SECTION 00 0101
HRA PROJECT TITLE PAGE

HRA SPECIFICATION FOR 653 COOK AVENUE EAST

JULY 18, 2012

INVEST SAINT PAUL INITITIVE
NEIGHBORHOOD STABILIZATION PROGRAMS
AND REBUILDING PLAN 2009-2013
PAYNE – PHALEN DISTRICT 5

OWNER
The Housing and Redevelopment Authority of Saint Paul, Minnesota
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Saint Paul, MN 55107
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SECTION 00 4002

HRA 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 775 Magnolia Avenue East. This project is funded by Neighborhood Stabilization Program through the The Housing and Redevelopment Authority of Saint Paul, Minnesota. 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, The Housing and Redevelopment Authority of Saint Paul, Minnesota, hereinafter, referred to as Owner.

B. Owner's Project Manager: Marty McCarthy
Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100
Phone Number: (651) 266-6570
Email: Marty.McCarthy@ci.stpaul.mn.us

1.05 OWNER'S CONSULTANT(S)

Owner's Project Specification Consultant: Lunning Wende Associates, Inc.

1. Specification Writer's Name: Scott Wende, AIA
2. Address: 275 East Fourth Street, Suite 620, Saint Paull, MN 55101
3. Phone Number: 651.221.0915
   Email: scott@lunningwende.com

A. Owner's Construction Manager Consultant: Neighborhood Development Alliance, Inc (NeDA)

1. Construction Manager: Gail Merriam
2. Address: 823 481 Wabasha Street, Saint Paul, MN 55107
3. Phone: (651) 292.0131
4. Email: gmerriam@nedahome.org

1.06 IMPORTANT BID DATES

A. Bids Issued: July 20, 2012

B. Mandatory Pre-Bid Site Tour: Thursday, July 26, 2012 from 12:00 pm to 1:30 pm

C. **BID DUE DATE ON OR BEFORE:** August 10, 2012 no later than Insert time 2:00 PM local time.

D. Bid Delivery Location: The offices of The Housing and Redevelopment Authority of Saint Paul, Minnesota
Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100
Suite: 1100

E. Public Bid Opening and Location: The Housing and Redevelopment Authority of Saint Paul, Minnesota
Address: 25 West Fourth Street, Saint Paul, MN 55102, Suite 1100
Suite: 1100

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

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

H. Construction Completion Date: 120 days from the time of issued Notice to Proceed.

END OF BID INVITATION

SECTION 00 4003

HRA INSTRUCTIONS FOR BIDDERS

PART 1 GENERAL BID DIRECTIONS

1.01 Each Bidder shall fully inform him / herself and any subcontractors prior to bidding as to all existing conditions and limitations including compliance requirements under which the work is to be performed and shall include in the bid a sum to cover the cost of all items necessary to perform the work as set forth in the Bid Project Manual. The submission of a bid shall be construed as conclusive evidence that the Bidder has made such examination.

1.02 Bid Forms

A. The Bid Submission forms are available online at http://www.stpaul.gov/nsp.

B. Each bid must be submitted on the Bid Submission forms identified in the provided checklist. It is expected that the Contractor retain a copy of their entire submittal for their records. The copy of the bid submitted must be signed at every place that a signature is requested.

1.03 Corrections

A. Erasures or other changes in the bid must be dated and initialed over the signature of the bidder.

1.04 Bid Envelope

A. Place bid in envelope with the contractor name and address in the upper left-hand corner as the return address, and list the property address in the middle of the envelope as the addressee. Seal envelope.

1.05 Interpretations of Scope of Work

A. Every request for an interpretation shall be in writing, unless otherwise documented by the Specification Writer. Questions will be taken until 3 days before bids are due.

B. Interpretations will be in the form of an addenda which will be on file at the website, and in the offices of the Specification Writer at least three calendar days before bids are opened.

C. It shall be the bidder's responsibility to make inquiry as to addenda issued.

1. All such addenda shall become a part of the contract and all bidders shall be bound by such addenda.

1.06 Conflict with Documents

A. When a conflict arises between the Drawings or the Scope of Work, the Drawings shall govern.

1.07 Materials Approved:

A. Where items of equipment and material are specifically identified herein by a trade name, model or catalog number, only such specified items may be used in the base bid.

B. Contractors desiring approval of substitute products may submit data cut sheets and product information for approval during the bidding cycle.

C. Contractors will be notified only by addendum of additional approved products.

D. Material identifications made in work specifications are considered as minimal quality for acceptance in bidding and installation.

1.08 Allowances:

A. The Contractor shall include in the bid proposal the cash allowances listed.

B. Unless otherwise indicated, the lump sum amount shall be for the material / product.

C. Labor to install the material / product must be submitted separately.

1.09 Alternates:

A. The Contractor must submit bids for each alternate listed in the Alternates List.

B. If pricing is not listed for Alternates the bid may be disqualified.

1.10 Time for Receiving Bids:

A. Bids are to be delivered to the HRA's office.

B. Bids received prior to the time of opening will be securely kept.

C. Bids received by phone or fax will not be considered.

D. Modification of bids already submitted will be considered if received prior to the hour set for receiving the bids and written confirmation of such modification - with the signature of the bidder - is placed in the mail and postmarked and / or delivered to the HRA prior to the time set for bid opening.

1.11 Opening of Bids:

A. At the time and place fixed for the opening of bids, every bid received within the time fixed for receiving bids will be opened irrespective of any irregularities.

B. The opening of the bids will be an "open process" (open to the public).

1.12 Withdrawal of Bids:

A. Bids may be withdrawn in writing, by phone, or by fax prior to the time fixed for opening; provided that written confirmation of any phoned or faxed withdrawal is placed in the mail and postmarked and / or delivered prior to the time set for bid opening.

B. Negligence on the part of the bidder in preparing their bid confers no right of withdrawal or modification of his bid after such bid has been opened.

PART 2 BID ANALYSIS PROCESS

2.01 Contractor Selection Date: <u>Earliest Practical Date</u>

A. This project is funded by the Neighborhood Stabilization Program (NSP), a federal stimulus program created to rehabilitate vacant housing or construct new housing on vacant lots within targeted areas of the City of Saint Paul.

B. The Housing and Redevelopment Authority of Saint Paul, Minnesota reserves the right to check the qualifications of contractors for each project; previous experience working on projects with the The Housing and Redevelopment Authority of Saint Paul, Minnesota, will not automatically deem a contractor qualified.

2.02 Minimum Contractor Qualifications

A. Please note the following minimum qualifications that apply to all bidders:

1. **Quality Workmanship and Qualifications**
   a. Three references from jobs with similar work (include on Contractor Qualification form)
   b. Two financial references (included on Contractor Qualification Form)
   c. At least 2 years of experience as a General Contractor (HRA will verify)
   d. Review of standing with Secretary of State, Federal Excluded Parties list, City of Saint Paul Debarment list, Department of Labor and Industry, Better Business Bureau (HRA will verify)
   e. Houses with historic features or located within a historic district may require demonstration of quality workmanship for historic renovation at the discretion of HRA staff.
2. **Financial Capacity**
   a. Demonstrated ability to pay two months of construction costs for each project awarded (these amounts are added together if more than one project is under construction). Financial capacity documentation must be in the name of the General Contractors organization or the principal of that organization.
      1) For a 120 day project, the contractor shall demonstrate the ability to pay 50% of bid amount.
      2) For a 90 day project, the contractor shall demonstrate the ability to pay 65% of the bid amount.
      3) Demonstration of capacity can be in the form of:
         (a) Line of credit from banking or lending institution
         (b) Cash balances from banking or lending institution
3. **Ability to Perform**
   a. Up-to-date submittals to Affirmative Action, Section 3, and Vendor Outreach programs.

b. Adherence to timelines confirmed from professional references.
c. Use of certified subcontractors for environmental remediation including:
   1) Insulation: contractor must be on Xcel Energy approved contractor list
   2) Asbestos: contractor must be certified for asbestos removal by the State of Minnesota
   3) Lead: either general contractor or subcontractor must be certified for lead abatement by the State of Minnesota
   4) Radon: contractor must be on Minnesota Department of Health approved radon mitigation list.

4. **Bid Award Policy**
   a. Contractors that meet the criteria for qualification above, yet have not worked with The Housing and Redevelopment Authority of Saint Paul, Minnesota on a Neighborhood Stabilization Program project previously will initially be awarded one house, even if the contractor is low bidder for more than one house.
   b. Once the contractor demonstrates quality workmanship, financial capacity, and ability to perform timely completion, they may be awarded more than one house at the same time for subsequent bids on a case-by-case basis.
5. **Other Qualifications**
   a. Each property has its own unique characteristics and challenges. Variables include items relating to environmental conditions, historic nature of structures, etc.
   b. Depending on the specific property , there may be other qualifications needed by the bidder which will be specified by the HRA in its request for bids.

PART 3 POST AWARD REQUIRMENTS

3.01 CONSTRUCTION CONTRACT REQUIRMENTS

A. The bidder agrees that, if selected by the HRA, the bidder will enter into a contract with the HRA no later than 30 calendar days from bid award and will submit the following information to the HRA as a condition to entering into that contract; refer to Bid Rehab Manual for attachments:
   1. Certificates of Insurance as required by the Construction Contract and proof of Insurance and Bonding.
   2. Final Sworn Construction Statement Affidavit and Sworn Construction Statement that list contractors, material suppliers, and subcontractors, who will work under the contract and the cost of their work.
   3. Proof of a valid license as a Residential builder in the State of Minnesota and proof of valid licenses as required by the City of Saint Paul for work to be done.
   4. Bidders may be required to submit payment and performance bonds as a condition of the construction contract. Verify with Scope Writer prior to submitting bid.
   5. Proof of compliance with requirements attached for Affirmative Action, Vendor Outreach Program, and Section 3, including an Acknowledgement and Final Section 3 Action Plan.
   6. Construction Schedule must be submitted to the Dayton's Bluff Neighborhood Housing Services to enter into the Contract.

B. Attendance of a Pre-Construction Conference
   1. The selected Contractor and all Subcontractors will be required to attend a Pre-Construction Conference.
   2. Time, date, and place of the Pre-Construction Conference will be announced by the Neighborhood Development Alliance, Inc. (NeDA) and/or HRA.

C. Computerized System for Compliance Tracking and Reporting:
   1. The Contractor is required to use the B2Gnow/LCPtracker reporting system. Refer to attachment.

PART 3 WAGE REQUIREMENTS

4.01 The following are wage requirements associated with this Projects

A. Federal Davis-Bacon and/or Little Davis-Bacon Wages are not required for this project.

END OF SECTION

SECTION 00 4101

HRA BID SUBMISSION DOCUMENTS

SECTION 1 GENERAL

1.01 BID SUBMISSION DOCUMENTS, located at http://www.stpaul.gov/nsp

A. Bid Submittal Checklist

B. Bid Cover Sheet

C. Bid Proposal and Non-Collusive Affidavit

D. Preliminary Section-3 Action Plan

E. Contractor Application / Statement of Qualifications

F. Itemized Cost Breakdown and Scope of Work Bid (Section 004102)

END OF SECTION

SECTION 00 4102

HRA LINE ITEM BID SHEET

PART 1 MANUAL BID SHEET - LINE ITEM BREAKDOWN OF WORK

DIVISION 01 - GENERAL REQUIREMENTS

012300 - Alternates

1. Tile Kitchen Floor $_____

DIVISION 02 - EXISTING CONDITIONS

024100 - Demolition $_____

028200 - Asbestos Remediation $_____

028313 - Lead Hazard Control Activities $_____

DIVISION 03 - CONCRETE

030100 - Maintenance of Concrete $_____

033000 - Cast in Place Concrete $_____

DIVISION 04 - MASONRY

040100 - Maintenance of Masonry $_____

042300 - Glass Unit Masonry $_____

DIVISION 05 - METALS

057300 - Decorative Metal Railings $_____

DIVISION 06 - WOOD, PLASTICS AND COMPOSITES

061000 - Rough Carpentry $_____

062000 - Finish Carpentry $_____

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

072119 - Foamed-In-Place Insulation $_____

072126 - Blown Insulation $_____

072500 - Weather Barriers $_____

072700 - Air Barrier System $_____

073113 - Asphalt Shingles $_____

074646 - Fiber Cement Siding $_____

076200 - Sheet Metal Flashing and Trim $_____

077123 - Manufactured Gutters and Downspouts $_____

DIVISION 08 - OPENINGS

081100 - Exterior Insulated Metal Doors and Frames $_____

081429 - Wood Doors $_____

083323 - Overhead Garage Door $_____

085200 - Wood Windows $_____

085313 - Vinyl Windows $_____

DIVISION 09 - FINISHES

090120 - Repair of Plaster and Gypsum Board $_____

090160 - Hardwood Flooring Restoration $_____

092116 - Gypsum Board Assemblies $_____

093000 - Tiling $_____

099000 - Painting and Coating $_____

DIVISION 10 - SPECIALTIES

105623 - Closet Storage Shelving	$_____
107446 - Window Wells	$_____

DIVISION 11 - EQUIPMENT

113100 - HRA Residential Appliances	$_____

DIVISION 12 - FURNISHINGS

121110 - HRA Mail Box and House Numbers	$_____
121111 - Bathroom Furnishings	$_____
123530 - Residential Casework	$_____

DIVISION 22 - PLUMBING

223000 - Plumbing Equipment	$_____
224000 - Plumbing Fixtures and Piping	$_____

DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING

230000 – Residential Ventilation	$_____
235400 – Forced Air Furnace and Ducts	$_____

DIVISION 26 - ELECTRICAL

261001 - Power, Wiring and Devices	$_____
265101 - HRA Lighting	$_____

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

281600 - Intrusion Detection	$_____

DIVISION 31 - EARTHWORK

312200 - Grading	$_____

DIVISION 32 - EXTERIOR IMPROVMENTS

321313 - Concrete Paving	$_____
321413 – Precast Concrete Unit Paving	$_____
323129 – Wood Fences and Gates	$_____
323223 – Segmental Retaining Walls	$_____
329223 - Sodding	$_____
329300 - Planting	$_____

END OF SECTION

SECTION 01 0010
HRA GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 CONTRACTOR'S RESPONSIBLITY

A. All labor, material, supplies, tools, or other costs or items needed for complete construction of the project, including permits, temporary facilities, safety, security and utilities during construction, are the responsibility of the Contractor.

B. The General Contractor and each Subcontractor shall inspect the existing conditions that affect its work before starting. Commencing work signifies acceptance of the previous work. All measurements and dimensions indicated in the Drawings and Specifications are to be verified prior to bid submittal and construction.

C. The General Contractor shall be responsible for the coordination of all subcontractors working on, or furnishing material for use on this project. In addition, the General Contractor shall be responsible for the coordination of all work performed under separate contracts.

