

#### Addendum No. 6

#### **Request for Proposals**

#### Student Housing Development Project | Wayne State University

Detroit, Michigan

The Request for Proposals issued on February 1, 2016, for the Wayne State University Student Housing Development Project is hereby amended as indicated:

#### ITEM 1. **APPENDIX J – SUPPLEMENTAL INFORMATION FOR EXISTING HOUSING FACILITIES RENOVATIONS**

Appendix J - Supplement Information for Existing Housing Facilities Renovations The reports and drawings included in this appendix are provided to document existing conditions in Wayne State University's existing housing facilities, exclusive of the Helen L. DeRoy Apartments which are scheduled for demolition as part of the University's housing master plan.

All other provisions of this Request for Proposals remain unchanged. This Addendum No. 6 must be signed and returned with the submission.

Firm Name:

By:

Title:

Date:

**END OF ADDENDUM NO. 6** 





# APPENDIX J: SUPPLEMENTAL INFORMATION FOR EXISTING HOUSING FACILITIES RENOVATIONS

The reports and drawings included in this appendix are provided to document existing conditions in Wayne State University's existing housing facilities, exclusive of the Helen L. DeRoy Apartments which are scheduled for demolition as part of the University's housing master plan. The existing housing facilities include: Chatsworth Apartments, University Tower Apartments, Leon H. Atchison Hall, Yousif B. Ghafari Hall, and Towers Residential Suites.

All documents that comprise Appendix J are provided for informational purposes only. Wayne State does not guarantee or represent and warrant the completeness or accuracy of such information.





# Section 1: Housing Facilities Assessment and Deferred Maintenance Capital Planning Report (2012 Update)

The Housing Facilities Assessment and Deferred Maintenance Capital Planning Report (2012 Update), prepared by the former SHW Group – now Stantec – is the most recently completed assessment of facilities conditions for Wayne State's residence halls and student apartments. The University has recently initiated an assessment of current conditions in its residential facilities; the assessment is ongoing, and the final report of findings will be shared with those private entities that have been shortlisted by Wayne State's Project Management Committee following submission of proposals on March 21, 2016.



# Housing Facilities Assessment And Deferred Maintenance Capital Planning Report 2012 Update



2012 Update

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# **Purpose of the Study**

This Facilities Assessment and Deferred Maintenance Capital Planning Study were performed to accomplish the following objectives:

- Provide an inventory of Wayne State University's housing facilities in a database format to be easily updated and maintained by University personnel and allow for quick access to facilities information.
- Determine the general condition of the University housing facilities and provide the data in a concise format, allowing quick determination of the current replacement value and condition of the facilities.
- Determine a Facilities Condition Index (FCI) for the housing buildings at Wayne State University. The FCI is a benchmark index that rates the condition of existing buildings and is used by facilities managers to quantify and prioritize deferred maintenance projects for capital planning purposes.
- Assist Wayne State University Office of Housing and Residential Life in meeting the goals of its Mission Statement through timely maintenance of the physical backbone of the University – the buildings of WSU.

#### **Mission Statement**

The mission of the Office of Housing and Residential Life is to create a positive livinglearning environment for residents by providing staff, resources, programs, services and facilities that support and promote educational achievement, social development and civility through local and global cultural awareness and understanding.

# Recommendations

Refer to the glossary for definitions and to page 7 for detailed information.

The results of this assessment show the assessed housing facilities achieving a One Year Facilities Condition Index (FCI) of 4.3% or "good". This number is an average of all the buildings and is skewed considerably by the larger housing facilities. The large size and good condition of The Towers and University Tower skews the total average downward considerably, despite the condition of some of other buildings. In particular, Chatsworth Tower Apartments and DeRoy Apartments are both over 10% in 1-year and 5-year DMB cost projections, ranking them in "poor" condition.

The combined projected Five Year FCI however, is approximately 5.9%, or in the "fair" range, again due to the two larger facilities being in relatively good condition.

