



*"Building houses in partnership with God's people in need"*

Project: Lot 80 & 81 N Nokomis Trail, Unincorporated McHenry

Bid Category: HVAC

### **SCOPE**

Habitat for Humanity (HFH) is building (1) single family detached home located at Lot 80 & 81 N Nokomis Trail in unincorporated McHenry, Grant Township, unincorporated Lake County. This home will be on a crawl space foundation and with private well water and septic system. Planned to start work Summer 2025 and complete by December 2026.

The Contractor shall furnish all labor, material and equipment to perform the work indicated on drawings, and product material specifications, or specified herein. It is the responsibility of the contractor to verify all dimensions and field conditions prior to the start of work. If discrepancies are noted, HFH should be immediately notified and all work should cease until the discrepancies have been resolved. The work is to be completed on the scheduled day(s) per the Agreement. The Work includes, but is not limited to, the following:

- 1) Design and deliver, for HFH review and approval, a heating plan which shows calculations for heat loss, heat gain, and cooling gain and loss. Heating distribution systems shall be sized and installed in accordance with heating plans prepared and furnished by the Contractor. Any changes or modifications to the HVAC plans after they are submitted and approved by HFH must be approved by the HFH in writing.
- 2) Furnish and install a complete ventilation, heating and air conditioning system complete with forced air furnace, air coil, exterior compressor, final house connections, make up air, and duct work as per plan. Provide all necessary galvanized sheet metal piping, collars, and fittings of a gauge to conform to A.S.M.E. standards, as well as filters, controls, and thermostat wiring to complete the work.
  - a) Connect furnace and AC to electrical disconnect/service switch
  - b) Install ducts and registers supplying conditioned air to the crawlspace area.
  - c) Furnish and install dryer vents as directed by HFH.
  - d) Furnish and install bathroom exhaust venting to the exterior of the house
  - e) Furnish and install kitchen range exhaust venting to the exterior of the house
  - f) Furnish and install Energy Recovery Ventilation
- 3) The Contractor is responsible to pump out wet areas required to complete this work, up to 6" of water.
- 4) The Contractor will furnish his own electrical power when HFH is unable to do so
- 5) During months when heat is necessary prior to being ready for permanent furnace installation, the Contractor will install and maintain temporary forced air furnaces supplied by HFH for heating each home during construction.

## **WORK NOT INCLUDED**

- 1) Plumbing contractor to install hard pipe gas connections at trim
- 2) Electrical contractor to install conduit for living space thermostat wire, and install AC disconnect and furnace service switch.
- 3) HFH will supply and install floor/wall/ceiling registers and return grilles in the living area of the house

## **SAFETY**

- 1) The Contractor shall be responsible to be informed of the latest OSHA safety requirements. The Contractor shall conform to all applicable OSHA safety requirements throughout the performance of this contract
- 2) Floor register openings are to be protected immediately upon cutting out opening

## **CODES**

- 1) All work is to be done in accordance with the latest applicable rules and regulations of state and local codes. This includes any additional codes and/or ordinances that have jurisdiction over the work
- 2) Lake County has jurisdiction and has adopted the 2021 International Residential Code (IRC) with amendments
- 3) Habitat for Humanity standard is to build to the most recent code (2021 IRC) when it doesn't conflict with jurisdiction ordinances
- 4) Contractor shall be licensed, if required, in Lake County and pay any fees associated with licensing
- 5) All work performed under this contract shall be in strict accordance with the reference plans, F.H.A., V.A., S.B.O.C., I.R.C., I.M.C., N.E.C. (NFPA-70), Illinois State Plumbing codes, ASHRAE 62.2 Manual J, and all local codes or ordinances, as well as the specifications herein

## **WORKMANSHIP**

HFH intends to build the home to meet EPA Energy Star program standards or better which reduces air infiltration through non-mechanical means. The Contractor must design the HVAC system to adequately heat and ventilate the home under these conditions. **Energy Star credentialed contractors will be given preference**

- 1) All work is to be done by trained, experienced individuals. Workmanship shall be done in a manner requiring a minimum of repairs and patching after installation. Notching, drilling and cutting of framing members shall be done so as not to compromise the structural integrity of the house. Compromising framing lumber as not permitted by building codes shall be corrected at Contractor's expense
- 2) Responsibility lies with the Contractor to furnish and/or install the proper material(s) and to complete their work for the Project per the Contract and Architectural and Engineering Plans (where applicable). HVAC drawings, which are made a part of this Contract, are to be prepared by the Contractor