1.02 CONTRACTOR'S USE OF PREMISES

A. During the construction period the General Contractor and its Subcontractors shall have full use of the premises for construction operations, including use of the site. All use of the site shall be under control and supervision of the General Contractor.

B. General Contractor and its Subcontractors will be limited to construction work between the hours of 7:00 am and 6:00 pm on weekdays and 8:00 am to 4:00 pm on Saturday. Work at any other times will be allowed only with the Owner's and Project Manager's consent.

1.03 MATERIALS & MATERIAL STORAGE

A. The General Contractor shall provide all materials, hardware, and fixtures required to accomplish the Scope of Work, unless otherwise indicated.

B. The General Contractor shall use materials specified throughout unless approved in writing by Owner and Project Manager before ordering and installing.

C. The General Contractor is responsible for verification of all measurements. Materials transported to the job site and stored are the General Contractor's responsibility until installed and accepted by the Owner and Project Manager.

D. The General Contractor shall deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

E. Damaged or stolen materials and equipment must be replaced as part of the work at no additional cost to the Owner. Damaged property that is removed shall belong to the General Contractor, unless otherwise stated in writing.

PART 2 PERFORMANCE REQUIRMENTS

2.01 ENERGY CONSERVATION

A. General
   1. This property must go through Xcel Energy's Home Performance with Energy Star program.
   2. This means that all insulation and HVAC work must be performed by Xcel Energy's approved contractor list.
   3. General Contractors that are on the Home Performance list may choose Subcontractors that are not on the list, but those General Contractors will be held responsible for all work completed.
   4. The "Specifications for Energy Improvement Upgrades" provided by the Neighborhood Energy Connection (See appendix) are a part of the Scope of Work for this property.
   5. Any discrepancies between the Scope of Work and NEC's specifications are to be clarified during the bid process.

B. Provide an Energy Efficient Lighting

1. All fixtures should have energy efficient CFLs or LED lamps that are within the maximum wattage allowable.
2. The Owner and Project Manager shall select specific locations of fixtures and switches in each area.
3. All lighting fixtures will be purchased new, unless otherwise indicated in the scope of work.
4. No plastic lighting fixtures are acceptable.
5. No fluorescent tube light fixtures are acceptable in living spaces.
6. Provide light bulbs for all fixtures. All light fixtures are to have color corrected bulbs. Light bulbs that are viewable within fixtures will be a globe or candelabra style CFL.
7. Provide and install lighting fixtures and switches.
8. Review fixtures with Owner and Project Manager prior to installation.
9. All electrical outlets and cover plates are to be replaced throughout the building, unless otherwise indicated in the scope of work.

2.02 ENERGY EFFICIENT APPLIANCES

A. All appliances must be purchased new and be Energy STAR certified or high efficiency models when Energy STAR certification is not possible.

B. High-efficiency appliances meet the following standards:

C. Clothes washers must have a CEE Tier 2 or higher, a minimum Energy Factor of 2.0 or greater, and a water factor 6.0 or less.

D. Clothes Dryers must be a minimum 7.0 cubic feet capacity, have a sensor dry system, and have 5 Temperature Levels - High, Medium High, Medium, Low & Ultra Low

E. Dishwashers must be CEE Tier 2 or higher, with a minimum Energy Factor of 0.68 or greater, and a maximum annual energy use of 325 kilowatt-hours or less.

2.03 LOW FLOW PLUMBING FIXTURES

A. New plumbing fixtures should be water conserving fixtures with a faucet flow rate of 2.0 GPM or less and a commode flush rate of 1.3 GPF or less.

PART 3 PRICE AND PAYMENT PROCEDURES

3.01 SCHEDULE OF VALUES

A. Form to be used: Sworn Construction Statement.

3.02 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Execute certification/pay application by signature of authorized officer.

C. Submit two copies of each Application for Payment to Construction Manager.

PART 4 CONTRACT MODIFICATION PROCEDURES

4.01 HRA WINTER WORK POLICY

A. The Housing and Redevelopment Authority of the City of St. Paul (HRA) recognizes that there are weather related exterior items that cannot be completed in winter conditions ("Weather Conditional Work"), including but not limited to:
   1. Exterior painting
   2. Sod
   3. Foundation plantings
   4. Rain garden installation
   5. Concrete sidewalks, steps, landings, curbs, garage slabs, and asphalt driveways

B. The HRA defines winter conditions as "temperatures consistently below a high of 50 degrees Fahrenheit". Winter conditions are typically in effect from November 15th through April 15th each year, although there is potential for an earlier or later start and end date depending on weather.

C. In the case of NSP homes where a notice to proceed is issued between October and February, the time parameter of winter conditions could mean that the entire timeline for construction completion (typically 90-120 days) is within winter conditions.

D. It is the responsibility of the contractor to communicate, to the Owner, the exterior line items in the scope of work that are Weather Conditional Work as a component of the timeline submission required prior to issuance of a notice to proceed.

E. Contractors are also responsible for ensuring that all Weather Conditional Work is completed within the manufacturer's or industry standards recommended temperature range.

F. The Contractor is responsible for prioritizing Weather Related Work when winter conditions are not present, in order to complete the house within the construction timeline whenever possible.

G. The HRA's objective is to ensure that remodeling work on NSP projects is substantially complete within the timeline for construction completion (90-120 days) so that the project can be issued a certificate of occupancy and sold to a new homeowner; the contractor is responsible for ensuring that temporary, structurally sound solutions are implemented when Weather Related Work will effect the ability to secure a Certificate of Occupancy.

H. In the event that winter conditions are present throughout the 120 day construction contract period, the HRA will escrow 1 and 1/2 times the cost for Weather Conditional Work (150%), to be completed within 30 days of the end of winter conditions.

4.02 SUBSTITUTIONS

A. Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the General Contractor after award of the Contract are considered to be requests for substitutions.

B. Submit requests according to procedures required for change-order proposals.

C. Substitution requests shall include a complete list of changes or modifications needed in the Scope of Work in order to accommodate the proposed substitution.

D. Provide samples and product data, including drawings and descriptions of products as well as fabrication and installation procedures, where applicable or where requested by the Owner or Project Manager.

E. Indicate the substitution's effect on the Contractor's Construction Schedule, if any. Indicate cost information, including a proposal of the net change, if any, in the Contract Sum. Acceptance will be in the form of a written Change Order signed by the Owner and Project Manager.

PART 5 COMPLIANCE INFORMATION AND REQUIRMENTS

5.01 See HRA NSP website for compliance requirments.

A. http://www.stpaul.gov/nsp

B. Review the document labeled: *Section II - Compliance Information and Requirments.*
   1. It contains additional information on:
      a. Insurance
      b. B2Gnow/LCP Tracker, Contract Compliance Monitoring System
      c. Vendor Outreach Program
      d. Affirmative Action
      e. Sustainable Green Policy
      f. Section 3
      g. Two Bid Policy
      h. Limited English Policy
      i. Xcel Energy Participating Contractors' List
      j. Radon Mitigation Contractors' List

5.02 SECURITY PROCEDURES

A. General Contractor is responsible for maintaining security of the site, including:
   1. locking buildings at the end of each work day;
   2. boarding window or door openings;
   3. installing security fencing;
   4. providing temporary barricades, bracing or railings;
   5. and any other work or facilities necessary to maintain a safe and secure site, including compliance with all health, safety, building, and other codes and laws.

B. Any tools or materials or other property stored on the site prior to installation are the responsibility of the General Contractor and its Subcontractors are responsible for insuring their own such property against loss by theft or other cause.

5.03 JOB CONDITIONS

A. The General Contractor shall notify the Owner and Project Manager of repair not covered in the Scope of Work that is necessary for satisfactory completion of the Project.

B. Defects that become evident as work progresses shall be reported not concealed.

C. Ensure safe passage of all employees during the course of demolition or other persons as necessary by erecting barriers, bracing, or other temporary supports as required.

5.04 SAFETY AND CLEAN UP

A. The General Contractor must keep the site clean at all times during construction.

B. In no event can debris be stored outside overnight unless it is inside a dumpster.

C. All floors are to be picked up and kept broom clean at the end of the work day.

D. No combustible debris shall be thrown, stored, or burned on the property, adjacent parcels, sidewalks, streets, or alleys.

E. Debris created from work at the property must be disposed of immediately.

F. Any debris caused by the General Contractor or its Subcontractor shall be removed from the work area in the General Contractor's containers and disposed of off site by the General Contractor.

PART 6 SPECIAL PROCEDURES

6.01 ASBESTOS ABATEMENT,

A. If asbestos is found on this project follow the necessary requirements for proper abatement. A contractor must be licensed by the Minnesota Department of Health to perform asbestos-related work. Asbestos-related work includes the work area preparation, enclosure, removal, or encapsulation of asbestos-containing material.

6.02 LOW VOC, see section 01 6116

6.03 LEAD BASED PAINT

A. General Information
   1. 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".
   2. Properties built after 1/1/78 and properties needing emergency rehab assistance are exempt from Lead-Based Paint Regulation requirements.
   3. All projects recieving over $25,000 of HUD funds per unit for rehabilitation, must abate all Lead-based paint hazards.

B. **Removal Procedures**
   1. Risk Assessments:
      a. A Risk Assessment must be completed by a licensed Lad-Based Paint Risk Assessor on all properties built before 1/1/78 (excluding emergency rehab cases).
      b. The Owner or Project Manager arranges and pays for the Risk Assessment.
      c. The Risk Assessment report will summarize the nature and scope of known lead-based paint hazards.

C. Scope of Work: The Project Manager prepares the Scope of Work incorporating lead hazard reduction work based on the Risk Assessment report.

D. Licensed Lead Abatement Supervisor: Only General or Subcontractors who are State licensed Lead Abatement Supervisors are allowed to bid on projects involving lead hazard reduction work.

E. Project Plan: The General Contractor must prepare a written project plan and communicate it to the Owner and Project Manager. 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.

F. The selected General Contractor performs the work, using lead hazard control measures where indicated in the Scope of Work.

G. The General contractor will notify the Project Manager when work is complete.

H. A Clearance Test for lead-based paint dust is required upon completion of the Lead Based Paint Hazard Reduction Project Plan.
1. The Clearance Test must be performed by a State licensed Clearance Examiner.
2. It is the responsibility of the General Contractor to arrange and pay for any and all of the Clearance Tests that may be required. If the Clearance Test indicates lead levels lower than acceptable amounts, the General Contractor's lead reduction and control work is complete and the final construction payment application may be processed.
3. If the Clearance Test is found to contain lead levels above an acceptable amount, the General Contractor must clean the work area again and request another Clearance Test at no additional cost to the Owner, until the Clearance Test is passed.
4. The Final payment application will not be processed until all areas are determined to be free of hazardous lead levels.

I. Additional Information:
1. General Contractor must obtain and review the following documents, which provide more detailed information on lead paint hazards and reduction and control measures:
a. Minnesota Department of Lead program, "Safely Working with Lead While Remodeling the Older Home" pamphlet series. 1-651-215-0890.
1) U.S. Environmental Protection Agency, "Renovate Right: Important Lead Hazard Information for Families, Child Care Providers, and Schools" 21 page booklet. <http://www.epa.gov/lead/pubs/rrpamph.pdf>
2) U.S. Department of Housing and Urban Development, "Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work:". English and Spanish versions available. <http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/healthyhomes/lead>
3) U.S. Department of Housing and Urban Development, "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing". October 1996. <http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/lbp/hudguidelines>
4) U.S. Environmental Protection Agency, "Model Lead-Based Paint Abatement Worker Training Course." English and Spanish versions available. <http://www.epa.gov/lead/pubs/abateworker.htm>
5) U.S. Environmental Protection Agency, "Lead Safety for Renovation, Repair, and Remodeling: Student Manual". <http://www.epa.gov/lead/pubs/rrp_8hr_studentmanual_feb09.pdf>

J. Abatement:
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.

6.04 WASTE MANAGEMENT, see section 01 7419

PART 6 SUBMITTALS

7.01 GENERAL

A. Coordinate preparation and processing of submittals with performance of construction activities.

B. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

C. Provide the following submittals required for performance of the Work, including the following:
   1. Administrative Submittals.
   2. Construction Schedule
   3. Samples/Product Data.

7.02 ADMINISTRATIVE SUBMITTALS

A. Provide as required in the Contract Documents. Such submittals include, but are not limited to, the following:
   1. Sworn Construction Statement
   2. Required permits.
   3. Applications for Payment.
   4. Insurance certificates.
   5. List of subcontractors.

7.03 CONSTRUCTION SCHEDULE

A. A construction schedule must be submitted to the Owner and Project Manager with the bid, unless requested otherwise in writing. Construction shall be completed within 120 days of notice to proceed.

7.04 SAMPLES/PRODUCT DATA:

A. Submit Samples as specified to be physically identical with the material or product proposed.

B. Samples include partial sections of manufactures or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

C. Provide product samples and/or product data for the following where included in the scope of work and for any other requirements mentioned in the specifications or drawings:
   1. Paint colors.
   2. Masonry and mortar color samples.
   3. Windows.
   4. Doors and hardware.
   5. Bathroom accessories.
   6. Kitchen cabinets.
   7. Plumbing fixtures.
   8. Lighting fixtures.
   9. Foundation waterproofing.

10. Stair railings.
11. Tile.
12. Carpet.
13. Interior trim samples.
14. Exterior trim and siding samples.

END OF SECTION

SECTION 01 2000
PAYMENT PROCEDURES

PART 1 GENERAL

1.01 PAYMENT DOCUMENTS

A. All documents required to create a complete Payment Application can be downloaded from https://sites.google.com/site/nspconstructiondocs/

B. Payment Application form to be used: Application and Certificate for Payment provided by the HRA.
   1. Columns A, B, C should not change during the course of construction and should directly relate to the Sworn Construction Statement provided at the start of construction. As draws progress, columns D, E and F change to reflect work completed.

C. Additional Documents to be submitted with each pay application:
   1. Monthly Employment Utilization (MEU) Form
   2. Identification of Prime and Subcontractor Form
      a. An updated Sub ID sheet must be attached to help HR/EEO staff track subcontractor utilization.
   3. B2Gnow
      a. Ensure each subcontractor is logging into the B2Gnow system and logging payments received.

1.02 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement. The Owner will process the payment within 30 days.

B. Applications for payment must be signed by an authorized officer of the general construction firm

C. Use data from approved Sworn Construction Statement. Provide dollar value in each column for each line item for portion of work performed .

D. Submit one signed copy of the Application for Payment, complete with all required attachments, to the Construction Manager.

1.03 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Price or Contract Time, Construction Manager will issue instructions directly to Contractor.