It should be noted that the FCI increases from year one to year five at Wayne State University for the following reasons:

- The critical first year issues (primarily life safety, code compliance, roof replacement, critical mechanical and electrical issues, and collateral damage) places the DMB quite near the 5% level of replacement value of the buildings.
- Additional costs to repair and replace items that fall into the 1-5 Year category, moves the FCI into the "fair" level.

As stated in the Deferred Maintenance Backlog Background, the investment solution has two facets:

- The funds needed for immediate repair projects repairs and/or replacements that will prevent further deterioration of the buildings and infrastructure.
- The funds required to maintain and/or improve the condition of the buildings. These funds need to be budgeted in advance to allow for repairs at the appropriate



Summary

time - before items become critical or cause additional damage. We propose the following:

#### Short Term Recommendation

WSU should review the items that comprise the One Year Deferred Maintenance Backlog of \$11.8 million and first address those affecting life/safety issues, those having the greatest potential for future damage to other building components, those that are code compliance issues, and critical mechanical and electrical issues.

#### Long Term Recommendation

If no further deferred maintenance repair is done, the FCI may increase to nearly 6% within five years. WSU should consider budgeting up to \$3.3 million annually for the next five years to reduce significantly the anticipated Five Year Deferred Maintenance Backlog. This plan should also provide an adequate base for future equipment and system replacement.

#### **Maintenance Recommendation**

After this initial period of covering the funding backlog, the University should then allocate approximately \$5.5 million annually to maintain the new, lower FCI. This amount is equal to approximately 2% of the Current Replacement Value of the facilities (a national benchmark value considered adequate to maintain the condition of a typical building).

By allocating 2% of the Current Replacement Value annually, the University should be able to do the following:

- Fund annual building maintenance, exclusive of catastrophic and atypical equipment failure.
- Save for future equipment replacement and expected building system replacement (i.e. roofs, boilers, etc.)

Since the condition, age, and size of the assessed buildings varies greatly, a summary and set of recommendations for each facility is provided later in the report.



# Glossary

Following are definitions of terms used in this report.

### Vital Statistics

Basic building information– building use types (i.e. housing, classroom, library, and administration), year built, building area in square feet, and number of floors.

### **Observation Highlights**

This is a partial list of field observations highlighting major repair/replacement items and recently completed work. For a more complete list of field observations, see the individual building database sheets in the appendix.

### **Current Replacement Value (CRV)**

The CRV is the cost to construct a replacement building in today's dollars. The figure is based on the square footage of the current structure and the estimated current construction cost for that type of structure. Since some buildings are conglomerations of different uses (i.e. classroom, library, administration) the CRV is based on estimated proportions of use types in each building. By the nature of the calculations and square foot construction costs, the current replacement value has a  $\pm 20\%$  margin of error and will likely increase annually due to inflation.

# **One-Year Deferred Maintenance Backlog (1YR DMB)**

The 1YR DMB represents the value of projects that have been deferred and require completion in order to maintain facilities and related infrastructure for their safe use. The One Year DMB amounts shown are for items requiring immediate attention to fix critical problems. A long-term investment strategy should also include items that require repair or replacement within 5 years, thus avoiding the collateral damage and increased repair costs resulting from deferred repairs (i.e. leaky roof damaging interior finishes).

# Facilities Condition Index (FCI)

Simply put, the FCI is the current DMB divided by the CRV. The resulting number is compared against nationally accepted standards and used to determine the condition of the facilities.

The Association Higher of Education Facility Officers (APPA) the organization whose standards were used to develop this system of facility assessment - recommends that the FCI for any given building should not exceed 5% for the building to be considered in "Good" condition. The rating of "Fair" indicates that the building requires some attention to bring it up to standard, with some problems areas potentially reauirina immediate attention. The rating of







"Poor" indicates that the building needs urgent attention to prevent the existing problems from affecting other building systems and compounding future repair costs.

The APPA FCI Ratings, indicating the general condition of the building, are shown here along with the corresponding "traffic signals" that give a quick visual indication of the FCI rating.