## **MATERIALS SCHEDULE**

The Contractor shall break out and supply unit pricing for all materials used in project

- 1) Basic main lines, return air ducts, supply ducts, registers, grilles, material and mechanical equipment shall be the same manufacturer
- 2) All material supply shall be of sufficient size and gauge as to prevent oil canning
- 3) Sheet metal, ductwork, gauges, joints, etc., shall meet requirements as stated in latest editions of Heating, Ventilation and Air Conditioning Guide
- 4) Flexible ducts shall be Owens-Corning Fiberglass and in no case shall flexible ducts leading to a return exceed 5 feet in length in sections or in one continuous length. All joints and material shall be protected to prevent condensation. There will be no overlap or doubling of return flanges
- 5) Supply ducts terminating under cabinetry shall be sized 2"x12" and hoods provided for connection from floor penetration to cabinet toe kick
- 6) Dryer vents and single speed bath exhausts shall be 4" in diameter
- 7) Bathroom exhausts connected to continuous ventilation fans shall be 6' in diameter
- 8) Dryer and exhaust vents in non-heated areas shall be insulated R8 duct. Vent duct sections are to be sealed using brush-on duct sealer (screws are not allowed)
- 9) Wall caps and roof jack caps are to be supplied and installed by the Contractor including cutting all holes for ducts. These caps are to be the type that does not allow birds to enter. Tack in place over opening, final installation by Owner
- 10) The Contractor shall provide all strapping as required by code at exterior and/or load bearing walls
- 11) AC shall be at least 16 SEER
- 12) ERV shall be Panasonic Intelli-balance 100 or equivalent. Must be Energy Star Certified, documentation required
- 13) FURNACE
  - a) Furnace is to be self-contained, quiet operating, 95-98% efficient, and U.L. and Energy Star approved. Furnace shall be factory equipped with limit controls meeting A.G.A. requirements. Furnace shall be counter flow or up flow gas-fired cooling-heating relays. The Contractor shall install a filter in the furnace and provide one additional filter
  - b) All heating systems shall be designated, sized, and installed by the Contractor to maintain a +70 degree interior temperature when exterior temperatures are -10 degrees with a 15 MPH wind
  - c) Furnace is to be placed in the area as specified by the plan
  - d) Furnace is to have combustion air supplies as required by code
  - e) Furnace is to be installed to meet clearance required by code and for servicing procedures

- f) Furnace is to be installed, lighted, and operated as directed by HFH. After move-in, the Contractor shall install a clean filter and balance the system

## **INSTALLATION**

- 1) Habitat for Humanity Accessibility Standards for new construction:
  - a) Thermostat to be located centered no more than 48" from floor
  - b) Furnace filter housing needs to be in an accessible location
- 2) The Contractor shall coordinate all exterior penetrations with HFH and the plumbing contractor prior to starting work
- 3) The Contractor shall cut openings for this work. The Contractor shall be responsible for the locations and alignment of all registers. All plywood sub-floor duct openings shall be squared to wall and metal duct shall be nailed securely at all four sides. Repair of all incorrect cuts shall be completed with solid blocking with screws, no sheet metal
- 4) All square or rectangular duct sections shall be secured and tightly fitted with metal splines and sealed using brush-on sealant. Cloth duct tape is prohibited for any duct seals
- 5) Round or oval duct sections shall be secured with screws and brush-on duct sealer
- 6) All supply and return branch line connections are to be sealed using brush-on duct sealant. All seams will be faced to be visibly inspected
- 7) All suspended ductwork shall be supported by securely fastened metal hangers or metal blocking. Supply ducts should be securely supported at 48" on center maximum by metal hangers, straps, lugs, or brackets. Use of wires for means of support is not allowed. Trunk line metal hangers are to be adequately screwed to the floor joists
- 8) Nailing through ductwork into the building framing is not acceptable
- 9) All flues are to be strapped and secured properly, leaving a minimum of 2" clearance next to combustible material. All enclosed flues are to be run vertically
- 10) In the event ductwork renders a wall inaccessible by HFH to install insulation, it shall be the responsibility of the Contractor to properly insulate those areas
- 11) Any insulation removed or damaged by the Contractor shall be replaced
- 12) Ducts for exhaust fans terminating in the attic space shall vent out the nearest gable side of the house not facing the front of the property
- 13) Bath and dryer exhaust vents are to be continuously connected to a cap with a back-draft damper. All vent exhaust piping shall be trapped to prevent condensation backup. All such venting shall be of galvanized iron of a gauge and size to conform to A.S.M.E. standards and applicable codes. All vent stacks which penetrate the roof shall be equipped with watertight flashing and roof jacks, and shall NOT penetrate the roof at the front of the house. When possible HFH will supply exterior dryer & bath vents that matches the exterior siding
- 14) Ducts for range hoods will be coordinated with HFH to run from range location to the back of the house