B. Execution of Change Orders: Construction Manager will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

C. After execution of Change Order, promptly revise Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.
   1. Change orders shall be listed as lump sumps on the bottom of the pay application and referred to on the cover sheet.
   2. Include each line item of the change order as a separate line item in the pay application and the amount of the contractor adjustments.

1.04 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Price, previous payments, and sum remaining due.

B. Additional documents:
   1. Final lien waivers from all subcontractors/material providers
   2. Monthly Employment Utilization (MEU) Form
   3. Project Employment Utilization (PEU) for City Funded Projects
   4. Lead Clearance
   5. NEC Certificate of Completion
   6. Waste Management Plan Report
   7. Permit Sign-offs/Certificate of Code Compliance
   8. Winter Work/Weather Related Work Escrow

9. Certificate of Substantial/Final Completion

C. See Section 01 7700 - Closeout Procedures and Submittals, for additional information.

END OF SECTION

SECTION 01 2300
ALTERNATES

PART 1 GENERAL

1.01 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

1.02 SCHEDULE OF ALTERNATES

ALTERNATE #1 – Tile Kitchen floor in the event the wood floor cannot be refinished.

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

C. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

D. Substitution Submittal Procedure:
   1. Submit two copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Construction Manager will notify Contractor in writing of decision to accept or reject request.

END OF SECTION

SECTION 01 6116

VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

PART 1 GENERAL

1.01 SUMMARY

A. Implement the following procedures in an effort to improve indoor air quality during Owner's occupancy.

B. Construction Indoor Air Quality (IAQ) Management
   1. Provide low-emitting products

1.02 DEFINITIONS

A. VOC-Restricted Products: All products of each of the following categories when installed or applied on-site in the building interior:
   1. Adhesives, sealants, and sealer coatings.
   2. Carpet.
   3. Carpet cushion.
   4. Resilient floor coverings.
   5. Wood flooring.
   6. Paints and coatings.
   7. Insulation.
   8. Gypsum board.
   9. Acoustical ceilings and panels.
   10. Cabinet work.
   11. Wall coverings.
   12. Composite wood and agrifiber products used either alone or as part of another product.
   13. Other products when specifically stated in the specifications.

B. Interior of Building: Anywhere inside the exterior weather barrier.

C. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.

D. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

PART 2 PRODUCTS

2.01 MATERIALS

A. All VOC-Restricted Products: Provide products having VOC content of types and volume not greater than those specified in State of California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions From Various Sources Using Small-Scale Environmental Chambers.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current GREENGUARD Children & Schools certification; www.greenguard.org.
      b. Current Carpet and Rug Institute Green Label Plus certification; www.carpet-rug.org.
      c. Current SCS Floorscore certification; www.scscertified.com.
      d. Current SCS Indoor Advantage Gold certification; www.scscertified.com.
      e. Product listing in the CHPS Low-Emitting Materials Product List at www.chps.net/manual/lem_table.htm.
      f. Current certification by any other agencies acceptable to CHPS.
      g. Report of laboratory testing performed in accordance with CHPS requirements for getting a product listed in the Low-Emitting Materials Product List; report must include laboratory's statement that the product meets the specified criteria.

B. Adhesives and Joint Sealants: Provide only products having volatile organic compound (VOC) content not greater than required by South Coast Air Quality Management District Rule No. 1168.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Report of laboratory testing performed in accordance with requirements.
      b. Published product data showing compliance with requirements.

c. Certification by manufacturer that product complies with requirements.

C. Aerosol Adhesives: Provide only products having volatile organic compound (VOC) content not greater than required by GreenSeal GS-36.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current GreenSeal Certification.

D. Paints and Coatings applied within building waterproof envelope:
   1. Comply with VOC Content limits (as noted in Criterion 6.1) of Green Seal Standard GS-11 "Paints," First Edition; Standard GC-03 "Anti Corrosive Paints," and MPI GPS-2-8, as follows (in grams/Liter):
      a. Flat: 50
      b. Non-flat: 50
      c. Anti-Corrosive and Anti Rust: 250
      d. Floor Coatings: 100

E. Carpet and Adhesive: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current Green Label Plus Certification.
      b. Report of laboratory testing performed in accordance with requirements.

F. Carpet, Carpet Cushion, and Adhesive: Provide products having VOC content as specified in Section 09 6800.

G. Carpet Cushion: Provide products having VOC content not greater than that required for CRI Green Label Plus certification.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current Green Label Plus Certification.
      b. Report of laboratory testing performed in accordance with requirements.

H. Composite Wood and Agrifiber Products and Adhesives Used for Laminating Them: Provide products having no added urea-formaldehyde resins.
   1. Evidence of Compliance: Acceptable types of evidence are:
      a. Current SCS "No Added Urea Formaldehyde" certification; www.scscertified.com.
      b. Published product data showing compliance with requirements.
      c. Certification by manufacturer that product complies with requirements.

I. Other Product Categories: Comply with limitations specified elsewhere.

PART 3 EXECUTION

3.01 GENERAL

A. Incorporate procedures and processes during construction and prior to occupancy as described herein

END OF SECTION

SECTION 01 7000
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

C. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

D. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

E. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

F. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

PART 3 EXECUTION

3.01 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Construction Manager of any discrepancies discovered.

C. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

3.02 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.03 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.

8. Remove and replace defective and non-conforming work.

C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

D. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

3.04 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

3.05 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.06 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

3.07 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Review Section 01 7700 CLOSEOUT PROCEDURES AND SUBMITTALS.

C. Notify Construction Manager when work is considered ready for Substantial Completion.

D. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Construction Manager's review.

E. Notify Construction Manager when work is considered finally complete.

F. Complete items of work determined by Construction Manager's final inspection.

END OF SECTION

SECTION 01 7419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. HRA Policy for this project is dependent on diversion of 50 percent, by weight, of potential landfill trash/waste by recycling and/or salvage.

D. The following recycling incentive programs are mandatory for this project; Contractor is responsible for implementation:

1.02 SUBMITTALS

A. ACTION SUBMITALS

1. **CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT(CWM) PLAN**
   a. Analysis of estimated job-site waste to be generated, including types and quantities of compostable, recyclable, and salvageable materials.
   b. Description of means and methods to achieve 50 percent diversion requirement for compostable, recyclable, and salvageable materials, including those that may be donated to charitable organizations.
   c. Identification of the carpet product's composition as polymer, nylon or polypropylene
   d. Identification of recycling contractors and haulers proposed for use in the project and locations accepting construction waste materials or entities providing related services.

B. FINAL WASTE MANAGMENT REPORT: General Contractor is responsible to submit at completion of construction and prior to contract close-out, in electronic format.

1. All information required in Waste Management Progress Reports
2. Legible copies of on-site logs, manifests, weight tickets, and receipts.
3. Final calculations, including total amount (by weight or volume) of diverted construction and demolition waste, and the total amount (by weight or volume) of landfilled waste.

PART 3 EXECUTION

2.01 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor and Construction Manager.

C. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.

D. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

E. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

F. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

G. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

2.02 UNACCEPTABLE METHODS OF WASTE DISPOSAL

A. Burning or incinerating on or off project site

B. Burying on project site, other than fill.

C. Dumping or burying on other property, public or private, other than official landfill.

D. Illegal dumping or burying.

END OF SECTION

SECTION 01 7700

CLOSEOUT PROCEDURES AND SUBMITTALS

PART 1 GENERAL

1.01 SUBMITTALS

A. All documents required to create a complete Final Payment Application can be downloaded from https://sites.google.com/site/nspconstructiondocs/

B. Notify Construction Manager when work is considered ready for Substantial Completion.
   1. Make sure the work is mostly complete and cleaned for inspection.

C. Substantial Completion Submittals:
   1. Project Record Documents: Submit documents listed below to Construction Manager:
      a. Final Pay Application
      b. Monthly Employment Utilization (MEU) Form
      c. Project Employment Utilization (PEU) for City Funded Projects
      d. Lead-based Paint Hazard Clearance Testing, see Section 02 8313 Lead Hazard Control Activities
      e. Radon Mitigation Verification Submittal/Close-Out Test
      f. Energy Modeling/NEC Compliance Report
      g. Final Waste Management Report, see Section 01 7419 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
      h. Permit Closeout/Code Compliance
      i. Winter Work/Weather Related Work Escrow
      j. Final Lien Waivers
      k. Material Allowance Reconciliation Change Order (if necessary).

D. Notify Construction Manager when work is considered finally completed. All Punch List items shall be completed and approved by Construction Manager and HRA Project Manager.

E. Final Completion Submittals:
   1. Project Record Documents: Submit documents listed below to Construction Manager:
      a. Building Maintenance Manual and Warranty documents for following:
         1) Appliance and building systems
            (a) HVAC equipment
            (b) Lighting equipment
            (c) Kitchen and Laundry Appliance Manuals
         2) Water-using equipment and controls installed:
            (a) Hot water heater
            (b) Toilets
            (c) Faucets
            (d) Shower head(s)
            (e) Dishwasher
            (f) Clothes washer
            (g) Clothes dryer
      b. Signed Certificate of Substantial Completion
      c. Punch List Items Completed

PART 3 EXECUTION

2.01 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 from Ramsey County Department of Public Health or other certified testing agency for clearance testing.

2.02 ENERGY MODELING (NEC)

A. Contractor must work with the Neighborhood Energy Connection (NEC) who will:
   1. Create an energy model with the building plans and specifications to show the building's projected energy performance in the design stages

2. Conduct a mid-construction pre drywall thermal enclosure inspection
3. Verify the final performance of the building with performance testing

2.03 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an instructional manual.

END OF SECTION

SECTION 01 8113
SUSTAINABLE DESIGN REQUIREMENTS

PART 1 GENERAL

1.01 ENERGY CONSERVATION

A. This property must go through Xcel Energy's Home Performance with Energy Star program.
   1. All insulation and HVAC work must be performed by Xcel Energy's approved contractor list.
   2. General Contractors that are on the Home Performance list may choose Subcontractors that are not on the list, but those General Contractors will be held responsible for all work completed.
   3. General Contractors will be responsible for submitting documentation required of the Home Performance with Energy Star program and will be responsible for achieving Energy Improvements outlined by Neighborhood Energy Connection.
   4. The "Specifications for Energy Improvement Upgrades" provided by the Neighborhood Energy Connection (See appendix) are a part of the Scope of Work for this property.
   5. Any discrepancies between the Scope of Work and NEC's specifications are to be clarified during the bid process.

B. Energy Efficient Lighting
   1. The Owner/Project Manager shall select specific locations of fixtures and switches in each area.
   2. All lighting fixtures will be purchased new, unless otherwise indicated.
   3. No plastic lighting fixtures are acceptable.
   4. No fluorescent tub light fixtures are acceptable in living spaces.
   5. Provide Energy Star certified CFL or LED light bulbs for all fixtures.
   6. All light fixtures are to have color corrected bulbs.
   7. Light bulbs that are viewable within fixtures will be a globe or candelabra style CFL.
   8. Provide and install lighting fixtures and switches.
   9. Review fixtures with Owner prior to installation.
   10. All electrical outlets and cover plates are to be replaced throughout the building.

C. Energy Efficient Appliances
   1. All appliances must be purchased new and be Energy Star certified or high efficiency models when Energy Star certification is not possible.
   2. High-efficiency appliances meet the following standards

1.02 QUALITY ASSURANCE

A. The Neighborhood Energy Connection (NEC), through its Peak Performace Homes custom consulting program, certifies independent consultants who provide developers with specific information about how to increase the energy efficiency of thier buildings.

PART 2 PRODUCTS

2.01 LOW-EMITTING MATERIALS

A. Cabinet Materials: Low VOC
   1. Provide wood cabinets with self closing hinges and adjustable shelves from the Schrock Select (available at Menards), Mid-Continent Cabinetry (available at All Inc), or MINNCOR (available at MINNCOR) design lines or approved equal.
   2. Cabinets are to have plywood sides and bases.
   3. Drawer boxes shall be plywood with dovetail joinery.
   4. Cabinets to be constructed with maple; full overlay doors and flat or 5 piece. Alternative styles may be approval by the HRA.

PART 3 EXECUTION

3.01 CONSTRUCTION WASTE MANAGEMENT

A. Comply with Construction Waste Management and Disposal Plan. Section 01 7419

3.02 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT

A. Change all air filters regularly durring construction with filters specified for the specific furnace.

1. Replace all air filters immediately prior to Substantial Completion with the specified permanent filters.

END OF SECTION

SECTION 02 4100

DEMOLITION

PART 1 GENERAL **$_____**

1.01 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. Protect hardwood floors for possible refinishing later.
   4. 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. Remove existing work as indicated and as required to accomplish new work.

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

D. Interior Demolition to Include:
   1. Basement/Mechanical
      a. The heating system: the furnace
      b. Dryer vent
      c. Electrical box
      d. Water heater
      e. Code Compliant items
      f. Windows, prepare openings for glass block.
      g. Concrete laundry sink
      h. Stair to Basement
      i. Existing mechanical piping
      j. Structural column, provide temporary support
   2. Kitchen / Dining A
      a. Exhaust hood, refrigerator, sink
      b. Rear exterior door
      c. Cabinets and counter tops
      e. Partial wall between Kitchen and Dining B
      f. Door and frame to basement
      g. Flooring

1) Including subflooring to expose hardwood flooring
h. Opening for new Basement door
i. Wood trim

3. Living Room / Family Room
a. Interior entry door
b. New window opening west wall
c. Front exterior door
d. Carpet and padding, to expose hardwood flooring

4. Dining B
a. Carpet and padding, to expose hardwood flooring
b. Walls around bathroom tub

5. Family Room
a. Carpet and padding, to expose hardwood flooring
b. Chimney

6. Bathroom, First Floor
a. Plumbing fixtures – sink, vanity, toilet, tub, shower head
c. South enclosure wall
d. Ceiling over tub

7. Front Porch
a. Enclosure of windows, walls, porch entry door
b. Flooring and floor structure
c. Columns and roof

8. Stair to Second Floor
a. Carpet and padding to expose hardwood floor

9. South Bedroom, Second Floor -
a. Carpet and padding to expose hardwood floor

10. Sitting Room, Second Floor
a. Door and frame to Hall
b. Carpet and padding to expose hardwood floor
c. Chimney

11. Bathroom, Second Floor
a. Toilet, tub and sink
b. Flooring
1) Including subflooring to expose hardwood flooring.
c. West bathroom wall

12.. North Bedroom, Second Floor
a. Chimney, north wall
b. Carpet and padding to expose hardwood floor
c. New window opening
d. Partial millwork at plumbing vent

13. Throughout
a. Entry doors
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. All shelving
g. Windows – with the exception of front Living Room stained glass window
h. Mechanical as required for new plan
i. Wood doors

E. Exterior Demolition to Include:

1. Exterior Building and Garage
b. Shingles, flashings and related roofing materials
c. Metal encasing trim

2. Site Demolition:
    a. Front steps at sidewalk, front concrete block retaining wall and entry sidewalk
    b. Front porch entry steps
    c. Concrete curb and drainage slab north side of house
    d. Exterior fencing and post footings
    e. Garage slab and apron
    f. See Landscape drawings for additional notes

F. Protect existing work to remain.

2.04 DEBRIS AND WASTE REMOVAL

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

B. Waste removal must be done in accordance with the Waste Management Plan and that at least 50% of the waste must be diverted from landfills.

