REQUEST FOR PROPOSALS/QUALIFICATIONS FOR A FEASIBILITY STUDY FOR THE RENOVATION/REDEVELOPMENT OF THE BIRCHWOOD APARTMENT COMPLEX

FOR
LYNCHBURG REDEVELOPMENT AND HOUSING AUTHORITY

Contact Information

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LEGAL NOTICE

The Lynchburg Redevelopment and Housing Authority Request for Proposals/Qualifications for a Feasibility Study for the Renovations/Redevelopment of the Birchwood Apartment Complex

Project # 13-3-2020

The Lynchburg Redevelopment and Housing Authority is requesting proposals for architectural and engineering services to provide a site assessment, schematic design plans, and a detailed cost estimate for the renovation/redevelopment of the entire Birchwood Apartment Complex.

Proposers must have, or be firms employing a person with, a current license and registration by the State of Virginia as an architect or professional engineer, with a minimum of five (5) years’ experience. The fee for services may be negotiated with firm chosen to be the most qualified.

Offerors are invited to submit a proposal in a sealed envelope, clearly marked “Feasibility Study Renovation/Redevelopment Birchwood Apartments” no later than 4:00p.m. on September 1, 2020 at the Housing Authorities main office at 918 Commerce Street, Lynchburg VA, 24504. The contact person is Bobby Bennett. There must be two (2) copies and a PDF of the proposal. For details about Lynchburg Redevelopment and Housing Authority visit: www.lynchburghousing.org

1. Introduction: Lynchburg Redevelopment and Housing Authority (here in after “LRHA”) seeks proposals from qualified Architectural and Engineering (“A/E”) firms for the purpose of providing a site evaluation(s), schematic design plans, and a construction cost estimate for the renovation/redevelopment of the following property.

   Birchwood Property Information
   - 103 units built in 1973-74
   - 9.87 total acres
   - 5 main multi-story apartment buildings contain 20 units each
   - Each main apartment building has a gross square footage of 20,974
   - Zoned R-4 High Density Multi-Family Residential

The contract between LRHA and the winning firm may be amended upon satisfactory completion of this study to include continued design services through design development phase, construction document phase, bidding phase, and/or construction administration phase of the potential project. The total budget for this project is to be determined through this Feasibility Study.
2. **Scope of Services:** LRHA is seeking proposals from qualified registered architectural consulting firms/individuals to conduct a Feasibility Study and prepare schematic design options and cost estimate for the renovation/redevelopment of the Birchwood Apartment complex. A cost estimate shall be prepared to identify the anticipated cost of construction based upon the selected schematic design solution.

The general scope shall include, but no be limited to the following task:

**Task #1: Space Needs Assessment**

**Description:** In consultation with LRHA evaluate the property to determine and propose the number of units, not to exceed 103, and the configuration of building on the property. Within task #1 a topographic and boundary survey should be included.

**Deliverables:** A written report summarizing space needs in order to determine number of buildings, number of units, and the needed communal areas, that would be feasible on the site.

**Task #2: Schematic Design**

**Description:** Develop a diagram/drawing that incorporates the stated needs as outlined within the Space Needs Assessment. Diagram should provide conceptual idea of the result of construction. This task should also include site design and phasing of the project(s) if necessary.

**Deliverables:** Diagram that demonstrates the conceptual idea of the renovations/redevelopment of the site to support a healthy neighborhood environment. Site design that illustrates the layout of the buildings on the property and number of units to be included, as well as how the design could be accomplished either by phasing of the project or one time construction rebuild of the entire site.

**Task #3: Construction Cost Estimates and Schedule**

**Description:** Develop a schematic level Construction Cost Estimate that includes all anticipated hard cost related to the construction of the proposed building project, inclusive of any demolition or abatement of the site. Provide a total project budget incorporating anticipated soft cost and contingencies. Develop a preliminary project schedule to include selection of A/E team, preliminary design, zoning approval process, production of permits drawings, permit review, bidding, General Contractor selection and construction.

**Deliverables:** Provide a written construction cost estimate and schedule.
Task #4: Evaluation of Existing Apartment Complex

**Description:** Review and apply the March 2017 Facilities Assessment (attached PDF file) of the Birchwood apartments to provide an updated evaluation of the exterior building conditions, roof, shell, HVAC, electrical, and plumbing.

**Deliverables:** Provide a written report detailing current conditions along with recommendations, with cost estimates of what the needs for improvement are.

Task #5: Completion of Feasibility Study

**Description:** Complete the above task and provide two (2) hard copies of the bound written report based on the described scope of services as outlined above as well as one (1) electronic copy (PDF) on a “CD” or a “thumb drive”. LRHA shall own the rights to any reports, plans, or materials produced under this Scope of Services.

3. **Project Schedule and Meetings:** It is the goal of LRHA to have a plan for a renovated/redevelopment of the Birchwood site in the near future. In order to do this LRHA seeks to have the completed Feasibility Study completed by the end of the second quarter of 2020 so that a decision on the future of Birchwood can be made as soon as possible.

4. **Proposal Requirements:** All interested firms MUST submit two (2) hard copies of their proposals as well as one (1) electronic copy (PDF) on a “CD” or a “thumb drive”.