### One-Year DMB Excess

This represents the amount the DMB exceeds the APPA benchmark of a building with a 5% FCI – essentially the dollar amount to be spent immediately to reduce the DMB to attain the APPA rating of "Good". In situations where a building is in better than "Good" condition (FCI<5%), the One Year DMB excess is shown as zero.

For example, if a building has a CRV of 1,000,000 and an FCI of 10%, the DMB would be 100,000. This would leave a DMB excess of 50,000 – the amount to be spent to reduce the FCI to within the APPA 5% benchmark



#### Five-Year Deferred Maintenance Backlog (5YR DMB)

Similar to the One Year DMB, the Five Year DMB represents the total value of projects that will require attention within the next five years, including those that fall under the One Year DMB. This value is included to help determine the investment required over the next five years to repair and/or replace problem items before they become critical.

Looking at the previous example, if the building condition survey indicated an additional \$250,000 in repairs from years 1-5, then the 5 Year DMB would total \$350,000 (including \$100,000 from the first year).

#### **Five-Year DMB Excess**

Similar to the One Year DMB Excess value, this amount represents the investment to bring the DMB in line with the APPA benchmark of 5% of the Current Replacement Value. In situations where a building is in better than "Good" condition – a bit more difficult over a five year span, the Five Year DMB excess is shown as zero.

This number is a good starting point for determining budgets – it allows the facility managers to see what to spend to bring buildings into the APPA "Good" range – with the understanding that complete elimination of the Deferred Maintenance Backlog is not a likely scenario.

#### Important Note about DMB Excess

The correlation between the FCI and the DMB Excess (where an FCI less than 5% means no DMB Excess) is true for individual buildings, but not true when all facilities are averaged together.

Although the aggregate FCI is calculated as an average, the total DMB Excess is calculated not by averaging, but by adding each building's DMB Excess together. This avoids the problem of a new building, in good condition, masking the high maintenance costs of another building in poor condition.

#### DMB Equilibrium (Annual cost to maintain current DMB)

This is the dollar amount to be invested annually to keep the FCI (and DMB) from deteriorating – regardless of the current condition of the building. Reusing the previous example, the amount required to maintain the FCI at current levels would be \$20,000 annually (2% of \$1,000,000). The number is based on a nationally accepted rule of 2% of the CRV and assumes that building components have a 50-year renewal cycle and depreciate along a straight line. The assumptions were made to simplify calculations; in reality, building components DO NOT expire according to straight-line depreciation, and most components will require replacement within 30-40 years (excluding structure and foundation).

# To restate – this annual investment will only maintain the existing FCI and do little or nothing to reduce any existing backlog.

# DMB Elimination (Annual cost to eliminate the 5 Year DMB)

The annual investment for a set number of years to eliminate the Five Year DMB. This amount is determined by taking the 5 Year DMB amount and spreading it over a number of years (into more affordable and achievable portions) and adding the result to the annual maintenance cost.

Again using the previous example and assuming a 5-year reduction plan, the annual amount required bring the DMB to zero would be \$90,000 (for five years).

\$70,000 ......\$350,000 "Five Year DMB" divided by 5 years.

\$20,000 .......FCI Equilibrium investment- 2% of \$1,000,000.

**\$90,000** ......DMB Elimination investment - each year for 5 years (then \$20,000 each year afterwards to maintain the greatly reduced DMB)

### Building Use Types

The table to the right shows the building use types in this assessment and their respective current construction cost per

Use Type	Cost/SF
High-Rise Housing	\$225

square foot. This cost, based on the actual construction cost



and is regionally weighted, uses preliminary construction cost data provided by the construction cost estimation companies RS Means and Marshall and Swift, and is typical for buildings of this type and has a  $\pm 20\%$  margin of error.