END OF SECTION

:SECTION 02 8200

ASBESTOS REMEDIATION

PART 1 GENERAL **$_____**

1.01 DESCRIPTION OF WORK AND 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 non-friable 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:

1. Furnace and ducting in Basement with some asbestos paper on the boots, ducts and heat vents.

2. Three ducts that run to the 2nd floor also has asbestos paper

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

   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 risk assessor from Ramsey County Department of Public Health or other certified testing agency 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. Locations identified in the lead report are defined below, with reference to expected finish in other areas of the specification. Contractor is responsible for ensuring treatments meet abatement requirements as defined in federal and state statute.

Painted Wood Window Components: Encapsulate (see Demolition 02 4100) and replace (see Painting and Coating 09 9000)

Painted Door Components: Remove doors (see Demolition 02 4100) and encapsulate door frames (see Painting and Coating 09 9000)

Painted Wood Walls and Trim: Remove at Kitchen, Front Porch and Rear Stair to Basement (see Demolition 02 4100) and replace (see Fiber Cement Siding 07 4646 and Gypsum Board Installation 09 2116).

Painted Drywall Walls and Ceilings: Encapsulate (see Painting and Coating 09 9000)

Painted Wood Baseboard: Encapsulate (see Painting and Coating 09 9000)

Painted Wood Chair Rail: Encapsulate (see Painting and Coating 09 9000)

Painted Wood Stringer to Second Floor: Encapsulate (see Painting and Coating 09 9000)

Painted Wood Ceiling at Front Porch: Remove (see Demolition 02 4100)

Painted Wood Siding: Remove (see Demolition 02 4100) and replace (see Fiber Cement Siding 07 4646)

Painted Exterior Wood Trim and Soffit: Encapsulate (see Painting and Coating 09 9000)

Bare Soil: Regrade site (see Grading 31 2200)

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; dry material complying with ASTM C928/C928M; 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; dry material complying with ASTM C928/C928M; 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. Basement Floor

B. Exterior foundation wall

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL **$_____**

1.01 QUALITY ASSURANCE

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

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.
   1. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches (38 mm) of concrete surface.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M Grade 40 (280).

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I - Normal Portland type.

2.04 CONCRETE MIX DESIGN

A. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 psi (20.7 MPa).

PART 3 EXECUTION

3.01 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.

3.02 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.

3.03 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

3.04 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.

3.05 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.

3.06 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.

3.07 LOCATIONS

A. Miscellaneous repair to basement floor.

B. Porch footings

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. Pre-moisten 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. Perimeter interior/exterior foundation wall

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.

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. Basement windows

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 or ramp 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. Front steps; anchored to concrete steps.

END OF SECTION

SECTION 06 1000

ROUGH CARPENTRY

PART 1 GENERAL **$_____**

1.01 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.

B. Lumber fabricated from old growth timber is not permitted.

C. Provide wood harvested within a 500 mile (805 km) radius of the project site; see Section 01 6000 for requirements for locally-sourced products.

D. Lumber salvaged from deconstruction or demolition of existing buildings or structures is permitted in lieu of sustainably harvested lumber provided it is clean, de-nailed, and free of paint and finish materials, and other contamination; identify source; see Section 01 6000 for requirements for reused products.

E. Lumber fabricated from recovered timber (abandoned in transit) is permitted in lieu of sustainably harvested lumber, unless otherwise noted, provided it meets the specified requirements for new lumber and is free of contamination; identify source.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings.

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. Provide _____ manufactured by _____.
   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. Basement

B. Bathrooms First and Second Floors.

C. Openings and closing of openings for interior walls, First Floor

D. Garage

E. New window openings on first and second floor.

F. Front porch.

G. Closing existing door opening.

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, _____ sawn, 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. Miter 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. Front porch

B. Refinish of Living Room stained glass window.

C. Refinish First to Second Floor stair trim.

D. Kitchen trim.

E. First Floor remodel as shown on drawings.

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-19.

B. See NEC Energy Audit Recommendations is Section 01 9200.

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.

C. There are Attic areas will need to be accessed from the roof

D. See additional locations such as knee walls, slants, etc. as mentioned in the NEC Specifications

E. See NEC Energy Audit Recommendations is Section 01 9200

END OF SECTION

SECTION 07 2500

WEATHER BARRIERS

PART 1 GENERAL **$_____**

1.01 UNIT PRICES

A. Tyvek material has been pre-purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
   1. Vendor: Lampert Siding
   2. Pre-purchased materials:
      a. Tyvek Housewrap

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Weather Barrier Membrane: Spunbonded polyolefin, non-woven, non-perforated, wether barrier
   1. Manufacturer: DuPont Tyvek HomeWrap or like product to be approved by owner.

B. Seam Tape: DuPont Tyvek or like product

C. Flashing: DuPont Tyvek or like product

D. Fasteners: DuPont Tyvek or like product

E. Interior Vapor Retarder: 6 Mil heavy plastic (polyethylene) sheeting
   1. On inside face of masonry and concrete walls use vapor retarder sheet, self-adhesive type,.
      a. Install to cover ground in crawl space and 6" up foundation walls
      b. Overlap seams by 2' and secure with Tyvek tape.

PART 3 EXECUTION

3.01 INSTALLATION

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

B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturers recommendations.

D. Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturers recommended fasteners, spaced 12-18 inches vertically on center along stud line, and 24 inches on center, maximum horizontally.

3.02 LOCATION

A. Exterior of the House, under siding.

B. Around new windows

B. See NEC Energy Audit Recommendations is Section 01 9200

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. Exterior and Interior Throughout, including attic.

B. See NEC Energy Audit Recommendations is Section 01 9200

SECTION 07 3113

ASPHALT SHINGLES

PART 1 GENERAL $_____

1.01 UNIT PRICES

A. Roofing material has been purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
   1. Vendor: Lampert Roofing
   2. Pre-purchased materials:
      a. GAF Elk Timberline 30 year HD Shingles
      b. Timbertex
      c. Ice and Water Shield
      d. 15 lb. 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 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.

PART 3 EXECUTION

3.01 INSTALLATION - SHINGLES

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

3.02 LOCATION

A. House

B. New Garage

END OF SECTION

SECTION 07 4646

FIBER CEMENT SIDING

PART 1 GENERAL $_____

1.01 UNIT PRICE

A. Siding material has been purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.
   1. Vendor: Lampert Siding
   2. Pre-purchased materials:
      a. Pre-primed siding for the house has been purchased
      a. Cost of Hardie Siding for Garage not included in pre-purchase and should be included in the contractors bid. This should also be pre-primed.

PART 2 PRODUCTS

2.01 SIDING

A. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
   1. Style: Standard lap style.
   2. Texture: Smooth.
   3. Length: 12 ft (3.7 m), nominal.
   4. Width (Height): 5-1/4 inches (133 mm).
   5. Thickness: 5/16 inch (8 mm), nominal.
   6. Finish: Factory applied primer. Finish painting to be applied by contractor.
   7. Color: As selected by Construction Manager from manufacturers full range of available colors.
   8. Warranty: 50 year limited; transferable.

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. 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. New Garage.

B. House.

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); 0.024 inch (____ mm) thick; 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 - soffit, trim, facia, doors and windows as needed.

B. Garage - soffit, facia, doors and windows as needed.

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 house paint color.

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

B. Refer to drawings for location.

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

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

C. Garage Service Door:
   1. Product: Mastercraft, 6-Panel - E-1
   2. This door is part of the pre-purchase of the Garage

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 Satin Nickel
   1. Front Door Hardware: Schlange Avanti
   2. Interior Door Hardware: Schlange 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

B. Rear Entrance

C. Garage Service door is part of the pre-purchase of the Garage

END OF SECTION

SECTION 08 1429

WOOD DOORS

$_____

PART 2 PRODUCTS

2.01 INTERIOR WOOD DOORS

A. Quality Level: Premium Grade , in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.

B. Wood products that Emit Low or No Formaldehyde

C. Wood products that Emit Low or No VOC

D. Interior Doors: 1-3/4 inches (44 mm) thick unless otherwise indicated; solid lumber construction; mortised and tendoned joints.
   1. Wood: Oak
   2. Door Type: 2-panel, prehung

E. Bi-fold
   1. Wood: Oak

2.02 ACCESSORIES

A. Molding: Wood, of same species as door facing, _____ shape, mitered corners; prepared for countersink style tamper proof screws.

B. Adhesives and Sealants: VOC content not to exceed the following [g/L; less water and less exempt compounds]:
   1. Multipurpose Construction Adhesives: 70g/L

C. Privacy Lockset

D. Hinges to match the lockset

E. Door stop

PART 3 EXECUTION

3.01 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and AWI/AWMAC Quality Standards requirements.

B. Coordinate installation of doors with installation of frames and hardware.

3.02 TOLERANCES

A. Conform to specified quality standard for fit, clearance, and joinery tolerances.

3.03 LOCATIONS

A. First Floor
   a. Family Room Closet
   b. Bathroom
   c. Basement Stair
   d. Rear Entry Closet

B. Second Floor
   a. Bathroom
   b. South Bedroom Door
   c. South Bedroom Closet
   d. North Bedroom
   e. North Bedroom Closet

END OF SECTION

SECTION 08 3323

OVERHEAD GARAGE DOORS

PART 2 PRODUCTS **$_____**

1.01 COILING DOORS

A. Exterior Coiling Doors: Un-insulated aluminum slat curtain.
   1. Guides: Formed track; galvanized steel.
   2. Electric operation.
   3. Mounting: Within framed opening.
   4. Exterior lock and latch handle.

1.02 ELECTRIC OPERATION

A. Electric Operators: Chain Drive Garage Door Opener
   1. Motor Rating: 1/3 hp (250 W); continuous duty.
   2. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
   3. Controller Enclosure: NEMA 250 Type 1.
   4. Opening Speed: 12 inches per second (300 mm/s).
   5. Brake: Adjustable friction clutch type, activated by motor controller.
   6. Manual override in case of power failure.

B. Control Station: Standard three button (OPEN-STOP-CLOSE) momentary control for each operator.
   1. 24 volt circuit.

C. Safety Edge: Located at bottom of curtain, full width, electro-mechanical sensitized type, wired to stop operator upon striking object, hollow neoprene covered.

PART 3 EXECUTION

2.01 INSTALLATION

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

B. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

C. Complete wiring from disconnect to unit components.

2.02 LOCATION

A. New Garage

END OF SECTION

SECTION 08 5200

WOOD WINDOWS

PART 1 GENERAL **$_____**

1.01 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 WOOD WINDOWS

A. Existing Wood Windows: Wood frame and sash.
   1. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 R15.
   2. Exterior Finish: Match exterior paint color
   3. Interior Finish: Stain
   4. Configuration: As indicated on drawings.
   5. Frame and Sash Members: Mortise and tenon joints. Glue and steel pin joints to hairline fit, weather tight.
   6. Clearances and Shim Spacing: Minimum required for installation and dynamic movement of perimeter seal.

2.02 COMPONENTS

A. Clean, repair, finish and ensure operation of exterior storm windows

B. Repair glass in stained glass window

2.03 MATERIALS

PART 3 EXECUTION

3.01 INSTALLATION

A. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

3.02 LOCATION

A. South Living Room stained glass window.

END OF SECTION

SECTION 08 5313

VINYL WINDOWS

PART 1 GENERAL **$_____**

1.01 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Energy Star Rated to meet Minnesota climate conditions. Climate Zone 6 for 2006 IECC, ASHRAE 90.1-2007 and ENERGY STAR.

PART 2 PRODUCTS

2.01 COMPONENTS

A. Windows: Extruded, hollow, tubular, ultra-violet resistant polyvinyl chloride (PVC) with integral color; factory fabricated; with vision glass, related flashings, anchorage and attachment devices.
   1. Performance Requirements: AAMA/WDMA/CSA 101/I.S.2/A440 R15.
   2. Configuration: double hung and fixed double hung sash.
   3. Color: Color as selected.

B. Insect Screens: 14/18 mesh, steel strands.

C. Fasteners: Stainless steel.

2.02 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
   2. Structural Glazing Adhesives: 100 g/L

2.03 HARDWARE

A. Double Hung Sash: Metal and nylon spiral friction slide cylinder, each sash, each jamb.

B. Sash lock: Lever handle with cam lock.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install window units in accordance with manufacturers instructions.

B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

D. Insulate any voids between the window frame and the rough opening with foam insulation.

3.02 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight closure.

3.03 APPLICATIONS

A. Water Management: Walls, Exterior Windows
   1. Provide weather-resistive barrier/housewrap
   2. Provide pathway for liquid water to exit exterior wall assembly
   3. Provide pan flashing, side flashing, and head flashing

3.04 LOCATION

A. REPLACEMENT WINDOWS
   1. DOUBLE HUNG:
      a. Dining A – west wall
      b. Family Room – east wall
      c. Kitchen – west wall
      d. First Floor Bathroom – east wall
      e. Second Floor Bathroom – east wall
      d. Second Floor South Bedroom – south wall
      e. Second Floor Sitting Room – west wall

f. Second Floor North Bedroom – east and north walls

2. PICTURE WINDOW
   a. Living Room – south wall

B. NEW WINDOWS
   1. DOUBLE HUNG
      a. Kitchen – north wall
      b. Living Room – west wall
      c. Second Floor North Bedroom – north wall

   2. OTHER
      a. Living Room – storm window for stained glass
      b. Front Entry - Transom

END OF SECTION

SECTION 09 0120

REPAIR OF PLASTER AND GYPSUM BOARD SURFACES

PART 1 GENERAL **$_____**

1.01 SUMMARY

A. This section covers surface repairs of plaster and gypsum board surfaces.

B. Finish surface type should be smooth unless otherwise indicated, including skimcoating

PART 2 PRODUCTS

2.01 ACCESSORIES

A. Galvanized metal lath

B. Joint Compound

C. Plaster

D. Plastic Tarps

PART 3 EXECUTION

3.01 REPAIR

A. Walls and Ceilings: Repair interior surface(s) so that finish surface is smooth, even and properly prepared for finish application.

1. Protect adjacent finished surfaces by covering with plastic or tarps.
2. Install galvanized metal lath (weight per city code) over area of back up as required. May also secure with screws and inserted piece of gypsum board in areas to be patched.
3. Before applying scratch coats, dampen areas to reduce absorption from joint compound/ plaster.
4. Apply finish coat and bring to thickness flush with surrounding surface.
5. The interior temperature must be no less than a minimum 60 degrees during this work.