Each applicant must provide the following information:

- A cover page, identifying the name of the project as “Feasibility Study for the renovations/redevelopment of the Birchwood Apartment Complex”. Include the name of the firm, official address, contact person, telephone number and email address.
- A Cover letter which must be signed by the individual with authority to bind the proposal team to contractual commitments.
- If the Team involves more than one firm, the Proposal must also identify all sub consultants or subcontractors in addition to the principle firm, with full contact information for each participating entity or individual.
- An outline of the experience of the firm with regard to similar projects considered relevant, including a summary of the change order costs to overall project cost in such identified projects. Provide a proposed scope of work and services for the project.
- A staffing plan with resumes that identifies the principle in charge, the project manager and key personnel who will work on the design and site evaluations as well as the organizational chart of the team.
  - A description of the firm’s history, size, experience and capabilities available to complete the scope of work. The qualifications selection of the proposal must include:
A description of the firm, its practice, specializations, staffing and current staff capacity and experience working for local government clients in the State of Virginia;

A description of the team’s experience with apartment complex projects. The description of experience must include a list of apartment complex projects within the past five (5) years in which the development team included any member of the team proposed for this project.

Resumes and evidence of appropriate and current Virginia licenses or registrations (where applicable) for all individuals who will be assigned to work on this study.

A list of the firm’s current contract commitments.

• Submit at least three (3) separate professional references with persons who are familiar with the work of the firm’s staff that will be assigned to this project; at least one (1) reference shall be an apartment complex facility reference in the state of Virginia with the last five (5) years. References shall include full contact information for each reference (name, title, mailing address, telephone number and email address, the name of the project(s) and the date(s) of service(s)). References must be available to be contacted by person, phone and/or correspondence as to the firm’s past performance.

• Certificate of Insurance identifying the limits of coverage for professional liability, general liability, auto, worker’s compensation, and umbrella policies in place at the time of submission of proposals.

5. Evaluation Criteria: All proposals will be evaluated based on the criteria below. LRHA will award the contract for this project to the firm, or individual, who submits the most advantageous proposal based on consideration of the specified evaluation and selection criteria. LRHA will evaluate the proposals using the below evaluation criteria. LRHA may at its own discretion schedule interviews.

Proposals

1. Firm must have a minimum of five (5) years’ experience in the design, renovation, and redevelopment of building in Virginia. In documenting this qualification, the applicant should describe the professional background of the firm and the extent of previous experience of firm personnel or consultants to be assigned to the project and identify the role that is anticipated each will play in the project.

2. Firm must demonstrate knowledge of, and experience in, legal and administrative requirements, procedures, and practices related to the design, funding, and construction of apartment facilities projects including State Building Code.

3. Firm must have experience with projects funded under local, state, and federal programs.

4. Firms must possess all necessary and current licenses and registrations, either within the firm or through independent consultants, to qualify under Virginia law to perform the function of the designer of the project, including Virginia registered architect on staff.

5. Firm must provide detailed description of at least three (3) recent similar projects on which the designer has performed similar services, identifying owners of those projects as well as
the personnel who worked on them and state whether those individuals will be assigned to the project.

6. Firm must provide three (3) professional references for similar projects, including names, addresses, projects you worked on, their cost, funding sources, and phone numbers.

7. Firm must not be debarred or disqualified. This RFP has been structured to comply with all applicable Virginia Laws and all respondents to the RFP must ensure that the submittal is received by the date and time specified herein or automatically be disqualified.

The proposals will be evaluated by LRHA Staff using the following evaluation criteria.

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<th>NO.</th>
<th>MAX POINT VALUE</th>
<th>FACTOR TYPE</th>
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<td>1</td>
<td>30 points</td>
<td>Subjective (Technical)</td>
<td>The Proposer’s demonstrated understanding of the requirement; demonstrated experience designing and building apartment complexes or similar projects.</td>
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<td>2</td>
<td>25 points</td>
<td>Subjective (Technical)</td>
<td>The appropriateness of the technical approach (including labor categories, estimated hours and skill mix) and the quality of the work plan.</td>
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<td>3</td>
<td>15 points</td>
<td>Subjective (Technical)</td>
<td>The proposer's technical capabilities (in terms of personnel, equipment and materials) and the management plan (including staffing or key positions, method of assigning work and procedures for maintaining level of service, etc.).</td>
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<td>4</td>
<td>30 points</td>
<td>Subjective (Technical)</td>
<td>The proposer's demonstrated experience on performing similar work and the proposer's demonstrated successful past performance (including meeting costs, schedules and performance requirements) of contract work substantially similar to that required by this solicitation as verified by reference checks or other means.</td>
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The ratings will take into consideration the consultant’s experience, references, and plan of services as well as compliance with the “Proposal Requirements” section of this RFP. During the selection process LRHA may request non-binding fee estimates.
6. **Interviews and Awards:** LRHA may make an award based upon review of the proposals submitted. However, if interviews are required, firms may be invited to make a presentation before the Evaluation Committee.

LRHA reserves the right to determine the firm it feels will perform the services in a manner that is the best interests of LRHA for this project. LRHA will enter into contract negotiations with the selected proposer.

A responder may correct, modify or withdraw a proposal by written notice received by LRHA prior to the time and date set for proposal submittal.

LRHA may cancel this RFP or reject in whole or in part any and all responses, if LRHA determine that cancellation or rejection serves the best interest of LRHA.

LRHA reserves the right to reject any proposals or all proposals or any parts thereof ore to solicit new proposals and to award contacts as it deems in the best interest of LRHA and to waive any informalities in the response process if it is in the best interest of LRHA.

