SECTION 00 0101
PROJECT TITLE PAGE

MASTER SPECIFICATION
1022 MINNEHAHA AVE. St. Paul 55104
5/25/2015

OWNER/ DEVELOPER
Greater Frogtown Community Development Corporation
35 Water Street West, Saint Paul, MN 55107

Project Manager
Becky Errigo
651-348-5086
berrigo@nwhomepartners.org

SECTION 00 0110

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SECTION 00 4002

BID INVITATION

PART 1 GENERAL

1.01 CONTACT TRANSLATION

A. In Hmong - Ceeb toom. Yog koj xav tau kev pab txhais cov xov no rau koj dawb, Amy Filice 651-266-6568;

B. In Spanish - Atención. Si desea recibir asistencia gratuita para traducer esta información, llame a Amy Filice 651-266-6568;

C. In Somali - Ogow. Haddii aad dooneyso in lagaa kaalmeeyo tarjamadda macluumaadkani oo lacag la' aan wac, Amy Filice 651-266-6568.

1.02 PROJECT SUMMARY

A. Project description: This is a Residential Renovation project located at 1022 Minnehaha Ave. W. St. Paul, MN 55104 (5/22/2015). This project is not required to conform to Federal and/or Little Davis Bacon requirements.

1.03 NOTICE TO PROSPECTIVE BIDDERS

A. These documents constitute an invitation to bid to General Contractors for the construction of the project described within this bid manual.

1.04 OWNERSHIP INFORMATION

A. The Owner & Owner's Project Manager:

Greater Frogtown Community Development Coroproation
Address: 35 Water Street W, Saint Paul, MN 55107
Phone Number: (651) 292-8710 (main office)
Project Manager: Becky Errigo
651-348-5086
berrigo@nwhomeparnters.org

1.06 IMPORTANT BID DATES

A. Bids Issued: Insert Bid Date

B. Mandatory Pre-Bid Site Tour: Insert mm/dd/yyyy from Insert 0:00 am to 0:00 pm

C. **BID DUE DATE ON OR BEFORE: Insert mm/dd/yyyy no later than Insert time 4:00 PM local time.**

D. Bid Delivery Location:

The offices of NeighborWorks Home Partners (Greater Frogtown Community Development Corporation) Address: 35 Water Street W. Saint Paul, MN 55107

E. Public Bid Opening and Location:

The offices of NeighborWorks Home Partners (Greater Frogtown Community Development Corporation) Address: 35 Water Street W. Saint Paul, MN 55107

F. Executed Contract: Within 30 days of the bid award.

G. Construction Start Date (Approximate): ASAP after contract execution

H. Construction Completion Date: 150 days from the time of issued Notice to Proceed.

1.07 RIGHTS RESERVED BY THE OWNER

A. The owner reserves the right to:

1. Reject all bids received in response to this Bid Invitation, and the Owner's discretion, issue a new Bid Invitation.
2. Amend any portion of this Bid Invitation and disseminate such amendments to potential bidders in the same manner as the original Bid Invitation (eg newspaper, online posting). Bidders will be responsible for meeting the requirements of all amendments.

3. Waive any minor irregularities in bids received.
4. Disapprove any subcontractor proposed to be used by a bidder based on the subcontractor not being a responsible subcontractor and/or being on a debarment list.
5. Select more than one bidder to perform various elements of the Project.

END OF BID INVITATION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL $_____

1.01 SUBMITTALS

A. Lead Project Plan, see Section 02 8313

B. Lead Test Reports, see Section 02 8313

1.02 RELATED SECTIONS

A. 02 8200 - Asbestos Remediation

B. 02 8313 - Lead Hazard Control Activities

1.03 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.

PART 3 EXECUTION

2.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Provide, erect, and maintain temporary barriers and security devices.

B. If hazardous materials are discovered during removal operations, stop work and notify Construction Manager and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

C. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Inform Project Manager of potential strategies to reuse construction material.
      a. Only move forward with reusing of construction materials with Project Manager's consent.

2.02 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

2.03 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.

B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

C. Remove existing work as indicated and as required to accomplish new work according to Specifications and Drawings.

D. Services (Including but not limited to Site, Building Interior, Building Exterior, HVAC, Plumbing, and Electrical): Remove existing systems and equipment as indicated.

E. Interior Demolition as needed to complete the work outlined in the drawings, to include but not limited to:
   1. Basement/Mechanical
      a. Remove all non-structural framing material, paneling, etc. (basement to be left open)
      b. Basement shower: plumbing to be capped and left as rough-in
      c. Any remaining heating system components
      d. Thermostat

e. Water heater
f. All water and waste piping
g. All unnecessary hooks, nails, brackets, wire, etc from ceiling (floor joists

2. Kitchen
   a. Kitchen Windows (west and north walls) - (front windows are to be replaced with 2 double hung windows, west side windows are to be framed in and finished
3. Bathroom First Floor
   a. Vanity and sink (medicine cabinet will be reused)
   b. Toilet
   c. Items to be reused in the bathroom: medicine cabinet, tub, tile flooring- <u>cover floor to protect.</u>
6. Throughout
   a. Trim Base, Shoe, Casing, and Crown
   b. Unnecessary hooks, nails, brackets, etc from walls.
   c. All non-code compliant issues, including but not exclusively electrical and plumbing.
   d. Lighting Fixtures All.
   e. Switch plate and receptacle covers All.
   f. Chimney
   g. All Walls and ceilings: plaster and lath, drywall, paneling, ceiling tile
   h. Hardwood flooring on entire first floor- due to pet urine and smell
   i. Exterior doors and storms (to be replaced)
   j. See floor plan changes and demo walls as needed
      Notes:
      1. Currently there are 2 supports in the living room area. Prior to demo, ensure that the 2nd floor is properly supported
      2. The main support wall between the kitchen/ hall and living/dining will be removed. Properly sized header will need to be installed. Do not remove wall until area is property supported.