3.02 LOCATION

A. Throughout; First and Second Floor as needed following improvements. Refer to drawings

END OF SECTION

SECTION 09 0160

HARDWOOD FLOORING RESTORATION

PART 1 GENERAL **$_____**

1.01 RELATED SECTIONS

A. See Section 099000 Painting and Coating.

B. See Section 01 6116 Volatile Organic Compound Content Restrictions

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 RESTORATION

A. Restore hardwood floors: Counter sink all nails and fill holes. Remove the quarter round molding and protect the wall molding with painters tape. Drum sand and edge floor finishing with 120 grit sandpaper to completely remove the existing finish. Vacuum and wipe floor with slightly water dampened rag, until no dust is present.

B. Apply a coat of Minwax Low-VOC Water Based Polyurethane base coat followed by 3 coats of Minwax Low-VOC Water Based polyurethane for floors.
   1. Product may not exceed 250 grams of VOC per Liter

3.02 LOCATIONS

A. First Floor:
   1. Throughout
   2. Except Bathroom
   2. Stair to Second Floor

B. Second Floor:
   1. Throughout
   2. Except Bathroom

END OF SECTION

SECTION 09 2116

GYPSUM BOARD INSTALLATION

PART 1 GENERAL **$_____**

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

2.02 BOARD MATERIALS

A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Thickness:
      a. Vertical Surfaces: 1/2 inch (13 mm).
      b. Ceilings: 1/2 inch (13 mm).

B. Backing Board For Wet Areas: One of the following products:
   1. Application: Surfaces behind tile in wet areas including tub and shower surrounds and shower ceilings.

2.03 ACCESSORIES

A. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
   1. Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
   2. Ready-mixed vinyl-based joint compound.
   3. Powder-type vinyl-based joint compound.
   4. Chemical hardening type compound.

PART 3 EXECUTION

3.01 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

3.02 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.

3.03 LOCATIONS

A. As required by suggested demolition, including but not limited to:
   1. First Floor Kitchen
   2. Wall patch on Second Floor

END OF SECTION

SECTION 09 3000

TILING

PART 1 GENERAL **$_____**

1.01 ALLOWANCES

A. Allowances for Tile of $3.00 per square foot.

1.02 FIELD CONDITIONS

A. Do not install adhesives in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

PART 2 PRODUCTS

2.01 TILE

A. Glazed Wall Tile Type Ceramic: ANSI A137.1 , and as follows:
   1. Colors: To be selected by Construction Manager from manufacturer's standard range.

2.02 TRIM AND ACCESSORIES

A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.

B. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.

C. Thresholds: Marble, white or gray, honed finish; 2 inches (50 mm) wide by full width of wall or frame opening; 1/2 inch (12 mm) thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.

2.03 GROUT MATERIALS

A. Standard Grout: Any type specified in ANSI A118.6 or A118.7.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and The Tile Council of North America Handbook recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

3.02 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over wood substrates, install in accordance with The Tile Council of North America Handbook Method F142, with standard grout, unless otherwise indicated.
   1. Where epoxy bond coat and grout are indicated, install in accordance with The Tile Council of North America Handbook Method F143.

B. Over wood substrate with backer board underlayment, install in accordance with The Tile Council of North America Handbook Method F144, for cementitious backer boards, with standard grout.

3.03 INSTALLATION - FLOORS - MORTAR BED METHODS

A. Over wood substrates, install in accordance with The Tile Council of North America Handbook method F141, with standard grout, unless otherwise indicated.

3.04 INSTALLATION - SHOWERS AND BATHTUB WALLS

A. At tiled shower receptors install in accordance with The Tile Council of North America Handbook Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.

B. At bathtub walls install in accordance with The Tile Council of North America Handbook Method B412, over cementitious backer units with waterproofing membrane.

C. Grout with standard grout as specified above.

3.05 INSTALLATION - WALL TILE

A. On exterior walls install in accordance with The Tile Council of North America Handbook Method W202, thin-set over concrete and masonry with latex-Portland cement grout.

B. Over cementitious backer units on studs, install in accordance with The Tile Council of North America Handbook Method W244, using membrane at toilet rooms.

3.06 LOCATIONS

A. Bathtub Tile Surround
   1. Second Floor Bath

B. Bathroom Tile Floor
   1. First Floor Bath
   2. Second Floor Bath

C. **Alternate #1** – Tile Kitchen floor if the wood floor cannot be restored

SECTION 09 9000
PAINTING AND COATING

PART 1 GENERAL **$_____**

1.01 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.02 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Paints and Coatings: Sherwin Williams Low VOC or an any manufacturer listed in MPI Approved Products List (at www.paintinfo.com) approved by Project Manger.
   1. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
   2. Provide all paint and coating products from the same manufacturer to the greatest extent possible.

B. Stains: Minwax Low VOC or any other manufacturer approved by Project Manager

C. Masonry: Benjamin-Moore elastomeric paint, flat finish.

2.02 MATERIALS - GENERAL

A. Volatile Organic Compound (VOC) Content:
   1. Provide coatings that comply with the most stringent requirements specified in the following:
      a. Flat: 50 grams/Liter
      b. Non-Flat: 50 grams/Liter
      c. Floor Coating: 100 grams/Liter
      d. Anti-Corrosive: 250 grams/Liter

2.03 PAINT SYSTEMS

A. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.

B. Where a specified paint system does not have a Premium Grade, provide Custom Grade system.

C. Where sheen is not specified or more than one sheen is specified, sheen will be selected later by Construction Manager from the manufacturer's full line.

D. Provide colors as directed by Construction Manager.

E. Provide smooth texture throughout.

2.04 EXTERIOR PAINT SYSTEMS

A. Wood Traffic Surfaces:
   1. Applications include but are not limited to Decks.
   2. EXT 6.5D Deck Stain: Wood Preservative MPI #37, Deck Stain MPI #33.

B. Masonry Paint

2.05 INTERIOR PAINT SYSTEMS

A. Dressed Lumber:
   1. Applications include but are not limited to doors, door frames, window frames, window casings, trim, baseboards, and moldings.

B. Plaster and Gypsum Board:

PART 3 EXECUTION

3.01 SCOPE -- SURFACES TO BE FINISHED

A. Paint all exposed surfaces except where indicated not to be painted or to remain natural; the term "exposed" includes areas visible through permanent and built-in fixtures when they are in place.

B. Paint the surfaces described in PART 2 and as follows:
   1. If a surface, material, or item is not specifically mentioned, paint in the same manner as similar surfaces, materials, or items, regardless of whether colors are indicated or not.
   2. Paint surfaces behind movable equipment and furnishings the same as similar exposed surfaces.
   3. Paint surfaces to be concealed behind permanently installed fixtures, equipment, and furnishings, using primer only, prior to installation of the permanent item.
   4. Paint back sides of access panels and removable and hinged covers to match exposed surfaces.

C. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically noted; factory-primed items are not considered factory-finished.
   2. Items indicated to receive other finish.
   3. Items indicated to remain naturally finished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.

3.02 APPLICATION

A. Apply products in accordance with manufacturer's instructions and as specified or recommended by MPI Manual, using the preparation, products, sheens, textures, and colors as indicated.

B. Do not apply finishes over dirt, rust, scale, grease, moisture, scuffed surfaces, or other conditions detrimental to formation of a durable coating film; do not apply finishes to surfaces that are not dry.

C. Use applicators and methods best suited for substrate and type of material being applied and according to manufacturer's instructions.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate; provide total dry film thickness of entire system as recommended by manufacturer.

E. Apply finish to completely cover surfaces with uniform appearance without brush marks, runs, sags, laps, ropiness, holidays, spotting, cloudiness, or other surface imperfections.

3.03 LOCATIONS

A. Throughout
   1. Walls and Ceilings: Eggshell Sherwin Williams Low VOC
      a. Wall Color: Wool Skein, SW 6148
      b. Ceiling Color: Ceiling White
   2. Interior Trim: Semi-gloss Sherwin Williams Low VOC
      a. Trim Color: Extra White, SW 7006

B. First and Second Floor Baths
   1. Walls and Ceilings: Semi-gloss Sherwin Williams Low VOC
      a. Wall Color: Nacre, SW 6154

b. Ceiling Color: Ceiling White

C. Basement:
1. Floor
a. Color: Match concrete floor grey

D. Exterior:
1. Front Porch - Stain
a. Color: Yankee Barn, SW3505
2. House siding
a. Color: Stone Lion, SW7507
3. House trim
a. Color: Windfresh White, SW7628
4. Garage to match house

END OF SECTION

SECTION 10 5623

CLOSET STORAGE SHELVING

PART 1 GENERAL **$_____**

1.01 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, with installation instructions.

PART 2 PRODUCTS

2.01 SHELVING APPLICATIONS

A. Shelf Depth: 12 inches (305 mm), unless otherwise indicated.

B. Other Bedroom Closets:
   1. Wall-to-wall shelf with free sliding hanger rod.
   2. Not less than 4 feet (1.25 m) of shoe shelf.

C. Coat Closets:
   1. Wall-to-wall shelf with integral hanger rod.

D. Linen Closets:
   1. Wall-to-wall shelves spaced at 13 inch (330 mm) vertically, not less than 16 inch (408 mm) deep.

E. Storage Closets:
   1. Wall-to-wall storage shelves, stacked at 13 inch (330 mm) vertically, not less than 12 inch (305 mm) deep.

2.02 MATERIALS

A. Wire Shelving: Factory-assembled coated wire mesh shelf assemblies for wall-mounting, with all components and connections required to produce a rigid structure that is free of buckling and warping.
   1. Construction: Cold-drawn steel wire with average tensile strength of 100,000 psi (690 MPa) resistance welded into uniform mesh units, square, rigid, flat, and free of dents or other distortions, with wires trimmed smooth.
   2. Coating: PVC or epoxy, applied after fabrication, covering all surfaces.
   3. PVC Coating: 9 to 11 mils (0.23 to 0.028 mm) thick.
   4. Epoxy Coating: Non-toxic epoxy-polyester powder coating baked-on finish, 3 to 5 mils (0.76 to 1.27 mm) thick.
   5. Standard Mesh Shelves: Cross deck wires spaced at 1 inch (25.4 mm).
   6. Close-Mesh Shelves: Cross deck wires spaced at 1/2 inch (12.7 mm).
   7. Shelf and Rod Units: Integral hanging rod at front edge of shelf.
   8. Free-Sliding Hanging Rod: Integral hanging rod that permits uninterrupted sliding of hangers the full width of the shelf.
   9. Shoe Shelves: Same wire spacing as standard mesh shelves; angled wall brackets; upturned front lip.

B. Fasteners: As recommended by manufacturer for mounting substrates.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions, with shelf surfaces level.

B. Install back clips, end clips at side walls, and support braces at open ends. Install intermediate support braces as recommended by manufacturer.

3.02 LOCATIONS

A. Closets Throughout

END OF SECTION

SECTION 10 7446

WINDOW WELLS

PART 1 GENERAL **$_____**

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Product: St. Paul Corrugating Lux-Right AreaWalls, Economy Grade, or like product approved by Construction Manager or Project Manager.

B. Manufactured from 18 gauge, pre-galvanized, regular spangle steel sheets.

C. Limitations: Care should be used in selecting the style and grade of larger and deeper window wells, which should be specified in heavier gauge and properly supported during backfill and while other construction activity is taking place.

2.02 ACCESSORIES

A. Fasteners: Use masonry nails, self-drilling anchors or other approved fasteners..

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Window wells should be extended beyond the rough opening for the window by at least 3". Some building codes will require additional clearance.

C. Top of the window wells should be 2" above the established grade line and down at least 12" below the windowsill.

D. Install proper gravel for drainage.

3.02 LOCATIONS

A. All basement windows that require a window well by code.

END OF SECTION

SECTION 11 3100

HRA RESIDENTIAL APPLIANCES

PART 1 GENERAL **$_____**

1.01 SUMMARY

A. All appliances must be purchased new and Energy Star certified or high efficiency models when Energy Star certification is not possible.

B. All appliances must meet the Sustainable Design Requirements covered in Section 018113

1.02 PRICE AND PAYMENT PROCEDURES

A. Appliances have been pre-purchased by the HRA for this project. Delivery of all material to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. Provide a bid price for labor and additional materials required to perform work to code.

1. Vendor: All, Inc. Appliances
2. Product:
   a. Refrigerator: FFHT2126LS/K Energy Star Rated 21 cu ft top mounted refrigerator, stainless steel, with icemaker
   b. Range: FFGF3053LS Frigidaire 30" Free-standing Gas Range, Self Clean, Clock
   c. Microwave/Hood: FFMV162LS Over the Range Micro/Hood, to be vented to exterior
   d. Dishwasher: FGHD2433KF Energy Star 24" Built-in Dishwasher, including dishwasher cord.
   e. Washer: FAFW3801LW Energy Star Residential Front Load Washer
   f. Dryer: FAQG7001LW Residential Gas Dryer

1.03 SUBMITTALS

A. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.

1.04 QUALITY ASSURANCE

A. Electric Appliances: Listed and labeled by UL and complying with NEMA standards.

B. Gas Appliances: Bearing design certification seal of AGA.

PART 3 EXECUTION

2.01 INSTALLATION

A. All appliances shall be uncrated, cleaned and readied for use.

B. Installation shall include all cord attachments, wiring, pluming as gas hook ups necessary for appliance operation.

C. Install in accordance with manufacturer's instructions.

D. Anchor built-in equipment in place.

2.02 LOCATIONS

A. Basement

B. Kitchen

END OF SECTION

SECTION 12 1110

HRA MAIL BOX AND HOUSE NUMBERS

PART 1 GENERAL **$_____**

1.01 PRICE AND PAYMENT PROCEDURES

A. Allowances: See Section 01 2100 - $50 Allowance, for Mailbox and House Number

PART 2 PRODUCTS

2.01 APPLICATIONS

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.02 LOCATION

A. House Number and Mailbox at Front Entrance

B. One House Number at Garage Overhead Entrance

SECTION 12 1111

BATHROOM FURNISHINGS

PART 1 GENERAL **$_____**

PART 2 PRODUCTS

2.01 TOWEL SETS

A. Install a metal bath set comprised of a hand towel ring, 24" towel bar and toilet paper holder

B. Manufacturer: Saga Series Toilet Accessories
   1. Hand Towel Ring: Model # DN6886xx
   2. Towel Bar: Model # DN6818xx
   3. Toilet Paper Holder: Model # DN6808xx

C. Brushed nickel finish to match faucet

2.02 MEDICINE CABINET

A. Install a medicine cabinet with hinged plate glass mirror and two shelves over the sink.

B. Manufacturer: Pace, Meadowood Maple. Model # SMC-2530

C. Brushed nickel finish to match faucet

2.03 SHOWER CURTAIN ROD

A. Install a show curtain rod using wall anchors.

B. Manufacturer: Moen, Adjustable Shower Rod. Model # DN2160xx

C. Brushed nickel finish to match faucet

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.02 LOCATIONS

A. First Floor Bathroom

B. Second Floor Bathroom

END OF SECTION

SECTION 12 3530

RESIDENTIAL CASEWORK

PART 1 GENERAL **$_____**

1.01 PRICE AND PAYMENT PROCEDURES

A. Kitchen and Bathroom Cabinet and Counter Top Allowance = $7000

B. Allowance covers material and not labor

1.02 SUBMITTALS

A. Shop Drawings: Indicate casework locations, large scale plans, elevations, clearances required, rough-in and anchor placement dimensions and tolerances.