7. **Submission Instructions:**

a. **Proposals:** Bidders must submit proposal(s) in a sealed envelope, clearly marked “Feasibility Study for the Renovation/Redevelopment of the Birchwood Apartment Complex”. There must be two (2) copies in each envelope plus a CD or thumb drive with the digital copy (PDF) addressed to:

   Bobby Bennett  
   918 Commerce Street  
   Lynchburg VA 24502

Proposals must be returned no later than 4:00p.m. on September 1, 2020. No proposals will be accepted after the time and date noted. LRHA Offices are open Monday through Friday between 8:00 a.m. and 5:00 p.m.

LRHA reserves the right to accept any proposal in whole or in part, and reject any and all proposals if it shall be deemed in the best interest of LRHA to do so.

b. **Questions, Addendum or Proposal Modifications:** Questions regarding this RFP must be in writing to: Bobby Bennett through email at bobby.bennett@lynchburgva.gov.

If any changes are made to this RFP, an addendum will be issued and posted on the LRHA website www.lynchburghousing.org

**END OF REQUEST FOR PROPOSAL**
Birchwood Apartments

Lynchburg Redevelopment and Housing Authority

Facility Assessment

February 1, 2017

CJMW Architecture
Architect
1030 Main Street
Lynchburg, Virginia 24504

Hurt and Proffitt
Civil Engineering & Surveying
2524 Langhorne Road
Lynchburg, Virginia 24501

Master Engineers and Designers
904 Lakeside Drive
Lynchburg, Virginia 24501

Moore’s Electrical and Mechanical
Thermal Imaging
1305 Main Street
Altavista, Virginia 24517
Executive Summary

The Birchwood Housing Complex was built in the 1976 for the Lynchburg Redevelopment and Housing Authority. The five main apartment buildings contain 20 units each for a total of 100 units. A community building was also constructed. The overall building approach was for an economical structure with code minimum amenities and systems. Although LRHA has responsibly maintained the structures and grounds the building envelopes and systems are nearing the end of their useful life.

Preface

On December 21 the project manager from CJMW met with members from Master Engineers and Designers and Bobby Bennett of L.R.H.A. to review selected units in Building 3. The group walked units 301 (1 bedroom), 309 (2 bedroom), 311 (3 bedroom), 308 (4 bedroom) and 320 (5 bedroom).

On January 26 CJMW met with the project manager of Hurt and Proffitt to discuss site concerns and exterior conditions of the five residential buildings.

The Birchwood apartments were built in 1976 with several subsequent upgrades and improvements. The exterior T-111 siding was over coated with closed cell rigid insulation and cement stucco in the late 1980's.

The heating system was upgraded with the inclusion of air conditioning in the 1990s. The most recent roof replacement occurred circa 2008. The window units were replaced with aluminum double hung insulated units in the 1990s.

To reinforce the floor framing system all the units in Building 3 had approximate 1” plywood laminated to the top of the second floor.
Birchwood Housing Complex Site Assessment

A site visit was conducted by Andy Klepac of Hurt & Proffitt on January 26, 2017; during the visit, the following items were noted:

Grading and Drainage

Each of the five (5) apartment buildings is constructed into the hillside, such that both the upslope and downslope units have at-grade entrances. Upslope runoff drains directly towards the upper units, and there is generally inadequate storm piping or grading to capture and direct runoff away from the buildings. Evidence of spalling stucco at the ground/building interface suggests that these areas remain wet for extended periods of time.

C-1 Site Drainage Patterns

Each apartment building also has an interior court on the upslope portion of the building; this forms a bowl that collects upslope runoff and is drained via a grated yard inlet. During the site visit no outlets were found for the storm pipes leaving these inlets.

The site visit was conducted during the winter months, when vegetation is typically dormant; however, bare earth was evident in a number of locations. Steep slopes and lack of sunlight are the likely causes of these conditions.
This facility is elevated above the 100-year floodplain. However, Blackwater Creek is immediately to the north of the site, and there is a steep fill slope (1.5:1 to 2:1) from the site down to the creek.

Parking Facilities and Site Accessibility

According to the as-built survey for the apartment complex, there are 117 parking spaces serving the 100 units onsite (1.17 spaces per unit). Per the current City of Lynchburg Zoning Ordinance, the minimum number of spaces is one (1) per dwelling unit. There are no spaces designated as ADA-accessible near the apartment buildings, though there are four (4) such spaces in the vicinity of the Community Building. The routes from the parking spaces to the units are not ADA-accessible due to stairs, curbs, and steep slopes; also, curb ramps are not provided in the parking areas serving the apartment buildings.

The parking areas within the property owned by the LRHA are asphalt-surfaced. The date of the last sealing/resurfacing was unknown. Longitudinal and transverse cracking is common throughout the parking areas, and potholes and raveling are present in isolated areas. No significant rutting or distortion was observed. Site concrete (curb & gutter and sidewalks) is generally in fair condition. Sections of sidewalk have been replaced; these all appear to be done as patches on an as-needed basis.
C-4 Representative Pavement Section

Hillside Court is within a City of Lynchburg Right-of-Way; aside from the notes regarding available parking facilities, the infrastructure in the R/W is not included in this assessment. Site water and sewer utilities are underground and could not be evaluated, though LRHA staff members have noted a high rate of water line breaks in recent years.
Exterior

The exterior of the structures are in fair to poor condition with some cracking in the cement stucco noted on the main surfaces. The base of the exterior walls were furred out with a water table finished in cement stucco. The water table is delaminating in several areas and significant cracks were apparent and damaged by water. At some locations the base of wall has delaminated to expose the insulation under layer. The stucco at grade is in poor condition along all building exteriors.