#### **Building Components**

The table to the right shows the building components used in the report. These are the basic components having а major influence on the replacement value of a building. The buildings were evaluated during walk-throughs with facility personnel to determine how much of each component made up the CRV. It was then determined what

Category	Component Name
Structure	Structure
Envelope	Roof
	Glazing
	Cladding
Mechanical	HVAC Equipment
	Plumbing
Electrical	Primary/Secondary
	Distribution
	Lighting
	Voice/Data
Finishes	Ceilings
	Walls
	Doors
	Floors
Safety/Code	Building, Fire, ADA, Elevators
Other	Immediate Site, Ext. Lighting, etc.

percentage of each component required replacement within one year, five years, ten years, and beyond. This data is used to determine the investment required to reduce the current and future deferred maintenance backlog.



Example of how the aforementioned data appears in this report



# **Deferred Maintenance Backlog** *A Brief Background*

The problem of deferred maintenance at colleges and universities has been studied and better understood over the last decade. From an article by Dan Hounsell, in the magazine <u>Maintenance Solutions</u>, discussing how universities are addressing the issue of deferred maintenance:

"Maintenance management professionals, who once seemed to be one of the few parties giving serious thought to the issue, now have been joined in the debate by growing numbers of sympathetic voters and farsighted facility decision makers."

The Association of Higher Education Facilities Officers (APPA) concluded in a 1995 report titled "A Foundation to Uphold: A Preliminary Report" that the national backlog of deferred maintenance at colleges and universities exceeds \$26 billion, up 27 percent from estimates made in a similar report from 1988.

\$5.7 billion of that \$26 billion backlog is classified as "urgent deferred maintenance" – projects that require immediate attention and that will cost far more if they are not completed within a year. Although spending this sum will eliminate current urgent needs, in only a few years there will be a new roster of items to replace them – if future budget planning is not undertaken. According to the APPA report, the current backlog "represents a threat to the capability of higher education facilities to support college and university missions."

Other conclusions from the report include:

- More than 50 percent of all college types reported that deferred maintenance increased or stayed the same since 1988; only 25 percent reported decreases.
- 20 percent of the colleges in the study accounted for nearly 60 percent of the accumulated deferred maintenance.

- Public colleges typically have a greater deferred maintenance backlog than private universities, with 78 percent of the public research universities reporting an increase in deferred maintenance backlogs.
- By assuming that deferred maintenance of infrastructure site repairs, road and parking lot maintenance, exterior lighting, etc. was not included in the figures provided by the campuses in the study, the estimated cost to eliminate accumulated deferred maintenance increases to \$32.5 billion with urgent needs increasing to \$7.1 billion.
- When senior school administrators made deferred maintenance a priority, the institution made progress in reducing its backlog.

The most important point to remember is that even if universities and colleges spend these amounts, this will only eliminate the <u>existing</u> deferred maintenance backlog. There needs to be a coordinated, funded plan put into place at colleges and universities to maintain the condition of the facilities once they have been repaired – or time will again take its toll.



# **Housing Summary - Vital Statistics**

## **Wayne State University Housing Assessment**

The condition of the assessed housing facilities is generally good for University Tower, The Towers, Atchison Hall, and Ghafari Hall. Chatsworth Tower and Helen DeRoy Apartments are rated "poor" for both 1-year and 5-year cost issues.

For all facilities except University Tower, the life expectancy of many building materials and systems at the facilities has been reached or passed. Roofs need replacing, domestic and heating water piping is deteriorating, original door hardware is worn, and electrical panels are obsolete – to name a few. In some cases, repair and replacement of items (i.e. elevators) are being addressed as part of planned upgrades. In other cases, insufficient general maintenance over the decades is accelerating the failure of building systems.

While the immediate deferred maintenance backlog and FCI of 4.3% for the housing facilities is below the national average of approximately 7%, this still represents a sizeable capital investment, even to maintain conditions in their current state. However, if nothing is done to deal with existing deferred maintenance issues, the combined FCI will increase – possibly to over 6% (individual buildings may increase to nearly 18%) – within approximately five years As stated in the Deferred Maintenance Backlog Background, the investment solution has two facets:

- The funds needed for immediate repair projects repairs and/or replacements that will prevent further deterioration of the buildings and infrastructure.
- The funds required to maintain and/or improve the condition of the buildings. These funds need to be budgeted in advance to allow for repairs at the appropriate time before items become critical or cause additional damage.