1.03 QUALITY ASSURANCE

A. Products: Complying with KCMA A161.1 and KCMA Certified.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. The HRA has approved Shrock Select, Medallion or Mid-Continent

2.02 COMPONENTS

A. Kitchen Cabinets: See Kitchen Design

B. Bathroom Vanity Cabinets: Single 30 inch Vanity Cabinet shall match Kitchen Cabinet finish. Manufactured by Pace

C. Cabinet Construction: Plywood sides and bases.

D. Kitchen Countertop: Post formed plastic laminate over particle board, coved to back splash.
   1. Side Splash: Plastic laminate over particle board, square internal intersections to back splash and top surface, contoured to suit counter top profile.
   2. Manufacturer: WilsonArt, Desert Springs: 4904

E. Vanity Countertop: White solid recessed oval bowl

F. Door and Drawer Fronts: Solid wood.

G. Drawer Box Construction: Plywood with dovetail joinery

2.03 HARDWARE

A. Hardware: Schrock – Pull H63, Modern, Brushed Nickel

2.04 FABRICATION

A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.

B. Fabricate corners and joints without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.

2.05 FINISHES

A. Exposed To View Surfaces: Stain, seal, and varnish of _____ color as selected.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install casework, components and accessories in accordance with manufacturer's instructions.

B. Set casework items plumb and square, securely anchored to building structure.

3.02 LOCATIONS

A. Kitchen Cabinets & Counter Top: Kitchen

B. Bathroom Cabinet & Counter Top: Second Floor Bathroom

END OF SECTION

SECTION 22 3000

PLUMBING EQUIPMENT

PART 1 GENERAL **$_____**

1.01 SUBMITTALS

A. Product Data:
   1. Provide Owner's Manuals for all equipment.

PART 2 PRODUCTS

2.01 RESIDENTIAL INDIRECT-FIRED WATER HEATER

A. GENERAL REQUUIREMNTS
   1. Hot water tanks shall be designed for production of domestic hot water using hot water as heating source. The principle consist of two concentric tanks. The inner tank contains domestic hot water and the outer tank contains heating systems water.
   2. The inner tank material shall be 304L corrugated stainless steel or higher corrosion resistance stainless steel and have a maximum working pressure of 150 psi. The cold water connection into this tank shall extend to near the bottom of the tank. The hot water connection shall be at the top of the tank. Thanks shall be designed to be self-descaling.
   3. The outer tank shall be surrounded with a minimum of 2 inches of CFC/HCFC-free rigid polyurethane foam insulation with an equivalent "R" value of R-16.

B. MANUFACTURER: Amtrol Inc., Boilermate or like product approved by Project Manager
   1. Hot water tank shall have ETL certification.

2.02 ACCESSORIES

A. Power control wiring

B. Expansion tank

C. Circulation pump

D. Set-back Thermostat

PART 3 EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.

B. Coordinate with plumbing piping and related fuel piping work to achieve operating system.

C. Hot water tank shall be installed by a heating contractor whose principal occupation is the sale and installation of plumbing, heating, and or air conditioning equipment and shall be installed in compliance with all applicable codes.

D. Provide water & gas supply & flue piping

E. LOCATIONS

1. Basement - Water Heater - T and P relief discharge piping incorrect (MPC 2210 Subp. 4)
2. Basement - Water Heater - Water piping incorrect (MPC 1730 Subp. 1)
3. Basement - Water Heater - gas venting incorrect (IFGC 503)
4. Basement - Water Heater – not fired or in service (MPC 2180)
5. Basement - Water Meter - meter is removed or not in service (MPC 4715.1700)
6. Basement - Water Meter - meter needs repair or is broken
7. Basement - Water Meter - raise meter to a minimum 12 inches above floor (MPC 2280)
8. Basement - Water Meter - service valves not functional or correct (MPC 1800 Subp 3,4)

9. Basement – Water Piping – add appropriate hangers (MPC 1430 Subp 4)
10. Basement - Water Piping - boiler fill water line requires backflow assembly or device (MPC 2100)
11. Basement - Water Piping - improper fittings or usage (MPC 0420)
12. Basement - Water Piping - improper piping or usage (MPC 0520)
13. Basement - Water Piping - pipe sizing incorrect (MPC 4715.1730)
14. Basement - Water Piping - provide water piping to all fixtures and appliances (MPC 1700)
15. Basement - Water Piping - repair or replace all corroded, broken or leaking piping (MPC 4715.1720)
16. Basement - Water Piping - run 1 inch water line from meter to first major take off (SPRWS Water Code)
17. Basement - Water Piping - missing - replace to code.
18. Basement - Gas Piping - dryer gas shutoff; connector or piping incorrect (IFGC 402.1)
19. Basement - Gas Piping - run dryer vent to code (IFGC 613.1 - IMC 604.1)
20. Basement - Laundry Tub - provide a vacuum breaker for the spout (MPC 2000 B)
21. First Floor - Sink - properly cap old kitchen sink waste line on kitchen north wall
22. First Floor - Gas Piping - range gas shut off; connector or piping incorrect (IFGC 411 1.3.3)
23. First Floor - Toilet Facilities - fixture is broken or parts missing (MPC 0200 0.)
24. First Floor - Tub and Shower - provide stopper (MPC 1240)
25. Exterior - Lawn Hydrants - Requires backflow assembly or device (MPC 2000)
26. Obtain plumbing permits prior to commencement of work.

END OF SECTION

SECTION 22 4000

PLUMBING FIXTURES AND PIPING

PART 1 GENERAL **$_____**

1.01 PRICE AND PAYMENT PROCEDURES

PART 2 PRODUCTS

2.01 SINKS

A. Kitchen Sink: Remove existing sink to code legal dump.
   1. Sink: Install a 22 gauge 33"x22"x8" double bowl, stainless steel, self rimming kitchen sink. Manufacturer: Moen, Model number 2212, or like product to be approved by Project Manger
   2. Faucet: Manufactured by Moen, Model 7825 or like product to be approved by Project Manager
      a. Flow Rate: 2.0 GPM maximum

B. Laundry Tub: Remove existing sink to code legal dump.
   1. Sink: Install single bowl, 24" fiberglass laundry tray to fin under faucet.
   2. Faucet: 1.5 GPM

C. Bathroom Vanity:
   1. Sink: 31 inch solid recessed oval bowl vanity top Manufactured by Imperial Marble. Model number RCxx22SPW
   2. Faucet: Single lever faucet with 1.5 GPM maximum flow rate
      a. High Arch Faucet: Manufactured by Moen, Model number (Nickel) CA84003CBN

2.02 DUAL FLUSH TOILET

A. Dual Flush Water Closets: ASME A112.19.14; high efficiency and low consumption, vitreous china, dual flush, tank type.
   1. Bowl: Elongated.
   2. Flush Actuator: Manufacturer's standard.
   3. Rough in: 12 inch (305 mm).
   4. Seat: Manufacturer’s standard or recommended elongated closed front seat with lid.
   5. Color: White.

2.03 BATHTUBS

A. Bathtub: ASME A112.19.4M porcelain on steel bathtub with slip resistant surface, contoured front apron, 60 inches (1500 mm) long, _White_ color.

B. Bath and Shower Trim: ASME A112.18.1; concealed shower and over rim supply with diverter spout, pressure balanced mixing valve, bent shower arm with adjustable spray ball joint showerhead with maximum 1.5 gallons per minute (5.6 liters per minute) flow and escutcheon, lever operated pop-up waste and overflow.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Install new PVC or ABS waste and vent piping from basement to kitchen sink, all bathroom fixtures, and laundry sink.

C. Install flexible PEX piping with a minimum number of coupling to all fixtures. Install mechanical connectors and shut off valves if appropriate for each fixture.
   1. Size pipe to 1990 CABO minimums per table 2406.5
   2. Include clothes washer hook up.

D. Furnish and install all water piping and shut-off valves necessary to complete work.

E. Retrofit the water meter to comply with existing code.

F. Install components level and plumb.

G. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07 9005, color to match fixture.

H. Seal around plumbing penetrations in all exterior surfaces, surfaces that border on unconditioned spaces, between floors, and through the exterior of the building.

I. Clean out basement floor drain at end of construction period and verify operation and function.
   1. Install new drain cover.

3.02 LOCATIONS

A. Exterior:
   1. Hose bib - located south side of home.

B. Basement:
   1. Domestic Water
   2. Indirect-Fired Water Heater
   3. Laundry tub installation
   4. Laundry appliance hook up

C. Main Level:
   1. Kitchen:
      a. Kitchen Sink
      b. Dishwasher
   2. Bathroom:
      a. Dual Flush Toilet
      b. Vanity Sink

D. Second Floor
   1. Bathroom:
      a. Dual Flush Toilet
      b. Vanity Sink
      c. Bath Tub/Shower

END OF SECTION

SECTION 23 0000

RESIDENTIAL VENTILATION

PART 1 GENERAL **$_____**

PART 2 PRODUCTS

2.01 BATHROOM VENT FAN/LIGHT FIXTURE:

A. All vent fans shall be energy star rated ceiling mounted fan/light fixtures rated for a minimum 100 watt exterior ducted vent fan capable of a minimum of 80 CFM

B. Product: NuTone QTREN080FLT or like product to be approved by the Project Manger

C. Switch: Light and fan shall use same switch with a time delay for fan such as the EFI/Light Time Delay Switch Part # 5100.505 or equipped with a humidistat sensor.

D. Ducting: Install 4" metal duct and vent to the exterior ideally through a gable end using a 4" hooded vent with damper.

1. All duct seams shall be sealed with duct mastic. Insulate duct work with vinyl or foil faced R-6 minimum duct insulation.
2. Repair any damage to the ceiling installation or air seal fan/light assembly to the ceiling with low VOC caulk.

2.02

2.03 DUCT ASSEMBLIES

A. Low Pressure Supply (Heating Systems): 1/2 inch w.g. (125 Pa) pressure class, galvanized steel.

B. Low Pressure Supply (System with Cooling Coils): 1/2 inch w.g. (125 Pa) pressure class, galvanized steel.

C. General Exhaust: 1/2 inch w.g. (125 Pa) pressure class, galvanized steel.

D. Kitchen Cooking Hood Exhaust: 1/2 inch w.g. (125 Pa) pressure class, galvanized steel.

2.04 DUCTWORK FABRICATION

A. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.

B. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

D. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

2.05 KITCHEN HOOD EXHAUST DUCTWORK

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, SMACNA Kitchen Ventilation Systems and Food Service Equipment Fabrication & Installation Guidelines and NFPA 96.

PART 3 EXECUTION

3.01 INSTALLATION

END OF SECTION

SECTION 23 5400

FORCED AIR FURNACE AND DUCTS

PART 1 GENERAL **$_____**

1.01 SUBMITTALS

A. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

B. Product data indicating Heating, Cooling equipment and Ducts are in compliance with Air Conditioning Contractors of America (ACCA) Manuals, Parts J, S, and D. Alternate Compliance paths are as Follows:
   1. ASHRAE Handbooks

PART 2 PRODUCTS

2.01 GAS FIRED FURNACES

A. Annual Fuel Utilization Efficiency (AFUE): 0.95 ("condensing").

B. Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heating element, controls, air filter, humidifier, and accessories; wired for single power connection with control transformer.
   1. Safety certified by CSA in accordance with ANSI Z 21.47.
   2. Venting System: Direct.
   3. Combustion: Sealed
   4. Air Flow Configuration: Upflow.
   5. Heating: Natural gas fired.

C. Performance:
   1. HVAC contractor will be responsible to determine heat load using Manual J.

D. Cabinet: Steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.

E. Primary Heat Exchanger:
   1. Material: Hot-rolled steel
   2. Shape: Tubular type.

F. Secondary Heat Exchanger:
   1. Material: Aluminized steel.
   2. Coating: Polypropylene.

G. Gas Burner:
   1. Atmospheric type with adjustable combustion air supply,
   2. Gas valve, two stage provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
   3. Electronic pilot ignition, with electric spark igniter.

H. Supply Fan: Centrifugal type rubber mounted with direct drive with adjustable variable pitch motor pulley.

I. Motor: Refer to Section 22 0513; 1750 rpm two-speed, permanently lubricated, hinge mounted.

J. Air Filters: 1 inch (25 mm) thick glass fiber, disposable type arranged for easy replacement.

K. Ducts: Install all new supply and return air ducting to code.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with NFPA 90A.

B. Install gas fired furnaces in accordance with NFPA 54.

C. Provide vent connections in accordance with NFPA 211.

D. The Contractor shall have all HVAC ducting cleaned by a professional duct cleaning company after all interior repairs are completed inside the house.

END OF SECTION

SECTION 26 0001

POWER, WIRING AND DEVICES

PART 1 GENERAL **$_____**

1.01 SUMMARY OF BULLETIN 80-1 (Property Maintenance Code)

A. All hazardous, improper and/or illegal wiring shall be removed or required to the present Electrical Code. This will include other buildings on the property such as garages, sheds, etc.