- 15) Each room, except kitchens and bathrooms, shall have an individual return. Each return shall be sized for that room
- 16) All returns are to be left untied to the furnace until the time of trim installation where applicable or as directed by Owner
- 17) All supply ducts outside the climate-controlled envelope are required to be insulated at R8 or better. All return ducts are required to be insulated at R8 or better
- 18) All main trunk lines and accessible branch duct lines must have volume control dampers. All damper controls shall be labeled as to their locations. Each take-off, register box, register boot or rider boot shall be a tapered fitting (no dovetailing will be accepted). Any damaged, bent or collapsed duct work will not be permitted
- 19) Contractor will install 5-wire thermostat control wire. HFH will supply a temporary programable thermostat for temporary furnace operation during construction, and a Nest-E thermostat for furnace control at trim
- 20) The location of the thermostat shall be marked by the HVAC contractor for installation by HFH but should never be in the same bay as the heat supply or flue
- 21) Contractor to include startup of system and necessary adjustments. To meet Energy Star requirements and standards, the ducts will be prepared by Contractor and tested via a "Duct Blast Test" by HFH to verify all ducts are tightly sealed at the time of rough inspection. Failure of the Duct Blast Test to comply with Energy Star requirements will require Contractor to repair all leaks and pay for any repeat testing until the system passes
  - a) Duct leakage test requirements at Rough-in: less than or equal to 4 CFM25 per 100sqft of Conditional Floor Area. All duct boots sealed to finished surface.
- 22) In the case of required products and/or materials on back-order and unavailable for scheduled delivery and installation, the Contractor will perform his duties as though there were no shortages and will go back to complete these unfinished operations within twenty-four (24) hours of receipt of the back-ordered items at no additional cost to Owner

## **SUPERVISION**

- 1) The Contractor is responsible for his employees, sub-contractors and suppliers for disturbing any surveyor's stakes or any in-ground structures (i.e., manholes, buffalo boxes, street curbs, septic cover, well head, etc.).
- 2) The Contractor is to provide supervision for his work. The supervisor is to inspect the job to see if all conditions are acceptable prior to commencing his work

## **WARRANTY**

- 1) The Contractor shall warranty against any defects in materials, Workmanship and performance for a period of one year from date of occupancy
- 2) All supplied equipment shall have a manufacturer's limited (5) year warranty. Copies of all manufacturers' warranties on products supplied shall be submitted prior to starting work

## **CLEANUP**

- 1) The Contractor shall do all work in a neat and workmanlike manner, removing from the premises all rubbish and debris resulting from the operation under this contract and leave the site broom clean
- 2) The premises are to be swept daily, including stud/dead spaces
- 3) Excess materials are to be removed a maximum of 48 hours after the scheduled completion of the work

**CONTRACTOR INSURANCE REQUIREMENTS:**

- 1) Prior to commencement of work, The Contractor will show and maintain in effect during its performance of the Work the following policies of insurance:
  - b) Workers Compensation insurance as required by law
  - c) Contractor's commercial general liability policy shall name HFH as additional insureds

**PAYMENT SCHEDULE**

- 2) Invoices shall be addressed to:

Habitat for Humanity of McHenry County  
907 Front St  
McHenry IL 60050

- 3) HFH will consider deposits not to exceed 50% of the total contract if requested in bid
- 4) Contractor shall invoice HFH within 2 weeks upon completion of each phase of work. If work takes longer than 30 days, Contractor shall submit monthly invoices for work performed
- 5) Standard HFH payment terms are net-30 from date of invoice. If other payment terms are required they must be identified in the bid. Payment will not be processed unless all work invoiced is completed