The stucco shows stains in several locations. There are dark water stains directly below the gutter line on several buildings. There are areas of dark stains in the middle portions of walls indicative of surface moisture. Shaded surface areas have large areas of green organic growth.

Water damage to stucco had been reported especially around window units.

The buildings engage the sloping terrain with depressed open court yards which receive ground water runoff. Each courtyard has an area drain, but water accumulation was apparent around the perimeter. Courts on lower sides are terraced and generally sloped to street. The courts appear to not drain well as the stucco sides of terraced courtyards are damaged.

The wall panels on the end of Building 2 has noticeable deflection under load. The stucco is uneven and showing areas of separation.

Although the asphalt shingle roof is only 8 years old it shows signs of significant aging and wear. The Owner’s representative noted that the roof sheathing beneath the asphalt shingles has lost its structural integrity in several locations. This has become apparent to workmen have been making repairs and is not identified as part of this overall survey. There have been concerns with improper flashing, improper vent boot installation and leaks at transitions and intersections.

It was noted that floor joists had been replaced in some locations. In several units repairs were required at washer and dryer units.

Water intrusion had been reported at units 207 and 213 where there are stairs at the exterior courtyards.

It was noted that a horizontal service chase was added to the exterior of the buildings to organize and provide a weather barrier for HVAC and electrical lines. This was to accommodate the addition of air conditioning to the units. The sheet metal covers are painted to match the exterior stucco.

The exterior of the doors and windows are in fair condition for their age.

A particular concern is the extent of damage uncovered in the December 2015 investigation and subsequent replacement of the end wall components of the number 4 building. The exterior stucco, insulation and original sheathing as well as batt insulation were removed. Significant damage to the wood framing was uncovered and repaired. The exterior insulation was replaced and sheathing and vinyl siding were installed.

None of the electric meters can be locked to avoid inappropriate disconnect of service. Surface devices in some case have separated from the wall surface allowing moisture into the wall system behind them.
**Interior Conditions**

The interior of the units were well maintained and in fair condition with the appearance of timely maintenance. The finished floors were in fair to good condition with recent installation of VCT in the main living areas and bedrooms. The kitchen and bathroom floors had received recent upgrades of sheet vinyl and were in fair to good condition.

The wood trim was in fair condition with some joint separation. The front doors were in good condition, but the frames had settled to allow for perimeter air infiltration. Overall the interior doors and jambs were operable and in fair condition.

The original windows were replaced with two pane thermal aluminum double hung windows. The windows were operable with some missing the exterior screen. Two window units were noted as having condensation inside the air pocket.

The gypsum drywall appears to be from the original construction. Most of the walls and ceilings had been recoated over time with a skim coat of compound with a textured pattern. A soffit had been added in the living area to accommodate ductwork for the heating and air conditioning upgrade. Floor registers were added to the second floor in this upgrade. Most of the ductwork was run inside the thermal envelope except in the five bedroom unit which had returns in the attic space. The drywall had been maintained with recent coats of paint and minor imperfections from repairs over the years of occupancy.

The bathroom finishes were in fair condition and also appear to have received timely maintenance.

The kitchen appliances appeared fairly new and in fair to good condition. The cabinets were in fair to good condition and were operable. The countertops appear to be a recent upgrade and were in fair to good condition.

The second floor had been raised in all units. This was from the addition of a layer of plywood to provide stiffness to the floor system. The top riser was consequently 1" higher than the other risers in the stair. The typical riser measured 7.5". The bedrooms near the front of the units seem to have settled. There was a noticeable slope in three of the units. The floor was also uneven and in some cases sloped in two directions.

The stair treads and risers were original. They are properly maintained and in fair condition. The stair and railing in the 1 bedroom unit was significantly worn.
Specific Unit Observations

301 Birchwood – 1 Bedroom

All the windows in the unit are replacement insulated aluminum windows. Insulated aluminum window units are in fair to good condition. Doors and trim in fair condition. Some trim joint separation noted. Front door showing light around perimeter. Flooring is in fair condition with some worn areas. Walls and Ceilings are in fair condition. Kitchen cabinets are in fair to worn condition. Counter top is in fair condition. Sheet vinyl floor is in fair condition. Stairs are worn. Railing is in poor condition. Bathroom tub is a recent replacement. Finishes are in fair condition. The second floor slopes.

309 Birchwood – 2 Bedroom

Noted delamination of stucco at grade on exterior of unit. Insulated aluminum window units in fair to good condition. The steel front door is out of square. Wood door trim in fair condition. Flooring is vinyl composition tile, well maintained and is in fair to good condition. The gypsum board interior wall finish had been repaired over the years and currently has a swirl finish to accommodate patching irregularities. The walls and ceiling are in fair condition. The ceiling also has swirl pattern finish. The Kitchen cabinets are in fair to good condition. The counter top is in good condition and appears to be a recent upgrade. Refrigerator and kitchen stainless steel sink are in good condition. Sheet vinyl flooring is in good condition. Walls, ceiling and trim are in fair condition. Stair treads and risers are in fair condition. Handrail is in worn condition. The top riser is 1” higher than the rest of the run. Bathtub appears to be original in worn condition. The fiberglass surround appears to have been replaced with in the last 10 years. The sheet vinyl floor is in fair condition. The upstairs bedroom flooring is V.C.T. and is in fair to good condition. The walls, ceiling and trim are in fair condition. The floor in the front bedroom is uneven indicating settlement in the framing.