B. Minimum size for all new services for single residential occupancies shall be 100 ampere, 240 Volt.

C. No additions or extensions will be allowed on an existing ampere services.

D. The Following are minimum requirements for new service installation:

1. **Electrical outlets required:** Every habitable room 120 square feet or less in area, of a dwelling or dwelling unit of a multiple dwelling shall contain at least two separate and remote duplex outlet shall be required for each additional 80 square feet or fraction thereof. Most new outlets must be Arc-Fault Circuit Interrupters (AFCI) protected according to Section 210.12 of the 2008 National Electrical Code.
2. **In Kitchens:** Three separate and remote duplex outlets shall be required. At least one of the required duplex outlets shall be supplied by a separate twenty ampere circuit. Any new receptacle installed for the counter top shall be of the Ground Fault Circuit Interrupter (GFCI) type.
3. **Every public hall, water closet compartment, bathroom, laundry room and furnace room must contain at least one electric light fixture.** In addition to the light fixture, every bathroom and laundry room must have at least one duplex outlet. The required duplex outlet in each laundry room must be on a separate twenty ampere circuit. The required duplex outlet in each bathroom must be of the (GFCI) type. Any existing outlets in any bathroom must be converted to a GFCI-protected outlet or removed. The required GFCI outlet in the bathroom must be immediately adjacent to the sink. If a bathroom is added or gutted as part of the update, a 20 ampere circuit will be required per NEC 210.11(C)(3).
4. **Every common hall and inside stairway** in every residential structure or dwelling unit shall be adequately lit with an illumination of at least five lumens per square foot in the darkest portion of the normally traveled stairs and passageways.
5. **All exterior exits and entryways** are required to be illuminated a minimum of one footcandle at grade level for security.
6. **Exterior lighting** at garages is required to be adequate so as to not endanger health or safety. An average of one footcandle at the pavement is required. Exterior lighting must be in conformance with other city codes.
7. **Basement:** One lighting outlet is required for each 200 square feet of floor space. At least one of the required basement lighting outlets shall be switched form the head of the stairs.
8. **Smoke Detectors:**
   a. All single-family dwelling shall have a hard-wired (120 volt electrical, not battery) battery-backup smoke detector installed near (not in) the bedrooms. If there are legal bedrooms on more than one level, the detector shall be installed on the level that has the greater number of bedrooms. If there are an equal number of bedrooms on more than one level, the detector shall be installed on the upper level near the bedrooms.
   b. If the project includes building construction that requires a Building Permit, additional hard wired interconnected and/or battery-type smoke detectors are required per the Building Code.
9. **Metallic Light Fixtures (Luminaries):** If within five feet horizontally or eight feet vertically of grounded surfaces (metallic piping, concrete floor, etc.) must be grounded.
10. **Residential Closet Lights:** All closet lights must either be a florescent fixture(luminaire) or an enclosed incandescent fixture of the types required by the present Electrical Code. Fixtures must not be directly over the storage area in a closet; they must either be moved or eliminated and blanked off.
11. **Service conduits run in outside walls:** If a 100-ampere service is changed from fuses to circuit breakers, the meter is already outside, and the existing conduit is run in the outside

wall, the conduit may be re-used. If the service is an upgrade (increase in amperage), conduit in the wall may not be re-used.

1.02 SECTION INCLUDES:

A. Rewire house to code

B. Overhead Garage Door Opener: see Section 08 3323

C. Certify Electrical Distribution: Electrician shall inspect all exposed wiring, motors, fixtures and devices for malfunction, shorts and hosing code compliance. Non-functioning and dangerous equipment and wiring shall be replaced

D. Replace existing electrical service with a residential, 150 amp, single phase, 3 wire electric service to the basement.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Conduit and Cable: Provide materials that meet code requirements.

B. New Service: Include a main disconnect, 22 circuit panel board, meter socket, weather head, service cable, and ground rod and cable. Seal exterior service penetrations.
   1. New service panel shall conform to the BOCA Existing Structures code.

C. Devices and Coverplates: Provide all White or Ivory devices per Project Managers Selection. Provide heavy duty residential grade devices.

D. Smoke/CO Detectors: Hard wired w/ battery-back up type units

E. Doorbell system: System containing a low voltage transformer, power connection, buzzer and front door button.

F. Equipment Wiring: Provide the correct power supply on separate circuit, with over current protection including all connecters for the Water Heater, Boiler, Microwave, Refrigerator, and Dishwasher.
   1. Kitchen Receptacles to be 20 amp Circuits:
      a. Install small appliance circuits along counter tops to code.
         1) Evenly dividing the number of countertop appliance receptacles between 2 circuits.
         2) GFCI receptacles when they fall within 6 feet of sink.
      b. Individual circuits for permanently installed appliances; range, dishwasher, exteriorly vented Microwave with Rangehood and refrigerator to code.

G. Bathroom Vent Fan/Light Fixture: Shall be Energy Star rated ceiling mounted fan/light fixture rated for a min 100 watt exterior ducted vent fan capable of a minimum of 80 CFM
   1. Product: NuTone QTREN080FLT or like product to be approved by the Project Manger
   2. Switch: Light and fan shall use same switch with a time delay for fan such as the EFI/Light Time Delay Switch Part # 5100.505 or equipped with a humidistat sensor.
   3. Ducting: Install 4" metal duct and vent to the exterior ideally through a gable end using a 4" hooded vent with damper.
      a. All duct seams shall be sealed with duct mastic. Insulate duct work with vinyl or foil faced R-6 minimum duct insulation.
      b. Repair any damage to the ceiling installation or air seal fan/light assembly to the ceiling with low VOC caulk.

H. GFCI Receptacles: Install flush mounted, ground fault circuit interrupted ivory duplex receptacle adjacent to lavatory using copper Romex.

2.02 MATERIALS

A. All materials shall be UL approved and/or National Electrical Code rated.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Building Codes: The extent of electrical work indicated in the Scope of work is stated generally to indicate end result of work. The Contractor is responsible for making a thorough inspection of the site to determine the full extent of work required to achieve the end results. All electrical work must meet current building code requirements and must pass City of Saint Paul field inspection. Any work that does not meet codes or pass inspection must be corrected to the satisfaction of the city inspector at no additional cost to the Owner.

C. Remove and dispose of all abandoned wiring and devices. Modify existing wiring and devices as indicated.

D. All new wiring, when passing through living areas, shall be concealed.

E. All new receptacles and switches

F. All new outlet covers: White

G. All drilling, cutting and fastening shall be neat and true, and shall not critically damage framing members.

H. All patching shall match the surrounding surface.

3.02 LOCATIONS

A. Throughout
   1. House
   2. Garage

END OF SECTION

SECTION 26 5101

HRA LIGHTING

PART 1 GENERAL **$_____**

1.01 PRICE AND PAYMENT PROCEDURES

PART 2 PRODUCTS

2.01 INTERIOR LIGHTING

A. Royce Lighting
   1. Product Series: Valhalla, Heirloom Bronze Finish
      a. 3 Light Flush Mount: Model RFM2247
      b. 2 Light Wall Sconce: Model RW2247
      c. 3 Light Semi Flush Mount: Model RSF2247
      d. 3 Light Vanity: Model RV2247
      e. Pendant Light: Model RP2247/1-46

B. Bathroom Fan / Light
   1. NuTone, Model QTREN080FLT

C. Other Acceptable Manufacturers: To be approved by Project Manager

2.02 EXTERIOR LIGHTING

A. Garages: DualBrite 300 watt motion security light with shields: Model SL-5318-WH-D

B. Exterior Pendants:
   1. Patriot Lighting
      a. Mission, Model #od37276bbz

C. Exterior Flush Mount
   1. Patriot Lighting
      a. Mission, Model #MND0092A

2.03 BASEMENT LIGHTING

A. Stairway: One fixture on ceiling of rear entry. One switch at the top of the basement stairway to control this light.

B. Additional ceiling mounted pull chain lights in various location throughout the basement where necessarily.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. All new wiring when passing through living areas shall be concealed.

C. Wire mold and surface mount boxes for receptacles.

D. Install luminaires plumb and square and aligned with building lines and with adjacent luminaries.

3.02 LOCATIONS

A. BASEMENT:
   1. Replace all with new pull chain porcelain fixtures where currently existing

B. MAIN LEVEL:
   1. Porch – Ceiling mounted fixture.
   2. Front Entry - Ceiling mounted fixture.
   3. Family Room – Ceiling mounted fixture.
   4. Family Room Closet – Wall sconce.
   5. Living Room – Ceiling mounted fixture.
   6. Dining B – Ceiling mounted fixture.
   7. Bathroom – Vanity light and fan/light combo.
   8. Kitchen – Pendant mounted fixture and ceiling mounted fixture.
   9. Dining A - Ceiling mounted fixture and ceiling mounted fixture.

10. Stairway to basement – Ceiling mounted fixture.
11. Rear Entry Closet – Ceiling mounted fixture.

C. UPPER LEVEL:
1. Hall – Ceiling mounted fixture.
2. South Bedroom – Ceiling mounted fan/light.
3. South Bedroom Closet – wall sconce.
4. Sitting Room - Ceiling mounted fan/light.
5. Bathroom - Vanity Light and fan/Light combo.
6. North Bedroom – Ceiling mounted fan/light
7. North Bedroom Closet – Wall sconces.

D. EXTERIOR:
1. Rear Entry – Two wall fixtures, wall switch
2. Exterior fixtures are switched from the interior

END OF SECTION

SECTION 28 1600
INTRUSION DETECTION

PART 1 GENERAL **$_____**

1.01 SUMMARY

A. Provide and install a security system, to include a minimum of hardwired control panel with cellular transmitter (no phone line required), 2 hardwired keypads, two (2) Door sensors, motion detector, low temperature monitoring and siren.

B. Include a monthly monitoring service at a rate not to exceed $50/month.

C. Contracts for monitoring must be month to month, not an extended period.

D. Monitoring shall begin upon completion of construction and be paid by Owner.

1.02 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and indicated.

PART 2 PRODUCTS

2.01 ALARM CONTROL PANEL

A. Control Panel: Modular construction with surface wall-mounted enclosure.

B. Power supply: Adequate to serve control panel modules, remote detectors, and alarm signaling devices. Include battery-operated emergency power supply with capacity for operating system in standby mode for 24 hours.

2.02 INITIATING DEVICES

A. Magnetic Switches:

B. Motion Detectors:

2.03 SIGNAL DEVICES

A. Alarm Bells: NFPA 72, electric single stroke, 8 inch (200 mm) bell with operating mechanism behind dome. Sound Rating: 81 dB at 10 feet (3 M).

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use 18 AWG minimum size conductors for detection and signal circuit conductors. Install wiring in cable.

C. As soon as System is installed contact HRA Project Manager www.Marty.McCarthy.ci.stpaul.mn.us by email to inform him/her to apply for a security permit.

3.02 CLOSEOUT ACTIVITIES

A. Demonstrate normal and abnormal modes of operation, and required responses to each.

END OF SECTION

SECTION 31 2200

GRADING

PART 1 GENERAL **$_____**

PART 3 EXECUTION

2.01 ROUGH GRADING

A. When excavating through roots, perform work by hand and cut roots with sharp axe.

2.02 FINISH GRADING

A. Build up ground slope at foundation wall using clean fill.

B. New fill shall have an approximate slope of 1/12 and extend away from the foundation wall approximately five feet.

C. Adjust window wells for new slope.

D. Remove roots, weeds, rocks, and foreign material while spreading.

E. Vigorously tamp or roll new fill to achieve settled depth.

F. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

2.03 LOCATIONS

A. See Landscape Plan.
   1. This plan does include a raingarden

END OF SECTION

SECTION 32 1313

CONCRETE PAVING

PART 1 GENERAL **$_____**

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

A. Concrete Sidewalks and Median Barrier: 3,000 psi (20.7 MPa) 28 day concrete, 4 inches (100 mm) thick, buff color Portland cement, exposed aggregate finish.

2.02 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

PART 3 EXECUTION

3.01 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

3.02 COLD AND HOT WEATHER CONCRETING

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

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

3.03 FINISHING

A. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch (6 mm) radius.

B. Curbs and Gutters: Light broom, texture parallel to pavement direction.

3.04 LOCATIONS

A. See Landscape Plan

B. Garage apron to alley

C. Front entry sidewalk and steps

D. Rear entry sidewalk

END OF SECTION

SECTION 32 1413
PRECAST CONCRETE UNIT PAVING

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Provide characteristics of paver unit, detectable warning pavers, dimensions, and special shapes.

B. Samples: Submit two samples of each paver type, illustrating style, size, color range and surface texture of units being provided.

PART 2 PRODUCTS

2.01 MATERIALS

A. Non-interlocking Pavers: Precast concrete.
   1. Size: 4 inches (8 mm).
   2. Thickness: 2-3/8 inches (60 mm).
   3. Color: Black/Red.

B. Sand for Setting Bed: Clean washed natural sand or crushed stone complying with gradation requirements of ASTM C33 for fine aggregates.

C. Sand for Joints: Fine washed sand with 100 percent passing No. 16 (1.18 mm) sieve and not more than 10 percent passing No. 200 (0.075 mm) sieve.

D. Edging: Pavers in soldier patern.

PART 3 EXECUTION

3.01 INSTALLATION OF SOLID PAVER UNITS

A. Spread sand evenly over prepared substrate surface to a thickness of 1-1/2 inch (38 mm).

B. Dampen and roller compact sand to level and even surface.

C. Screed and scarify top 1/2 inch (12 mm) of sand.

D. Place paver units in grid pattern, from straight reference edge.

E. Sprinkle sand over surface and sweep into joints. Moisten joints and recover with additional sand until firm joints are achieved. Remove excess sand.

3.02 LOCATION

A. North of house, area at rear French doors.

END OF SECTION

SECTION 32 3129

WOOD FENCES AND GATES

PART 1 GENERAL **$_____**

1.01 SUMMARY

A. Provide a 6' high wood privacy fence and gates

1.02 SECTION INCLUDES

A. Wood fence, gates and hardware.

PART 2 PRODUCTS

2.01 MATERIALS

A. Lumber Standards: Comply with PS 'American Softwood Lumber Standard" for lumber and with applicable gradeing rules of inspection agencies.

B. Wood Moisture Content: Comply with requirements of referenced quality standard and manufacturer's recommendations for mositure content of finish carpentry.

C. Fence Materials: Provide the Following:
   1. Species and Grade: Western Red Cedar, heartwood. No cracks, splits or warps.
   2. Posts: 4x4 (3 1/2 x 3 1/2 actual)
   3. Rails: 2x4 (1 1/2 x 1/2 actual), 3 per fence section (top, bottom and middle)
   4. Pickets: 1x4 (3/4 x 3 1/2 actual), square edges and corners.

D. Fasteners: Stainless Steel.

E. Gates:
   1. 3' wide gates consisting of 2x4 frame and diagonal bracing with 1x4 pickets. Three heavy duty hinges and heavy duty latch per gate.

F. Cast -in- place Concrete: See Section 03 3000

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Locate utilities before installation. Locate fence and gates according to site plan. Install all components true and level

C. Set 12" sonotubes at post locations to allow for concrete footings minimun 42" below grade plus 6" gravel. Install posts per site plan, maximum of 6'-0" o.c.. Set post level on top of gravel before pouring footing.

D. Slope top of footing to drain away from posts, top of footing at grade level. Allow for concrete footings to cure before installing rails and pickets.

E. Install rails 2" below finished top of pickets, 2" above bottom, and at midpoint, with outside face of rails flush with outside face of post. Install pickets on exterior side (facing away from house) of rails and post, with 1/4"gap between pickets.