F. Exterior Demolition to Include:
   1. Exterior Building and Garage
      a. Garage passage door
      b. Metal awning at back elevation over window (awnings at both side doors are to remain on the house.
   2. Site Demolition:
      a. Chain link fence: Location/s:
      b. Sidewalks: Location/s:
      c. Tree(s)- stumps throughout the front and back yard to be ground down to allow for even sodding.
      d. Vegetation trimming- trim all trees, shrubs, bushes, paying attention to the west lot line

G. Protect existing work to remain.

2.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

END OF SECTION

SECTION 02 8200

ASBESTOS REMEDIATION

PART 1 GENERAL $_____

1.01 CONTRACTOR RESPONSIBILITIES

A. Provide all labor, equipment, material supervision and subcontracting for the removal and disposal of all Asbestos-Containing Material (ACM) as specified in the attached Asbestos Test.

B. When work areas include both friable and nonfriable types of ACM, Contractor's shall prepare work area using procedures for friable asbestos removal.

1.02 SUBMITTALS

A. Proof that the Contractor is qualified to perform Asbestos Remediation in the State of Minnesota.

B. Test Reports: Indicate Complete Remediation of Project.

PART 3 EXECUTION

2.01 LOCATIONS

A. Review the Asbestos report, included in this Manual, for locations.

B. Asbestos has been identified at the following locations:

END OF SECTION

SECTION 02 8313

LEAD HAZARD CONTROL ACTIVITIES

PART 1 GENERAL $_____

1.01 GENERAL INFORMATION

A. Projects funded in whole or in part with federal funds must comply with the "Regulation on Lead-Based Paint Hazards in Federally Owned Housing and Housing Receiving Federal Assistance." As a component of Title X, Sections 1012 and 1013, rehabilitation projects receiving more than $25,000 of federal funds must abate all lead.

B. Properties built after 1/1/78 and properties needing emergency rehab assistance are exempt from Lead-Based Paint Regulations.

1.02 PRICE AND PAYMENT PROCEDURES

A. Provide a price for the appropriate methods of abatement required by this scope of work.

1.03 SUBMITTALS

A. Project Plan: The General Contractor must prepare a written project plan and communicate it to the Construction Manager, Project Manager, and MN Department of Health. It shall include:
   1. Start-up date and how long the project is expected to last.
   2. Areas to be abated and precautions to take.
   3. A warning to pay attention to the caution signs that are posted by the General Contractor around the project site.
   4. Location of areas that may be restricted.

B. Test Reports: Indicate Lead Based Paint Clearance.
   1. Submitted at final draw

1.04 QUALITY ASSURANCE

A. Licensed Lead Abatement Supervisor: Only General or Subcontractors who are State licensed to conduct lead hazard reduction work are allowed to bid on projects involving lead hazard reduction work. See Minnesota Statutes 144.9501-144.9512 and Minnesota Rules 4761.2000-4761.2700 for applicable safety precautions, disposal regulations, and other compliance regulations that apply to abatement activities.

B. Per MN Statute, Contractors must provide a 5 day notification to the Minnesota Department of Health prior to beginning lead abatement activities. During lead abatement, a MN Licensed Lead Abatement Supervisor must be on site and workers conducting lead abatement must be MN Licensed Lead Abatement Workers. See the MDH website for additional information:

C. http://www.health.state.mn.us/divs/eh/lead/prof/notification.html

PART 3 EXECUTION

2.01 ABATEMENT

A. When the Risk Assessment process determines that a Project contains a lead-based paint hazard, the General Contractor shall comply with the abatement measures defined by HUD in 24 CFR Part 35 Subpart A through R 35.1325

http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/enforcement/lshr

and by the EPA in 40 CFR 745.227(e).

http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-sec745-227.pdf

and lead hazard reduction methods defined in Minnesota Statutes 144.9501-144.9512 and Minnesota Rules 4761.2000-4761.2700

http://www.health.state.mn.us/divs/eh/lead/rule.html

B. DEFINITIONS
   1. Component Replacement: The removal of building components that contain lead-based paint. It is most appropriate for items such as doors, windows, trim, and cabinets.
   2. Paint Removal: The separation of paint from the substrate using safe heat, chemical, or abrasive methods. It may be done on- or off-site. Abrasive methods can create a great deal of dust, are the most hazardous, and require the greatest care and most thorough clean-up.
   3. Enclosure: The installation of a barrier (such as gypsum board or paneling) that is mechanically attached to the building component, with all edges and seams sealed to prevent escape of lead-based paint dust. It is most appropriate for large surfaces, such as walls, ceilings, floors, and exteriors.
   4. Encapsulation: The application of a liquid or adhesive material that covers the component and forms a barrier that makes the lead-based paint surface inaccessible by relying upon adhesion. It may be appropriate for many kinds of smooth surfaces but it cannot be used effectively on friction surfaces, surfaces in poor condition, or surfaces that may become wet. It also must be compatible with existing paint.
   5. Soil Removal: The removal of at least the top six inches of topsoil is adequate for most projects. In areas with heavy contamination, up to two feet may have to be removed, and must be disposed of using proper waste management techniques that comply with local requirements. The maximum lead concentration in replacement soil shall not exceed 200 ug/g. Sod or seeding of new soil should occur.
   6. Soil Cultivation: The mixing of low lead soil with high lead soil is an appropriate method if the average lead concentration of the soil to be abated is below 1,500 ug/g. Thorough mixing is required, and pilot testing of various techniques may be needed to ensure that thorough mixing does occur.
   7. Paving: The covering of highly contaminated soil with high quality concrete or asphalt. Paving is common in high traffic areas but not appropriate in play areas. The need for uncontaminated replacement soil is eliminated as is waste disposal costs. Paving often turns out to be the most economical recourse, despite its aesthetic disadvantages.