311 Birchwood – 3 Bedroom

All the windows in the unit are replacement insulated aluminum windows. Insulated aluminum window units are in fair to good condition. Doors and trim are in fair condition. Walls and ceiling with textured swirl pattern are in fair condition. Gypsum board on first floor duct soffit is in fair to poor condition. Grille in soffit is worn. Living room floor had been raised, likely due to additional floor sheathing. V.C.T. overall in fair condition.
Kitchen finishes in fair condition. Sheet vinyl floor in fair condition. Cabinets and counter top in fair condition.
Second floor raised 1” overall. The typical stair risers are 7 ½”. The top riser is 8 ½”.

**308 Birchwood – 4 Bedroom**

Noted green organic growth on building exterior. Deterioration of stucco at grade on exterior of unit.
Exterior stucco in fair condition. Exterior trim in fair condition.
All the windows in the unit are replacement insulated aluminum windows. Insulated aluminum window units in fair to good condition. Window in bedroom 2 has internal condensation.
Front Door is in fair condition. Wood door trim is in fair condition. Metal door to furnace closet is in poor condition; bent. Flooring is vinyl composition tile, well maintained in fair to good condition. The gypsum board interior wall finish had been repaired over the years and currently has a swirl textured finish. The walls and ceiling are in fair condition. Ceiling also has swirl pattern finish.
The Kitchen cabinets were in worn condition. The counter top is in good condition and appears to be a recent upgrade. Refrigerator and kitchen stainless steel sink are in good condition. Sheet vinyl flooring in good condition. Walls, ceiling and trim in fair condition.
Stair treads and risers in fair condition. Handrail in worn condition. The top riser is 1” higher than the rest of the run.
Bathtub appears to be original and is in worn condition. The fiberglass surround is in fair to poor condition. The sheet vinyl floor is in good condition.
The upstairs bedroom flooring is V.C.T. which is in good condition. The walls, ceiling and trim are in fair condition. The floor in bedroom 2 is uneven.

**320 Birchwood – 5 Bedroom**

Noted significant deterioration at stucco water table at grade.
All the windows in the unit are replacement insulated aluminum windows. Insulated aluminum window units in fair to good condition. Condensation noted on and inside some window units. Second floor window units in fair condition. This unit re-furbished after fire event.
Doors and trim in fair condition.
Walls and ceiling with swirl textured pattern in fair condition.
V.C.T. floors in living spaces in fair to good condition.
Kitchen cabinets and counter top in new condition.
Sheet vinyl floor in good condition.
Stairs are in worn condition. Railing in poor condition.
Second floor had been laminated with plywood. Second floor uneven.
Accessible options

The apartment units are laid out with minimal room dimensions. The bathrooms are standard for the time, but are not large enough to provide proper maneuvering space and clearances per the Americans with Disabilities Act. Kitchens are large enough to be upfit to accommodate the ADA.

The bedrooms for most of the units are upstairs. Only the five bedroom unit has a first floor bedroom. Door openings are not adequate for ADA compliance and would have to be reframed.

The building site is sloped with a central depressed area fit out as the common area and playground. Site access is not provided per accessible guidelines. All buildings are accessed by steps or raised sidewalk and curb. Accessible access from one unit to another is not provided in the current site design.

Building Insulation

The as built drawings dated 1976 were compare with residential requirements of the 2012 International Energy Conservation Code for Virginia zone 4A.

The roof shows 5 3/4” batt or blown insulation in the attic rafters. This would provide an insulation value of R20. The IEEC requires R30.

The walls show 3 3/4” batt insulation in the 2 x 4 wood framing. This would provide an insulation value of R13. If the exterior rigid insulation is ¾” installed as part of the stucco resurfacing, it would provide an additional R3.75. It was noted that insulation 3-1/2” to 5” was installed at elevations facing the street and at lower sections of wall to form a water table. The IEEC requires R20 or R13 plus R3.8 continuous insulation.

Below grade insulation appears to be 3/4” rigid insulation which provides a value of R3.75, but is noted as having a U value of .12 or R8.33. The IEEC requires R7.5 below grade and R10 to 24” below grade for concrete slabs.

Raised floor joist framing appears to be 3 1/2” batt insulation for a value of R13. The IEEC require insulation with R30.
The Birchwood Apartments were constructed in 1975. The complex consists of five (5) buildings. Each building contains 20 units, with a range of 1 bedroom units up to 5 bedroom units. The site terrain is hilly which allows the building to be built into the hillside. The construction of the units consist of wood framed walls and floors with pre-engineered roof trusses. Due to the terrain, several of the upper buildings are built with a crawl space under the first floor and retaining walls. Based on the record drawings provided to us, the retaining walls are constructed with concrete masonry units (CMU). During this visit we visited unit 301 (1 Bedroom), 308 (4 Bedroom), 309 (2 Bedroom), 311 (3 Bedroom), and 320 (5 Bedroom). It is assumed that these are sample units with similar conditions found in other buildings/units.