F. Install pickets with consistent top height across entire fence and minimum 2" maximum 5" between bottom of pickets and grade (consistent height each section between posts).

3.02 LOCATION

A. North property line, around the back yard and at front retaining wall.

END OF SECTION

SECTION 32 3223

SEGMENTAL RETAINING WALLS

PART 1 GENERAL **$_____**

1.01 QUALITY ASSURANCE

PART 2 PRODUCTS

2.01 RETAINING WALLS

A. Design Standard: Design retaining walls to be capable of withstanding the effects of gravity loads due to soil pressures resulting from grades indicated, determined in accordance with NCMA TR 127 Design Manual for Segmental Retaining Walls; perform all stability analyses specified in this standard.

B. Shear Resistance: Design the wall not to exceed the capacity of materials and soils to resist shear:

C. Soil Reinforcement:
   1. Test reinforcement to be used in accordance with ASTM D6706 using soil taken from project site.

D. Drainage: Design to prevent water accumulation in retained soil; use drainage fill and drainage pipe as required; provide outlets at 50 foot (15 m) intervals along length of wall, minimum.

2.02 MATERIALS

A. Retaining Wall Units: Machine-formed concrete blocks of shapes and sizes suitable for the retaining wall configuration required and complying with ASTM C1372 and the following:
   1. Face Color: Natural cement gray .
   2. Texture: Split face, on all exposed surfaces.

B. Cap Units: Portland cement concrete machine-formed solid blocks, matching segmental concrete units, complying with ASTM C1372, with abutting edges saw cut or formed to provide tight fitting, flush end-to-end joints.
   1. Depth: To fully cover wall units.

C. Shear Connectors: Connection method to withstand design stresses and prevent movement of segmental units, and to hold soil reinforcement in proper design position during grid pre-tensioning and backfilling.

D. Drainage Filter: Geosynthetic textile.

E. Aggregate for Leveling Pad: Compacted sand, gravel, or crushed rock complying with one of the following:
   1. Meeting requirements of ASTM D1241, Gradation C.
   2. Do not use pea gravel.

F. Concrete for Leveling Pad: Unreinforced concrete with compressive strength of 3,000 psi (20 MPa)

G. Drainage Fill: Clean, freely draining aggregate placed within, between, or immediately behind segmental units; do not use pea gravel; use one of the following:
   1. Aggregate as approved by Construction Manager.
   2. Aggregate meeting requirements of ASTM D448, Size No. 57.
   3. Crushed stone or coarse gravel, 3/8 to (3/4 mm); no more than 5 percent passing No. 200 sieve.
   4. Crushed stone or coarse gravel, meeting requirements of ASTM D422.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer instructions, and applicable codes and regulations.

B. Segmental Concrete Units:
   1. Place first course of units on leveling pad; check alignment and level. Check for full contact with base and for stability.
   2. Do not leave gaps between units.

3. Place succeeding courses. Check for proper alignment and batter.

C. Soil Reinforcement: Install each layer on fully compacted fill.

D. Drainage Fill: Place drainage fill in, between, and behind units.

E. Backfill: Place, spread, and compact backfill from behind drainage fill to undisturbed soil.

F. Cap Units: Install and top two courses of units with masonry adhesive.

3.02 LOCATION

A. Replace existing retaining wall in front yard at south property line.

END OF SECTION

SECTION 32 9223

SODDING

PART 1 GENERAL **$_____**

PART 2 PRODUCTS

2.01 MATERIALS

A. Sod: TPI, Certified Turfgrass Sod quality; cultivated grass sod; type indicated in plant schedule on Drawings; with strong fibrous root system, free of stones, burned or bare spots; containing no more than 5 weeds per 1000 sq ft (100 sq m). Minimum age of 18 months, with root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners.

PART 3 EXECUTION

3.01 LAYING SOD

A. Moisten prepared surface immediately prior to laying sod.

B. Lay sod immediately after delivery to site to prevent deterioration.

C. Lay sod smooth and tight with no open joints visible, and no overlapping; stagger end joints 12 inches (300 mm) minimum. Do not stretch or overlap sod pieces.

D. Water sodded areas immediately after installation. Saturate sod to 4 inches (100 mm) of soil.

3.02 MAINTENANCE

A. General Contractor is responsible for the maintanance of sod until project closeout.

3.03 LOCATION

A. See Landscape Plan

B. Site Work, as needed. (no bare soil permitted)

END OF SECTION

SECTION 32 9300
PLANTS

PART 1 GENERAL **$_____**

1.01 PRICE AND PAYMENT PROCEDURES

A. Allowances: See Section 01 2100 - Allowance of $1500 for plants, mulch and other material included in Landscape Plan.

B. This allowance does not cover sod or materials for a retaining wall.

C. This allowance does not include labor

PART 2 PRODUCTS

2.01 PLANTS

A. Plants: Species, size and quantity identified in Landscape Plan, grown in climatic conditions similar to those in locality of the work.

2.02 MULCH MATERIALS

A. Mulching Material: Hardwood species wood shavings, free of growth or germination inhibiting ingredients.

PART 3 EXECUTION

3.01 RAINGARDEN INSTALLATION

A. Remove 18 inches of soil leaving compacted 1 to 1 side slopes rising to finished grade.

B. Deeply till and break apart basin floor beyond compaction.

C. Add 2 inches of leaf compost and till into soil.

D. Finish Raingarden by hand grading a flat, level basin and 2 to 1 side slope, as indicated on Landscape Plan.

E. Add 2-inches of shredded hard wood mulch, as with slopes

F. Install edging as indicated on Landscape Plan.

G. Ensure that downspout runoff enters the raingarden.

3.02 PLANTING

A. Set plants vertical according to the Landscape Plan.

B. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

3.03 MAINTENANCE

A. Provide maintenance at no extra cost to Owner; Owner will pay for water.

3.04 LOCATION

A. As indicated by the Landscape Plan

END OF SECTION

Color and Material Schedule

Project Address: 653 Cool Ave. E.

Contractor:

	Location	Description	Manufacturer	Finish	Color	Notes
Lighting	Front Entry, Living Room, Family Room, Dining A, Rear Closet, Rear Stair, Kitchen, and Second Floor Hall (Total 10)	Flushmount Ceiling	Royce Lighting, Valhalla		Heirloom Bronze	at Menards
	First Floor Bathroom	3-Light Vanity	Royce Lighting, Valhalla		Heirloom Bronze	at Menards
	Second Floor Bathroom	3-Light Vanity	Royce Lighting, Valhalla		Heirloom Bronze	at Menards
	Second Floor Bedrooms and Sitting Room (Total 3)	Fan/Light	Hunter, Stratford 44", Model 28690		White	
	Dining Room B	3 Light Semi Flush Mount	Royce Lighting, Valhalla		Heirloom Bronze	at Menards
	Kitchen (Total 3)	Pendant Light	Royce Lighting, Valhalla		Heirloom Bronze	at Menards
	Overhead Garage Door	Motion Detector Sconce Light	DualBright 300 Watt motion security light with shields Model SL-5318-WH-D			at Menards
	Garage Service Door and Rear Entry to House -2	Non-motion Detector Light	Patriot Lighting, Mission, Model MND0092A			
	Front Entry Porch	Pendant Light	Mission, Model #od37276bbz		Burnished Bronze	at Menards
	Rear Entry	2 Light Wall Sconce	Royce Lighting, Valhalla		Heirloom Bronze	at Menards
	Family Room Closet, South Bedroom Closet, North Bedroom Closet, Rear Entry Closet (Total 3)	Wall Sconce	Royce Lighting, Valhalla		Heirloom Bronze	at Menards
	Bathrooms - First and Second Flr	Fan/Light	NuTone QTREN080FLT or equal			
	Outlet and Switchplate Covers					
Plumbing Fixtures	Kitchen	Kitchen Faucet	Moen, Model: 7825		Chrome	at Menards
	Kitchen	Kitchen Sink	Moen, 33"X22"X8" Model 2212		Stainless	at Menards
	Bathroom - First Floor	Bathroom Faucet	Moen, High Arc CA84003CBN		Nickel	at Menards
	Bathroom - First Floor	Bathroom Faucet	Moen, High Arc CA84003CBN		Nickel	at Menards
	Bathroom - Second Floor	Bathroom Faucet	Moen, High Arc CA84003CBN		Nickel	at Menards
	Bathroom - Second Floor	Recessed Oval Bowl Vanity Top	Imperial Marble, RCxx22SPW		White	at Menards
	Bathroom - Second Floor	Shower	Moen, 82008SRN		Nickel	at Menards
Casework and Furnishings	Kitchen	Kitchen Cabinets	Schock, Medallion or Midcontinent, full overlay flat door and drawer	See Plan	Cider/Wheatfield	Maple cabinet
	Kitchen	Kitchen Cabinet Hardware	Schrock Hardware, Model Pull H63 for drawers and doors		Brushed Nickel	at Menards or Home Depot
	Kitchen	Kitchen Counter Top	WilsonArt, Desert Springs 4904		Desert Springs	at Menards
	Bathroom - First Floor	Bathroom Vanity	Keep existing			
	Bathrooms - Second Floor - 2	Bathroom Vanity	Pace, MDW-3621		Meadowood Maple	at Menards
	Bathrooms- First and Second Floor 2	Medicine Cabinet	Pace, Model: SMC-2530		Meadowood Maple	at Menards
	Bathrooms - First and Second Floor - 2	Toilet Topper	Pace, Model: MOJ-2430-MDW		Meadowood Maple	at Menards
	Bathrooms - First and Second Floor - 2	Towel Bar (2 Total)	Moen, Model # DN6818xx		Brushed Nickel	at Menards
	Bathrooms - First and Second Floor - 2	Toilet Paper Holder	Moen, Model # DN6808xx		Brushed Nickel	at Menards
	Bathrooms - First and Second Floor - 2	Hand Towel Ring	Moen, Model # DN6886xx		Brushed Nickel	at Menards
	Bathrooms - Second Floor	Curved Shower Rod	Moen, Model # DN2160xx		Brushed Nickel	at Menards
	Kitchen	Hardware	Schrock Hardware, Model Pull H63 for drawers and doors		Brushed Nickel	at Menards
Coatings	Walls Throughout (except bathrooms and Second Floor Sitting Room)	Wall Paint	Sherwin Williams No VOC, SW 6148	eggshell	Wool Skein	Knock Down Finish
	Walls Kitchen	Wall Paint	Sherwin Williams No VOC, SW 6148	semi-gloss	Wool Skein	
	Walls Bathrooms	Wall Paint	Sherwin Williams No VOC, SW 6154	semi-gloss	Nacre	
	Ceiling Throughout (except kitchen and bathrooms)	Ceiling Paint	Sherwin Williams No VOC	flat	ceiling white	Knock Down Finish
	Ceiling Kitchen and Bath	Ceiling Paint	Sherwin Williams No VOC	eggshell	ceiling white	
	Second Floor Bedrooms, Sitting Room and Second Floor Hall	Trim	Sherwin Williams No VOC, SW 7757	semi-gloss	High Reflectance White	
	Walls Sitting Room	Wall Paint	Sherwin Williams No VOC, SW 6154	eggshell	Nacre	
	Front Living Room Stained Glass Window	Trim	Encapsulating Paint			
	Baseboard in Living Room, Dining A and B, Family Room and Kitchen	Trim	Encapsulating Paint			
Flooring	Living Room, Dining Room, Kitchen, Family Room, Bedrooms, Sitting Room, 2nd Floor Hall, and Stair to Second Floor	Refinished Wood				
	Bathroom - First Floor	Keep Existing Floor Tile				

	Bathroom - Second Floor	Ceramic Tile	American Olean Midwest, Torre Venato		Sabbia TN86	at American Olean
Appliances	Kitchen	Range	Fidgidaire 30", Gas Range FFGF3053LS		stainless	
	Kitchen	Microhood	FFMV16LS, vented to exterior		stainless	
	Kitchen	Refrigerator	Energy STAR, 30" wide, FFHT2126LS/K		stainless	
	Kitchen	Dishwasher	Energy STAR, 24" Frigidaire FGHD2433KF		stainless	
	Second Floor	Washer	Energy STAR, 18 cubic feet FAFW3801LW		stainless	
	Second Floor	Dryer	Gas Dryer, FAQG7001LW		stainless	
Doors	Front Entry	Storm and Steel EntryDoor	Rochester, Patina, Model A73190			at Menards
	House Rear Entry	French Door Storm and Steel Entry Door	Mastercraft LT-10 half view w/ internal blind			
	Service Door	Steel Entry Door	Provided with Garage package			at Menards
	Interior doors	Interior Wood Door	Replace interior doors with 2 panel door			at Menards
	Door Hardware	Interior Doors	Schlage, Avanti, Model 221-389x		Satin Nickel	
	Door Hardware	Front and Rear Entry Door	Schlage, Avanti, Model 221-409x		Satin Nickel	
Exterior Finishes	House and Garage Siding	Lap Siding	Hardie-Board	flat	SW7507 - Stone Lion	Pre-Purchase
	Roof - House and Garage	Weathered Wood	GAF Elk 30 year HD shingle			Pre-Purchase
	Door and Window Trim		Safe Encasement Products paint	flat	SW7628 - Windfresh White	at Diamond Vogel
	Soffit/Fascia	White		flat	SW7628 - Windfresh White	
	Front Porch Floor / Ceiling	Stain color	Sherwin Williams No VOC, SW 3505		Yankee Barn	
	Gutters/Downspouts	Match house color	Edco			at United Products

Materials Pre-Purchased for: 653 Cook Avenue

1. **Menards garage kit**
   Includes: framing and roof trusses, sheathing, service door and small window (see attached invoice for details)

2. **All, Inc. Appliances**
   Refrigerator: FFHT2126LS/K Energy Star Rated 21 cu ft top mount refrigerator, stainless steel, with icemaker
   Range: FFGF3053LS Frigidaire 30" Free-Standing Gas Range, Self Clean, Clock
   Microwave/Hood: FFMV162LS Over the Range Micro/Hood, to be vented to exterior
   Dishwasher: FGHD2433KF Energy STAR 24" Built-In Dishwasher, including dishwasher cord
   Washer: FAFW3801LW Energy STAR Residential Front Load Washer
   Dryer: FAQG7001LW Residential Gas Dryer

3. **Lampert Roofing**
   Includes: GAF Elk Timberline 30 year HD shingles, Timbertex, Ice & Water shield and 15 lb felt
   Shingle Color: Weathered Wood
   Shingle Location: House and New Garage

4. **Lampert Siding**
   Includes: Pre-primed Hardie Siding and Tyvek Housewrap
   Siding Location: House and New Garage

Delivery of all materials to the job site is included in pre-purchase. Contractor is responsible for contacting specified vendor to arrange for and take delivery. See attached invoices for specifics and vendor contact information.