2.02 LEAD-BASED PAINT HAZARD CLEARANCE TESTING

A. Where lead-based paint hazard control or reduction work has been performed by the General Contractor, the General Contractor will contact a certified third party Clearance Technician for clearance testing.

B. The Clearance Technician will conduct a visual assessment of completed work, take dust samples, have dust samples analyzed, and prepare a Clearance Report.

C. If sample results fail, Minnesota rules 4761.2670 subpart 2 and subpart 3 must be repeated. If test results of samples fail to meet clearance standards, surfaces must be retreated or re-cleaned at no additional cost to the Owner until clearance standard is met.

D. When the Clearance Report indicates that clearance standards have been met, and all other requirements of this section have been met, the Construction Manager and Owner will approve the final pay application.

2.03 LOCATIONS

A. Review Lead Report, attached in this Manual. Contractor is responsible for ensuring treatments meet abatement requirements as defined in federal and state statute.

END OF SECTION

SECTION 02 8500
RADON MITIGATION

PART 1 GENERAL $\$$_____

1.01 QUALITY ASSURANCE

A. Contractors: Must be Certified to perform this work and listed by the Minnesota Department of Health.
   1. http://www.health.state.mn.us/divs/eh/indoorair/radon/mitigation.html

B. Verification Testing: Provide testing indicating that mitigation efforts have been successfully implemented.

1.02 SUBMITTALS

A. Radon Mitigation Verification Submittal: Provide test results, including test number, indicating the elimination of radon levels.

1.03 WARRANTY

A. Product should be warranted to reduce indoor radon concentrations to below 4 pCi/L for 5 years.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Active Mitigation System:
   1. Provide a sub-slab or sub membrane depressurization system with an in-line fan.
   2. Fan powered soil depressurization systems shall meet all of the following requirements:
      a. above the eave of the roof
      b. ten feet or more above ground level
      c. ten feet or more from any window, door, or other opening into conditioned spaces of the structure that is less than two feet below the exhaust point
      d. ten or more from any opening into an adjacent building.

2.02 MATERIALS

A. All mitigation system electrical components shall be U.L. listed or of equivalent specifications.

B. All plastic vent pipes in mitigation systems shall be made of Schedule 40 PVC, ABS or equivalent piping material.

C. Vent pipe fittings shall be of the same material as the vent pipes.

D. Sump pit covers shall be made of durable plastic or other rigid material and designed to permit air tight sealing to permit easy removal for sump pump servicing. The cover shall be sealed using silicone or other non-permanent type caulking materials or air tight gasket.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with suggested best practices created by the Minnesota Department of Health, Indoor Air Quality Unit..

B. When installing radon mitigation systems that use sump pits as the suction point for active soil depressurization it is required that submersible sump pumps be installed.

C. All pipe routing shall be located within the structure. If this is absolutely not possible, contact HRA Project manager. In cases where the contractor is unable to determine a run for piping, system shall be installed on the rear elevation, with approval from Project Manager.

D. All joints and connections in radon mitigation systems using plastic vent pipes shall be permanently sealed with adhesives as specified by the manufacturer of the pipe material used.

E. Attic and external piping runs in areas subject to sub-freezing conditions should be protected to avoid the risk of vent pipe freeze-up.

F. Vent pipes shall be fastened to the structure of the building with hangers strapping or other supports that will adequately secure the vent material. Existing plumbing pipes, ducts, or mechanical equipment shall not be used to support or secure a radon vent pipe.
   1. Horizontal Supports: shall be installed at least every 6 feet.
   2. Vertical Supports: shall be installed at least every 8 feet.

G. Radon mitigation fans shall be wired to its own electrical circuit and conform with all codes.

H. All active soil depressurization radon mitigation systems shall include a mechanism to monitor system performance and warn of system failure.

Project Specific:

1. All piping is to be located inside the house until vented out the roof. Location of piping to be verify with GFCDC project manager prior to installation
2. A post-installation Radon test is to be performed and results provided to owner.

END OF SECTION

SECTION 03 0100
MAINTENANCE OF CONCRETE

PART 1 GENERAL $\$$_____

1.01 SECTION INCLUDES

A. Cleaning of existing concrete surfaces.

B. Repair of exposed structural, shrinkage, and settlement cracks.

C. Resurfacing of concrete surfaces having spalled areas and other damage.

D. Repair of deteriorated concrete.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

A. Detergent: Non-ionic detergent.

2.02 CEMENTITIOUS PATCHING AND REPAIR MATERIALS

A. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar; in-place material capable of withstanding freeze/thaw conditions.

B. Cementitious Hydraulic Waterstop: Very fast setting, low slump, hand formable, and capable of stopping active water leaks; in-place material capable of withstanding freeze/thaw conditions.

PART 3 EXECUTION

3.01 CLEANING EXISTING CONCRETE

A. Clean concrete surfaces of dirt or other contamination using the gentlest method that is effective.
   1. Try the gentlest method first, then, if not clean enough, use a less gentle method taking care to watch for impending damage.
   2. Clean out cracks and voids using same methods.

B. The following are acceptable cleaning methods, in order from gentlest to less gentle:
   1. Water washing using low-pressure, maximum of 100 psi, and, if necessary, brushes with natural or synthetic bristles.
   2. Increasing the water washing pressure to maximum of 400 psi.
   3. Adding detergent to washing water; with final water rinse to remove residual detergent.
   4. Steam-generated low-pressure hot-water washing.

3.02 CONCRETE SURFACE REPAIR USING CEMENTITIOUS MATERIALS

A. Clean concrete surfaces, cracks, and joints of dirt, laitance, corrosion, and other contamination using method(s) specified above and allow to dry.

B. Apply coating of bonding agent to entire concrete surface to be repaired.

C. Apply repair mortar by steel trowel to a minimum thickness of 1/4 inch (6 mm) over entire surface, terminating at a vertical change in plane on all sides.