**Structural Observations**

Specific observations are as follows:

**Unit 301**

The ground floor is slab on grade construction with second floor using 2x10 joists spaced at 16” on-center. There were no visible signs of distress (no cracks in drywall finishes) in the unit. The second floor framing was uneven with the high point starting at the entrance to the bedroom.

**Unit 308**

The ground floor is slab on grade construction with the second floor using 2x10 joists spaced at 16” on-center. There were no visible signs of distress in the unit. The floor located in the front right bedroom (second floor) has a high point located near the bedroom door. There were signs of a previous water leak in the ceiling of the master bedroom. The drywall of the master bedroom had been repaired at the time of our visit (see Photo S-1).

**Unit 309**

The front portion of the first floor is framed with 2x joists over a crawl space. In the front room of the ground floor the floor slopes up towards the rear of the unit and the kitchen with a visible difference in the gap at the front door (see Photo S-2). There is a difference in height between the front room and kitchen (see Photo S-3). The kitchen is a slab on grade. The second floor is framed with 2x joists. The second floor slopes up at the entrance to the rear bedroom. There were no visible signs of distress in the unit.

**Unit 311**

The first floor is framed with 2x joists over a crawl space. The second floor is framed with 2x joists. The second floor framing slopes in both bedrooms, with the high point near the halfway point in the room and the low point near the doors. There are signs of water damage in the hallway bathroom. The floor sheathing between the toilet and the tub/shower is soft when weight is placed on the floor (see Photo S-4).

**Unit 320**

The first floor is slab on grade with the second floor framed using 2x joists. The unit had been recently remodeled due to fire damage. The unit showed no signs of distress.
Summary

Overall the units and building are in fair condition. The floor framing has moved at one point during the life of the building, presumably due to settlement, which has caused the floors to be out of level in several units. The majority of drywall and finishes do not show the same settlement distress.

It is our understanding that one facade of one of the other buildings was replaced during the latter half of December 2015. During the work, large amounts of termite and moisture damage was discovered after the existing EFIS and T-111 wood siding was removed. A report dated January 22, 2016 was completed by Dominion Seven Architects. The report indicates that the EFIS system is hiding damage to framing members which cannot been seen until demo. The building in which we inspected does not show any visible signs of water damage from the inside of the units; however, in several locations there are holes in the EFIS system which could allow water to become trapped and cause the damage found in the December 2015 project (see Photo S-5 and Photo S-6).

Retaining Walls

Due to the hilly nature of the site, there are small brick retaining walls located in the courtyards. In the courtyard near Unit 309, the top retaining wall has a brick removed from the top of the wall in the middle to allow water to drain. There are visible signs of erosion caused by the water flowing from the top of the wall (see Photo S-7). The erosion over time can cause the foundation of the retaining wall to become undermine.

Electrical Observations

Specific observations are as follows:

Commercial Power

Each unit is fed by a 120 / 240 volt, 1-phase, 3-wire underground power company service. The power company is Appalachian Power. Each unit has its own meter. From the meter, power is routed to a panelboard inside each unit. Main breakers for each unit exist at the meters. The panelboards appear to be in good condition and have sufficient capacity to handle existing loads.

Emergency Power

There is no source of emergency power present.

Wiring and Devices

Receptacles throughout the units are of the grounding-type. Almost all receptacles within 6’ of sinks in kitchens and bathrooms are not GFI-protected. All receptacles appear to be in good condition. Unit-specific issues are detailed below.

Unit 301

One receptacle in the kitchen has a bad ground. The washer/dryer closet does not have a receptacle for a washer. Bathroom and kitchen receptacles within 6’ of sinks are not GFI-protected.

Unit 308

Receptacles have bad grounds in the kitchen, dining room, hallway bathroom, and washer/dryer area. Receptacles have reverse polarity in the dining room, rear bedroom, front left bedroom, and front right bedroom. Bathroom and kitchen receptacles within 6’ of sinks are not GFI-protected.

Unit 309

There are improper working clearances for the panelboard in the HVAC/Electrical closet. Receptacles have bad grounds in the living room, kitchen, washer/dryer area, upstairs hallway, rear bedroom, and front bedroom. Bathroom and kitchen receptacles within 6’ of sinks are not GFI-protected.
Unit 311
Receptacles have bad grounds in the living room, dining room, kitchen, rear bedroom, front right bedroom, and front left bedroom. Bathroom and kitchen receptacles within 6’ of sinks are not GFI-protected.

Unit 320
Receptacles have bad grounds in front bedroom and kitchen. The master bedroom is missing a smoke detector. Bathroom and kitchen receptacles within 6’ of sinks are not GFI-protected.

Lighting
Interior lighting is provided by ceiling-mounted, residential-type incandescent fixtures. Some bedrooms and living rooms do not have lighting but do have switched receptacles for tenants to use in conjunction with lamps.

Exterior lighting is provided by wall-mounted incandescent fixtures. Site lighting is provided by pole-mounted HID fixtures owned and maintained by the power company.

Fire Detection and Alarm
Residential smoke detectors exist in each unit. Each unit also has a carbon monoxide detector.

Access Control & Alarm
There is no access control and alarm system.

Mechanical (HVAC) Observations
Specific observations are as follows:

Unit 301
The HVAC system for the one-bedroom unit consists of an R-22, nominal 2-ton split-system air conditioner with a fan coil unit and condensing unit. Heat is provided by a high efficiency natural gas-fired, tank type water heater that is piped to a hot water coil in the fan coil unit via a circulator. The system is controlled by a wall mounted thermostat. The indoor fan coil unit, outdoor condensing unit, and water heater all appeared to have been manufactured in 2003. The kitchen oven/range has a ducted appliance exhaust hood. The bathroom has a ducted ceiling exhaust fan.

