: Conduct visual inspection prior to testing.
 - a. Inspection shall be based on completed Record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents,

SIMON HOUSE RENOVATION
FRANKLIN COUNTY FISCAL COURT and
CITY OF FRANKFORT

- Preparation" Table in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter.
- b. Comply with "Visual Inspection Frequencies" Table in the "Inspection" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.
2. System Testing: Comply with "Test Methods" Table in the "Testing" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.
 3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.
- E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
 - F. Fire-alarm system will be considered defective if it does not pass tests and inspections.
 - G. Prepare test and inspection reports.
 - H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.
 - I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111