D. Trowel finish to match adjacent concrete surfaces.

3.03 LOCATIONS

A. Ensure basement floor is even, cleanable and any holes are filled.

END OF SECTION

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL $_____

1.01 LOCATIONS

A. Provide concrete walks and steps as shown on landscape plan.

1.02 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete reinforcement.

D. Joint devices associated with concrete work.

E. Concrete curing.

1.03 RELATED REQUIREMENTS

A. Section 32 1313 - Concrete Paving: Sidewalks, curbs and gutters.

1.04 REFERENCE STANDARDS

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International ; 2010.

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International ; 1991 (Reapproved 2002).

C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International ; 2010.

D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International ; 2004 (Errata 2007).

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International ; 2000.

F. ACI 305R - Hot Weather Concreting; American Concrete Institute International ; 2010.

G. ACI 306R - Cold Weather Concreting; American Concrete Institute International ; 2010.

H. ACI 308R - Guide to Curing Concrete; American Concrete Institute International ; 2001 (Reapproved 2008).

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International ; 2008.

J. ACI 347 - Guide to Formwork for Concrete; American Concrete Institute International ; 2004.

K. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete ; 2007.

L. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement ; 2009b.

M. ASTM C33 - Standard Specification for Concrete Aggregates ; 2011.

N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete ; 2011.

O. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens) ; 2008.

P. ASTM C150 - Standard Specification for Portland Cement ; 2011.

Q. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method ; 2010b.

R. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete ; 2010a.

S. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete ; 2010a.

T. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete ; 2008a.

U. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing ; 2010.

V. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete ; 1999 (Reapproved 2008).

W. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink) ; 2011.

X. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) ; 2004 (Reapproved 2008).

Y. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs ; 2009.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Formwork Design and Construction: Comply with guidelines of ACI 347 to provide formwork that will produce concrete complying with tolerances of ACI 117.

B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.

C. Footings
   1. 10" thick x 20" wide, continuous.
      a. Detatched garage frost footing.
      b. Step frost footings at top and bottom of steps.
   2. 12" dia. x 5'-0" deep piers.
      a. Porch footings.
   3. 8" dia. x 5'-0" deep piers at fence and handrails.
   4. 10" thick x 36" wide, continuous.
      a. At earth retaining walls.

D. Walls
   1. Earth retaining walls
      a. 8" thick x 5'-0" deep to frost depth.
         1) Offset on footing 8" from the step side.
         2) Above grade height to match existing CMU wall height.
         3) Provide 3/4" champfered top edges.
      b. Frost walls at top and bottom tread of steps.
         1) 8" thick x 5'-0" deep to frost depth.

E. Steps
   1. 6" risers and 12" treads. Provide number of treads and risers required to comform to existng grades.
   2. Provide 6" minimum slab thickness, perpenducular to the slope, from bottom of riser to underside of slab.
   3. Provide 8" thick stringer from transition of earth retaining wall to top of steps, both sides.
      a. Structurally integrate with earth retaining wall and steps.
      b. Provide 3/4" champfered top edges, flush with each nosing edge.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
   1. Footings
      a. Two #5 bar, continuous at garage footings.
      b. Three #5 bar, continous at earth retaining wall footings.
   2. Steps
      a. One #3 bar at concrete stair nosings.
      b. #4 bar @ 12" each way at concrete stair slab.
      c. Stringers: Provide continuous #4 bar from slab reinforcing, 12" on center. Tie into 2 #4 bar at top corners of stringer.
   3. Walls
      a. Earth retaining walls
         1) Provide #5 bar @ 18" each way centered in width of wall.
         2) Tie into footing reinforcment with #5 hooked dowels, 18" x 24".
   4. Type: Deformed billet-steel bars.

B. Steel Welded Wire Reinforcement: ASTM A185/A185M, plain type.
   1. Slab-on-grade
      a. Form: Coiled Rolls.
      b. Mesh Size: 6 x 6 (150 x 150).
      c. Wire Gage: W 4 x W 4 (MW 25 x MW 25).
      d. Contractor option to use fiber reinforcement in lieu of welded wire at garage slabs.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage (1.5 mm).
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I - Normal Portland type.
   1. Acquire all cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C33.
   1. Acquire all aggregates for entire project from same source.

C. Fly Ash: ASTM C618, Class C.

D. Water: Clean and not detrimental to concrete.

E. Fiber Reinforcement: Alkali-resistant polypropylene complying with ASTM C1116/C1116M.
   1. Fiber Length: 0.75 inch (19 mm), nominal.

2.04 CHEMICAL ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260.

C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.

D. Water Reducing Admixture: ASTM C494/C494M Type A.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
   1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.
   2. Products:

a. Stego Industries, LLC ; Stego Wrap Vapor Barrier 15-mil (Class A): www.stegoindustries.com.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. ASTM C1107/C1107M; Grade A, B, or C.
   2. Minimum Compressive Strength at 48 Hours: 2,400 psi (17 MPa).
   3. Minimum Compressive Strength at 28 Days: 7,000 psi (48 MPa).

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059 Type II.

B. Slab Isolation Joint Filler: 1/2 inch (13 mm) thick, height equal to slab thickness, with removable top section that will form 1/2 inch (13 mm) deep sealant pocket after removal.
   1. Material: ASTM D1751, cellulose fiber.

2.07 CURING MATERIALS

A. Moisture-Retaining Sheet: ASTM C171.
   1. Curing paper, regular.
   2. Polyethylene film, clear, minimum nominal thickness of 0.0040 in. (0.10 mm).
   3. White-burlap-polyethylene sheet, weighing not less than 10 oz/per linear yd, 40 inches wide (305 grams per sq. meter).

2.08 CONCRETE MIX DESIGN

A. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

B. Fiber Reinforcement: Add to mix at rate of 3.0 pounds per cubic yard (____ kg per cubic meter), or as recommended by manufacturer for specific project conditions.

C. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 psi (27.6 MPa).
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight, typical.
      a. 20 percent at slabs on grade.
      b. 25 percent at footings.
   3. Water-Cement Ratio: Maximum 50 percent by weight.
   4. Total Air Content: 1.5 percent, determined in accordance with ASTM C173/C173M.
   5. Maximum Slump: 4 inches (100 mm).
   6. Maximum Aggregate Size: 3/4 inch (19 mm), typical.
      a. 1.5 inch at footings.

2.09 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
   1. Fiber Reinforcement: Batch and mix as recommended by manufacturer for specific project conditions.

B. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

1. Use latex bonding agent only for non-load-bearing applications.

C. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

D. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches (150 mm). Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
   1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Notify Construction Manager not less than 24 hours prior to commencement of placement operations.

D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Anchor joint fillers and devices to prevent movement during concrete placement.

B. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

C. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch (5 mm) thick blade and cut at least 1 inch (25 mm) deep but not less than one quarter (1/4) the depth of the slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Maximum Variation of Surface Flatness:
   1. Exposed Concrete Floors: 1/4 Inch (6 mm) in 10 ft (3 m).

B. Correct the slab surface if tolerances are less than specified.

C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. "Wood float" as described in ACI 302.1R; Garage Foor/Apron.
   2. "Steel trowel" as described in ACI 301.1R; Basement Floor.
   3. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.

3.09 DEFECTIVE CONCRETE

A. Repair or replacement of defective concrete will be determined by the Construction Manager.

B. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Construction Manager for each individual area.

LOCATION:

A. Install concrete stoop at west side door (see site plan)

END OF SECTION

SECTION 04 0100
MAINTENANCE OF MASONRY

PART 1 GENERAL $_____

1.01 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

PART 3 EXECUTION

2.01 REBUILDING

A. Cut out damaged and deteriorated masonry with care in a manner to prevent damage to any adjacent remaining materials.

2.02 REPOINTING

A. Cut out loose or disintegrated mortar in joints to minimum 1/2 inch (6 mm) depth or until sound mortar is reached.

B. Premoisten joint and apply mortar. Pack tightly in maximum 1/4 inch (6 mm) layers. Form a smooth, compact concave joint to match existing.

2.03 CLEANING NEW MASONRY

A. Verify mortar is fully set and cured.

B. Clean surfaces and remove large particles with wood scrapers, brass or nylon wire brushes.

2.04 LOCATIONS

A. Interior and exterior of foundation walls

B. Repair exterior holes/cracks at corners of house, specifically at Southeast corner, Southwest corner, and Northeast corners. Match existing texture and color as close as possible.

C. Remove Basement window located at west side exterior door stoop. Fill in opening with concrete block/s and mortar in place.

END OF SECTION

SECTION 04 2300
GLASS UNIT MASONRY

PART 1 GENERAL $\$$_____

1.01 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 GLASS UNITS

A. Hollow Glass Units: Permanently seal hollow unit by heat fusing joint; with joint key to assist mortar bond.

B. Provide vent

2.02 MORTAR MIXING

A. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect glass units and accessories in accordance with manufacturer's instructions.

3.02 LOCATIONS

A. Main floor bathroom. Use existing window opening which has been boarded over on the interior. Frame in opening so opening is approximately 30" wide by 20" high (top to be at existing window header)

END OF SECTION

SECTION 05 7300
DECORATIVE METAL RAILINGS

PART 1 GENERAL $_____

PART 2 PRODUCTS

2.01 RAILING SYSTEMS

A. Railings - General: Factory- or shop-fabricated in design indicated, to suit specific project conditions, and for proper connection to building structure, and in largest practical sizes for delivery to site.
   1. Design Criteria: Design and fabricate railings and anchorages to resist the following loads without failure, damage, or permanent set; loads do not need to be applied simultaneously.
      a. Lateral Force: 75 lb (333 N) minimum, at any point, when tested in accordance with ASTM E935.
      b. Distributed Load: 50 pounds per foot (0.73 kN per m) minimum, applied in any direction at the top of the handrail, when tested in accordance with ASTM E935.
      c. Concentrated Loads on Intermediate Rails: 50 pounds per square ft (0.22 per sq m), minimum.
      d. Concentrated Load: 200 pounds (888 N) minimum, applied in any direction at any point along the handrail system, when tested in accordance with ASTM E935.
   2. Assembly: Join lengths, seal open ends, and conceal exposed mounting bolts and nuts using slip-on non-weld mechanical fittings, flanges, escutcheons, and wall brackets.
   3. Joints: Tightly fitted and secured, machined smooth with hairline seams.
   4. Field Connections: Provide sleeves to accommodate site assembly and installation.
   5. Welded and Brazed Joints: Make exposed joints butt tight, flush, and hairline; use methods that avoid discoloration and damage of finish; grind smooth, polish, and restore to required finish.
      a. Ease exposed edges to small uniform radius.
      b. Welded Joints:
         1) Carbon Steel: Perform welding in accordance with AWS D 1.1/D1.1M.
         2) Stainless Steel: Perform welding in accordance with AWS D 1.6.
      c. Brass/Bronze Brazed Joints:
         1) Perform torch brazing in accordance with AWS C3.4/3.4M.
         2) Perform induction brazing in accordance with AWS C3.5/3.5M.
         3) Perform resistance brazing in accordance with AWS C3.9/3.9M

B. Steel and Iron: At round pipe railings and guardrails: 1-1/2" outside diameter pipe with horizontal rails spaced no more than 5-1/2" o.c.. At Square pipe railing and guardrails: 1-1/2" square posts, 1-1/2 X 1/2 top and bottom rails, 1/2" solid square bar vertical pickets spaced 4" on center maximum. Top rails to be 2'10" above stair nosing and extends 12" at top and bottom of stairs.
   1. Finishes: Prepare raw material by "Brush-Off Blast Cleaning". Rust inhibiting alkyd primer (1 coat and flat black finish (2 coats), applied in ship to all exposed surfaces of metal, even if not normally visible.