Unit 309
The HVAC system for the two-bedroom unit consists of an R-22, nominal 3-ton split-system air conditioner with a fan coil unit and condensing unit. Heat is provided by a high efficiency natural gas-fired, tank type water heater that is piped to a hot water coil in the fan coil unit via a circulator. The system is controlled by a wall mounted thermostat. The indoor fan coil unit, outdoor condensing unit, and water heater all appeared to have been manufactured in 2003. The kitchen oven/range has a non-ducted appliance exhaust hood. The bathroom has a ducted ceiling exhaust fan.

Unit 311
The HVAC system for the three-bedroom unit consists of an R-22, nominal 3-ton split-system air conditioner with a fan coil unit and condensing unit. Heat is provided by a high efficiency natural gas-fired, tank type water heater that is piped to a hot water coil in the fan coil unit via a circulator. The
system is controlled by a wall mounted thermostat. The indoor fan coil unit, outdoor condensing unit, and water heater all appeared to have been manufactured in 2003. The kitchen oven/range has a ducted appliance exhaust hood. The bathroom has a ducted ceiling exhaust fan.

Unit 308

The HVAC system for the four-bedroom unit consists of an R-22, nominal 3-ton split-system air conditioner with a fan coil unit and condensing unit. Heat is provided by a high efficiency natural gas-fired, tank type water heater that is piped to a hot water coil in the fan coil unit via a circulator. The system is controlled by a wall mounted thermostat. The indoor fan coil unit, outdoor condensing unit, and water heater all appeared to have been manufactured in 2003. The kitchen oven/range has a ducted appliance exhaust hood. Each of the two bathrooms has a ducted ceiling exhaust fan.

Unit 320

The HVAC system for the five-bedroom unit consists of one R-22 and one R-410A, split-system air conditioner with fan coil units and condensing units. The first floor is conditioned by a nominal 2-ton system with a fan coil unit located in the first floor bedroom closet and the second floor is conditioned by another 2-ton system with the fan coil unit above the second floor ceiling. Heat is provided by a high efficiency natural gas-fired, tank type water heater that is piped to a hot water coil in the first floor fan coil unit. The systems are controlled by wall mounted thermostats on the first and second floors. The second floor system appeared to have an outdoor unit that was manufactured in 2016. The other system and the water heater appeared to have been manufactured in 2003. The kitchen oven/range has a ducted appliance exhaust hood. Each of the two full bathrooms and the half bath has a ducted ceiling exhaust fan.

Code Issues

No mechanical code issues were observed during our walkthrough.

Mechanical Useful Life (HVAC)

According to the 2015 ASHRAE Applications Handbook, the 1999 US Government, Office of Management and Budget, Circular A-76, Appendix 3; the Commonwealth of Virginia, Office of the Comptroller; and, state government “Section IV-Accounting Records, Illustration 23 Useful Life Table”, the median service life for the equipment types observed is:

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Expected Service Life (yrs)</th>
<th>Current Age (yrs)</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Split System</td>
<td>15</td>
<td>13*</td>
<td>Good</td>
</tr>
<tr>
<td>Bathroom Exhaust Fans</td>
<td>20</td>
<td>Unknown</td>
<td>Good</td>
</tr>
<tr>
<td>Range Hood Fans (Propeller)</td>
<td>15</td>
<td>Unknown</td>
<td>Good</td>
</tr>
</tbody>
</table>

*The outdoor unit for the upper level of apartment 320 was observed to new in 2016.

From this comparison it can be determined that the heating and cooling equipment is nearing the end of its expected useful life.
Plumbing Observations

Specific observations are as follows:

Unit 301

Plumbing fixtures consist of a kitchen sink, washing machine connections, a lavatory sink, a tub/shower, and tank-type water closet. The unit has a water filter and meter on the incoming cold water supply and a 34 gallon, gas-fired, direct-vented, tank-type condensing water heater with expansion tank that provides domestic hot water and hot water for the HVAC system heat. Water supply piping observed consists of copper and PEX. Gas piping appears to be primarily threaded black steel. Sanitary waste and vent piping observed is primarily PVC. There are also brass drain fittings at sinks. All of the fixtures observed appeared to be in good, functional condition.

Unit 309

Plumbing fixtures consist of a kitchen sink, washing machine connections, a lavatory sink, a tub/shower, and tank-type water closet. The unit has a water filter and meter on the incoming cold water supply and a 34 gallon, gas-fired, direct-vented, tank-type condensing water heater with expansion tank that provides domestic hot water and hot water for the HVAC system heat. Water supply piping observed consists of copper and PEX. Gas piping appears to be primarily threaded black steel. Sanitary waste and vent piping observed is primarily PVC. There are also brass drain fittings at sinks. All of the fixtures observed appeared to be in good, functional condition.

Unit 311

Plumbing fixtures consist of a kitchen sink, washing machine connections, a lavatory sink, a tub/shower, and tank-type water closet. The unit has a water filter and meter on the incoming cold water supply and a 34 gallon, gas-fired, direct-vented, tank-type condensing water heater with expansion tank that provides domestic hot water and hot water for the HVAC system heat. Water supply piping observed consists of copper and PEX. Gas piping appears to be primarily threaded black steel. Sanitary waste and vent piping observed is primarily PVC. There are also brass drain fittings at sinks. All of the fixtures observed appeared to be in good, functional condition.