PART 3 EXECUTION

3.01 INSTALLATION

A. Comply with manufacturer's drawings and written instructions.

B. Install components plumb and level, accurately fitted, free from distortion or defects and with tight joints, except where necessary for expansion.

C. Anchor posts in concrete by inserting into formed or core-drilled holes and grout space between post and concrete.

D. Anchor handrail ends to concrete and masonry with round flanges connected to rail ends and anchored tow wall construction will drilled in expansion anchors.

E. Anchor securely to structure.

3.02 LOCATIONS

A. West, side entrance stoop

B. Front entrance stoop

3.03 Paint existing railing on East elevation stoop- black to match railings at front and west side doors.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL $_____

1.01 UNIT PRICES

1.02 SUBMITTALS

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
   3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2 by 2 through 2 by 6 (50 by 50 mm through 50 by 150 mm)):
   1. Grade: No. 2.

D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16 (50 by 150 mm through 100 by 400 mm)):

E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel per ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.

B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.
   1. For contact with preservative treated wood in exposed locations, provide minimum G185 (Z550) galvanizing per ASTM A653/A653M.

C. Building Paper: Water-resistant Kraft paper.

2.04 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Install structural members full length without splices unless otherwise specifically detailed.

C. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.

D. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches (38 mm) of bearing at each end.

3.03 INSTALLATION OF CONSTRUCTION PANELS

A. Underlayment: Secure to subflooring with nails and glue.

3.04 LOCATION

A. All framing and framing changes indicated in the drawings- note plan changes. (may also want to note demolition section #02-4100)

B. Install risers, handrails (34"-38" above each nosing) and guardrails (min of 36") on basement stairs.

C. Replace broken, damaged, and/or hazardous stair treads.- note broken tread on stairway to 2nd floor

D. Install appropriately sized header to span area between hallway and front of house to allow for open floor plan between the new kitchen and the living/dining area. See plan.

E. Double ceiling joists over living room, dining room, and kitchen.

F. All openings for new windows and for eliminated windows, see plan.

G. Repair/replace any framing members that do not meet code: that are over-spanned, over-spaced, not being carried properly, door and window openings that are not adequately supported.

H. Garage- walls are bowed out and roof has a saddle in the center. Pull walls in and remove saddle with proper framing and bracing. Repair per applicable code.

I. CALL FOR FRAMING INSPECTION BEFORE INSULATION IS INSTALLED. Jim Seeger at 651-266-9046 – mornings before 9am to schedule time for inspection.

END OF SECTION

SECTION 06 2000
FINISH CARPENTRY

PART 1 GENERAL $_____

1.01 RELATED SECTIONS

A. See Section 09 9000 Painting and Coating, for trim finish and color.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Premium Grade.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

B. Provide sustainably harvested wood, certified or labeled as specified in Section 01 6000.

C. Provide wood harvested within a 500 mile (805 km) radius of the project site.

2.03 LUMBER MATERIALS

A. Softwood Lumber: Pine species (STAIN GRADE), maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.
   1. Baseboard system: #2 1X6 with 3/16 Radius shoulder with finger jointed WM-65fj 11/16" x 1 3/8" base cap molding.
   2. Window Trim: Header, stop, stool, apron and casing using 1"X4", #2 grade pine or better.
      a. Ease all outside edges with 1/16" radius.

2.04 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

2.05 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:

PART 3 EXECUTION

3.01 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Use finish nails of sufficient length to penetrate framing 1".

D. Mitre all lap joints, and break all lap joints over framing.

E. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (1 mm). Do not use additional overlay trim to conceal larger gaps.

3.02 LOCATIONS

A. All new trim throughout (to be stained); trim will be new pine (stain grade) #2 or better.

B. Bottom step (2 risers and 1 tread) and landing to be replaced with (stain grade) oak to match laminate flooing. (remainder of the stairway to be carpet)

END OF SECTION

SECTION 07 2119
FOAMED-IN-PLACE INSULATION

PART 1 GENERAL $_____

PART 2 PRODUCTS

2.01 MATERIALS

A. Foamed-In-Place Insulation: Medium-density, rigid or semi-rigid, closed cell polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas.
   1. Closed Cell Content: At least 90 percent.

2.02 ACCESSORIES

PART 3 EXECUTION

3.01 APPLICATION

A. Apply insulation in accordance with manufacturer's instructions.

3.02 LOCATION

A. Insulate and air seal to rim joist cavities to an r-value of R-11.

B. 2nd floor- foam insulate between rafters and in the gable end wall cavities, with closed cell 2 part spray foam.

END OF SECTION

SECTION 07 2126

BLOWN INSULATION

PART 1 GENERAL $_____

PART 2 PRODUCTS

2.01 MATERIALS

A. Loose Fill Insulation: ASTM C739, cellulose fiber type, nodulated for pour and bulk for pneumatic placement.
   1. R-Value: Attic R-50

B. Dense Pack Insulation: Fill Insulation: ASTM C739, cellulose fiber type, nodulated for pour and bulk for pneumatic placement.
   1. R-Value: 19 if possible
   2. Density: 3.5 Lbs. per Cubic Foot for the entire cavity

C. Ventilation Baffles: Formed plastic.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install insulation and ventilation baffle in accordance with ASTM C1015 and manufacturer's instructions.

B. Drill 2 inch (50 mm) diameter insulation access ports in fascia boards to permit equipment access.

C. Place insulation pneumatically to completely fill stud, joist, and rafter spaces .

D. Pour insulation to completely fill stud, joist, and rafter spaces to a density of 3.5 lbs per cubic foot per cavity.

E. Completely fill intended spaces. Leave no gaps or voids.

F. Carefully seal all drilled holes with wood or foam plugs and patch all holes to match surrounding materials if the surface is exposed.

G. In balloon framed houses insures that blown cellulose is blocked from entering floor cavities such as second floor flooring.

3.02 LOCATIONS

A. ATTIC: Total R-value: R-50 according to NEC requirements.
   1. Dense pack below attic floor and blow above floor to meet R-50 requirement.
   2. Insulate and weatherstrip attic hatch: Access hatch door shall be insulated to R-50 and insulation dam constructed around opening. Opening shall be weather-stripped to provide an air tight seal.

B. WALLS: Where walls are unopened, externally dense pack insulation to R-19 if possible or 3.5 lbs.per cubic foot per cavity.

END OF SECTION

SECTION 07 2700

AIR BARRIER SYSTEM (SEALING OF BYPASSES)

PART 1 GENERAL $_____

1.01 QUALITY ASSURANCE

A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in Minnesota.

PART 2 PRODUCTS

2.01 ADHESIVES AND SEALANTS

A. VOC content not to exceed the following [g/L; less water and less exempt compounds]
   1. Multipurpose construction adhesives: 70 g/L

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide continuous air barriers.
   1. Install continuous interior air barrier around the building
   2. Install continuous external air barrier between all conditioned space and unconditioned space.

B. Compartmentalization of dwelling units:
   1. Walls
      a. Seal exterior wall corners with joint sealant [and/or foam]
      b. Seal vertical walls at all penetrations with joint sealant [and/or foam]
      c. Seal window frame with low expanding foam
      d. Seal bottom plates on exterior walls with a foam gasket [and/or caulk, foam]
   2. Floors
      a. Provide complete seal at joists supporting conditioned space with joint sealant [and/or foam]
   3. Ceilings
      a. Install continuous top and bottom plates, and sheathing to create a six-sided air barrier on all attic knee walls and seal with foam [and/or caulk].
      b. Install blocking at exposed edges of insulation at joists and rafters
      c. Truss framing: Install blocking at the top and bottom of each framing bay.
      d. Seal attic hatches with joint sealant [and/or foam].
      e. Provide sealing around skylight shaft with joint sealant [and/or foam]
      f. Install baffles between all rafters or trusses to direct the flow of air over and above the attic insulation.
      g. Recessed lighting when below unconditioned attic: Install insulation contact, airtight rated (ICAT) and seal to drywall with gasket [and/or caulk, foam]
   4. Garage Isolation Air Barrier (when attached to dwelling unit)
      a. Install continuous air barrier between the conditioned living space and any garage space and seal with foam [and/or caulk].
      b. Seal between all walls separating conditioned and garages spaces with foam [and/or caulk].
      c. All pipe and conduit penetrations shall be sealed with material compatible with the adjacent materials and resilient to temperature fluctuations and providing fire-resistive characteristics of required by authorise having jurisdictions.
      d. Floor trusses: Seal and block floor trusses and joists between conditioned space and garage with foam [and/or caulk].
   5. Bathtub and Shower Enclosures
      a. Use mold-resistant material [plywood, oriented strand board (OSB), sheathing boards, moisture resistant gypsum] behind bathtub or shower enclosures, and extend the mold-resistant material the full length and with of the wall(s) on which the bathtub or shower enclosure abuts. Seal at all joints.

b. Install spray foam at framing behind bathtub or shower enclosure prior to setting tub or shower.

C. Continuity of External Air Barrier
1. Roof
a. Install 4-inch to 6 inch "peal and seal" self-adhering waterproofing strips over joints in roof decking before installing the roof underlayment and cover.
2. Mechanical work
a. Seal holes from penetrations from unconditioned spaces with joint sealant and provide flashing.
b. Seal flue openings with flashing and fire-rated joint sealant
3. Building Envelope
a. Air barrier must be continuous around building, including all components that act together as the exterior air barrier (sheet or liquid membrane with compatible tapes, caulks, flashing). Foam or caulk all exterior sheathing joints and intersections.
b. Install weatherstripping hard-fastened to the door or frame at entranceways.
c. Seal the roof curb at ductwork penetrations.
d. Install continuous air barrier at the intersection of the porch roof and conditioned space.
e. Air seal and insulate exterior sheathing on bottom of cantilevered floor.
f. Lap and Foam or caulk exterior rigid insulation over the seams of the exterior wall sheathing.
4. Fireplace Enclosures
a. Seal fireplace flue and wall penetrations with fire-rated caulking along with flashing or UL-rated collars.
5. Use air sealing with polyurethane caulk for following areas:
a. Slab openings
b. Slab penetrations
c. Control or expansion joints
d. Sump cover
6. Pest Management Measures
a. For openings in the building envelope less than 1/4 inch, including pipe and electrical penetrations:
1) completely seal to avoid pest entry.
b. Install rodent-and corrosion proof screens for openings greater than 1/4 inch.

3.02 LOCATION

A. Interior Throughout.

SECTION 07 3113
ASPHALT SHINGLES

PART 1 GENERAL $_____

1.01 UNIT PRICES

A. Material
   a. GAF Elk Timberline 30 year HD Shingles
   b. Timbertex
   c. Ice and Water Shield
   d. 15 pound felt

1.02 QUALITY ASSURANCE

A. Perform Work in accordance with the recommendations of NRCA Steep Roofing Manual.

PART 2 PRODUCTS

2.01 SHINGLES

A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462; Class A fire resistance.
   1. Self-sealing type.
   2. Manufacturer: GAF ELK, Timberline 30 Year HD shingles
   3. Style: Architectural Style Shingle
   4. Color: Weathered Wood.

2.02 ACCESSORIES

A. Nails: Standard round wire shingle type, of hot-dipped zinc coated steel, 12 gage, 0.105 inch (2.67 mm) shank diameter, 3/8 inch (9.5 mm) head diameter, of sufficient length to penetrate through roof sheathing or 3/4 inch (19 mm) into roof sheathing or decking.