Unit 308

Plumbing fixtures consist of a kitchen sink, washing machine connections, two lavatory sinks, two tub/showers, and two tank-type water closets. The unit has a water filter and meter on the incoming cold water supply and a 34 gallon, gas-fired, direct-vented, tank-type condensing water heater with expansion tank that provides domestic hot water and hot water for the HVAC system heat. Water supply piping observed consists of copper and PEX. Gas piping appears to be primarily threaded black steel. Sanitary waste and vent piping observed is primarily PVC. There are also brass drain fittings at sinks. All of the fixtures observed appeared to be in good, functional condition.

Unit 320

Plumbing fixtures consist of a kitchen sink, washing machine connections, three lavatory sinks, three tank-type water closets, and two tub/showers. The unit has a water filter and meter on the incoming cold water supply and a 34 gallon, gas-fired, direct-vented, tank-type condensing water heater with expansion tank that provides domestic hot water and hot water for the HVAC system heat. Water supply piping observed consists of copper and PEX. Gas piping appears to be primarily threaded black steel. Sanitary waste and vent piping observed is primarily PVC. There are also brass drain fittings at sinks. All of the fixtures observed appeared to be in good, functional condition.
Code Issues

No plumbing code issues were observed during our walkthrough.

Mechanical Useful Life (Plumbing)

The expected useful life of plumbing system fixtures and accessories is subjective and the service life values listed by available resources varies. The following service life expectation values are derived from several sources including - the 1999 US Government, Office of Management and Budget, Circular A-76, Appendix 3; the Commonwealth of Virginia, Office of the Comptroller; and, state government “Section IV-Accounting Records, Illustration 23 Useful Life Table”. On this basis, the estimated useful life for the plumbing fixtures observed is:

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Expected Service Life (yrs)</th>
<th>Current Age (yrs)</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plumbing Fixtures and Accessories</td>
<td>15</td>
<td>Unknown*</td>
<td>Fair</td>
</tr>
<tr>
<td>Gas Fired Water Heaters</td>
<td>15</td>
<td>13</td>
<td>Good</td>
</tr>
</tbody>
</table>

*Some or most may be original to building construction.

Based on these values it appears likely that most of the plumbing fixtures and accessories are near or have already exceeded the expected useful life. In most cases, porcelain and stainless steel components such as lavatories, sinks, and water closets can be expected to have a service life of several decades while the faucets, drain fittings, valves and tank-fill fittings on them can be expected to be considerably shorter. It is typically only these elements of the fixtures that need replacement unless the reduced flow rate or type of available replacement valves or fittings renders the porcelain or stainless steel component non-functional.

Fire Sprinkler System

No fire sprinkler system was observed in any of the units.
**PHOTO S-1**

<table>
<thead>
<tr>
<th>Location:</th>
<th>Unit 308 – Master Bedroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Area of drywall patch</td>
</tr>
</tbody>
</table>

**PHOTO S-2**

<table>
<thead>
<tr>
<th>Location:</th>
<th>Unit 309 – Front Door</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Gap at door indicating mis-alignment and possible settlement.</td>
</tr>
<tr>
<td>Photo S-3</td>
<td>Location: Unit 309 – Kitchen/Living Room Door</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Description: Elevation difference between slab-on-grade and framed sections.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo S-4</th>
<th>Location: Unit 311 – Hallway Bathroom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description: Soft sub-flooring most likely from water damage.</td>
</tr>
</tbody>
</table>
PHOTO S-5

<table>
<thead>
<tr>
<th>Location:</th>
<th>Building 300 - Exterior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Damage to EFIS.</td>
</tr>
</tbody>
</table>

PHOTO S-6

<table>
<thead>
<tr>
<th>Location:</th>
<th>Building 300 - Exterior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Damage to EFIS.</td>
</tr>
<tr>
<td>PHOTO 7</td>
<td>Location: Courtyard near Unit 309</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td>Description: Damaged to retaining wall.</td>
</tr>
</tbody>
</table>
Summary

The current condition of the Birchwood Apartment complex is stable due to the ongoing maintenance efforts of the staff at LRHA. The buildings were built to 1976 standards and would not meet current standards for energy efficiency, Accessible design, and overall advances in building systems.

The current mechanical systems are nearing the end of their serviceable life and will need to be replaced with units meeting current environmental standards for refrigerant. The overall age of the electrical and plumbing systems indicate that repairs and replacements will be needed in the near future.

Water damage as documented in the January 22, 2016 report for building 4 is significant. To address the removal and replacement of all the exterior building sheathing was estimated at from $2.185 to $2.26 million. Deterioration of stucco along grade and stress cracking across the building face suggest the potential for wide spread water damage. As noted in the building 4 report, the multiple issues that required repair were not apparent on the exterior.

There have been several structural repairs that have been executed. One is the floor joist replacement for water damage at washers and dryer areas. Another is the overlay sheathing on the second floor platform of Building 3 to stabilize and strengthen settling superstructure. Moisture from foundation drainage issues and exterior wall penetration will begin to compromise the structures going forward.

Short term repair and replacement costs will accelerate. Long term investment would be threatened when the building structure and envelopes become compromised beyond reasonable efforts to repair.

CIMW Architecture

Walter A. Nurmi, A.I.A. Architect