B. Drip edge to be either white to match aluminum wrap or bronze to match roofing

PART 3 EXECUTION

3.01 INSTALLATION - SHINGLES

A. Install shingles in accordance with manufacturer's instructions.

B. Install proper attic ventilation to code.

3.02 LOCATION

A. House

   Note that chimney will be removed from basement floor up through above the roof. Roof will need to be patched prior to installation of new shingles.

B. Garage

END OF SECTION

SECTION 07 4646
FIBER CEMENT SIDING

PART 1 GENERAL $_____

1.01 UNIT PRICE

PART 2 PRODUCTS

2.01 SIDING

A. Excess siding is located in the garage on site.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and recommendations.
   1. Read warranty and comply with all terms necessary to maintain warranty coverage.

B. Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.

C. Do not install siding less than 6 inches (150 mm) from surface of ground nor closer than 1 inch (25 mm) to roofs, patios, porches, and other surfaces where water may collect.

3.02 LOCATION

A. House (Material Pre-purchased)-

1. Repair damaged, missing, broken, loose existing fiver cement siding. Excess matching siding is located onsite in the garage.

2. Note: the awning at the rear elevation (over bedroom window) is to be removed. Holes will need to be repaired or siding replaced in this area.

3. Patch in where windows are to be removed, added and/or changes

   a. West side elevation at kitchen- removing 2 windows

   b. Main floor bathroom- opening up one window

   c. Front elevation at kitchen- changing window

END OF SECTION

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL $\$$_____

1.01 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Aluminum: ASTM B209 (ASTM B209M) ; 0.032 inch (0.8 mm) thick; anodized finish of color as selected.
   1. Clear Anodized Finish: AAMA 611 AA-M12C22A41 Class I clear anodic coating not less than 0.7 mils (0.018 mm) thick.

B. Pre-Finished Aluminum Soffit, Trim and Facia: ASTM B209 (ASTM B209M) ; plain finish shop pre-coated with modified silicone coating.
   1. Manufacturer: Alsco Perfect Trim Plus

PART 3 EXECUTION

3.01 INSTALLATION

A. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.

B. Seal metal joints watertight.

3.02 LOCATION

A. Exterior of the house – all existing aluminum wrap is to remain intact. Hut style roof to be carefully removed to reveal soffit and facia- condition of soffit and facia will be accessed once the roofing material has been removed)

   1. Soffit/ Facia- entire house – bid soffit and facia for house and any repairs needed on garage.

   2. Trim/ Door& Window Wrap- at new/changed windows: front kitchen window and main floor bathroom window

END OF SECTION

SECTION 07 7123

MANUFACTURED GUTTERS AND DOWNSPOUTS

PART 1 GENERAL $_____

1.01 DESIGN REQUIREMENTS

A. Conform to applicable code for size and method of rain water discharge.

PART 2 PRODUCTS

2.01 MATERIALS

A. Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M) ; 0.032 inch (0.8 mm) thick.
   1. Finish: Plain, shop pre-coated with modified silicone coating.
   2. Color: To match the exterior trim.

2.02 COMPONENTS

A. Gutters: K style profile, seamless, one-piece aluminum gutter and guard

B. Gutter Guard: seamless, one-piece aluminum gutter and guard

C. Downspouts: SMACNA Rectangular profile.
   1. Size: 3X5

D. Anchors and Supports: Profiled to suit gutters and downspouts.
   1. Gutter Supports: Brackets.
   2. Downspout Supports: Straps.

E. Fasteners: Galvanized steel , with soft neoprene washers.

2.03 ACCESSORIES

A. Splash Pads: Precast concrete type, size and profiles indicated; minimum 3000 psi (21 MPa) at 28 days, with minimum 5 percent air entrainment.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.

B. Where feasible, a minimum of 6' offset extension shall be installed at the ends of all downspouts to divert water away from foundation.

C. Downspouts shall divert the entire water load in the direction of the rain garden according to the Landscape Plan.

3.02 LOCATION

A. House- check site plan for locations of downspouts and exhausts

END OF SECTION

SECTION 08 1100

EXTERIOR INSULATED METAL DOORS AND FRAMES

PART 1 GENERAL $_____

PART 2 PRODUCTS

2.01 EXTERIOR PREHUNG METAL DOOR

A. Front Doors:
   1. Product: Mastercraft, St. Thomas - ST-650 (half round)

B. Rear/Side Doors:
   1. Product: Mastercraft, Half Lite w/ Blinds - LT-10

C. Garage Service Door:
   1. Product: Mastercraft, 6-Panel - E-1

2.02 ALUMINUM STORM DOORS

A. Front Door
   1. Product: Larson, Oakley, or approved equivalent

B. Rear/Side Doors
   1. Product: Larson, Oakley, or approved equivalent

2.03 ACCESSORIES

A. DOOR HARDWARE: Door hardware finish to be Brass
   1. Front Door Hardware: Schlage Avanti
   2. Interior Door Hardware: Schlage Avanti

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine doors and installed door frames before hanging doors.
   1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
   2. Reject doors with defects

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use a expanding foam to insulate between the door frame and the rough opening.

C. Set units plumb, level, and true-to-line, without warping or racking doors, and with specified clearances; anchor in place.

D. Align and fit doors in frames with uniform clearances set by manufacturer.

E. Seal edges of doors, edges of cutouts, and mortises after fitting and machining

3.03 SYSTEMS INTEGRATION

A. Coordinate with low-voltage security contractor to install contacts in door.

3.04 ADJUSTING

A. Adjust Doors for smooth operation.

B. Operation: Rehang or replace doors that do not swing or operate freely.

3.05 LOCATIONS

A. Front Entrance- (Exterior door and storm door)

B. West Side Entrance- (Exterior door and storm door)

C. East Side Entrance – (Exterior door and storm door)-NOTE: hinge swing change on door

B. Garage Service door

END OF SECTION