When taken as an aggregate and compared to the accepted APPA benchmark, this data shows that the WSU apartment housing stock is currently in **good condition**. It must be remembered that this average is weighted by the newer







Summary

Housing



# **Executive Summary**

### **Wayne State University Housing Assessment**

Captured below is a summary, for each facility illustrating Current Critical Issues requiring immediate attention. Current Critical Issues, in our opinion, are defined as those that pertain to **Non-compliance with Building Codes**, a **Life Safety Issue**, or a **Critical Deferred Maintenance Issue** to a major building component. These Issues identified are of paramount importance and require immediate attention within the upcoming year of facility service.

Also, itemized in this summary are Issues that will be significant within the next decade of facility service. These Issues will achieve critical status as times goes by. The estimated costs for addressing these Issues are significant and should be part of the University's overall plan.

#### **Chatsworth Tower Apartments:**

#### Total Current Critical Issues: \$3,670,971 Total Additional Issues over the Next Decade: \$3,256,103

Item No. 1: Building Code / Life Safety Issue (architectural / engineering)

Eliminate dead-end corridor conditions, eliminate obstructions and reconfigure non-compliant elements of the egress stairs, provide fire-rated door assemblies at egress stairs, and provide fire-rated door assemblies at individual dwelling units. Remove and replace existing fire alarm system. Develop an accessible "path of travel" to comply with ADA design requirements.

#### Estimated cost: \$1,006,433\*

\*Estimated cost of additional issues over the decade: \$143,776.

Item No. 2:Critical Deferred Maintenance Issue (architectural)Remove and replace entire roofing system.Estimated cost: \$253,723

#### Item No. 3: Deferred Maintenance Issue (architectural)

Address various exterior wall deficiencies; tuck-pointing of masonry elements, remove and replace deteriorated masonry elements, and remove and replace building joints. **Estimated cost: \$563,828** 

Item No. 4: Deferred Maintenance & Energy Saving Issue (architectural) Remove and replace entire glazing system. Estimated cost: \$1,014,890 Item No. 5: Critical Deferred Maintenance Issue (mechanical)

Replace heating and ventilating units in the stairway; replace the DC-powered exhaust fan in the attic.

Estimated cost: \$197,340\*

\*Estimated cost of additional issues over the decade: \$1,223,506

Item No. 6:Critical Deferred Maintenance Issue (plumbing)Provide Priority 1 and Priority 2 needs for plumbing systems.See DetailedReport.

Estimated cost: \$338,297\*

\*Estimated cost of additional issues over the decade: \$1,014,889

Item No. 7: Critical Deferred Maintenance Issue (main electrical) Replace the main electrical power distribution board and panelboards. Estimated cost: \$140,957\*

\*Estimated cost of additional issues over the decade: \$169,148

# Item No. 8: Building Code / Life Safety Issue (electrical distribution)

A. Electrical outlets (2-slot type) were replaced with NEMA 5-15R type but these require a ground conductor that is not wired. GFCI's should be wired ahead of the NEMA 5-15R type receptacles.

B. Install GFCI's at kitchen and bathroom sink locations.

C. Panelboards and circuit breakers should be replaced.

Estimated cost: \$155,503\*

\*Estimated cost of additional issues over the decade: \$422,871

Item No. 9: Critical Deferred Maintenance Issue (lighting) Failing and aging lamps and fixtures, etc., will require replacement. \*Estimated cost of additional issues over the decade: \$211,435

Item No. 10:Critical Deferred Maintenance Issue (voice/data)Failing and aging equipment will require replacement and upgrades.\*Estimated cost of additional issues over the decade: \$70,478

#### **Helen DeRoy Apartments:**

#### **Total Current Critical Issues: \$4,913,222**

#### Total Additional Issues over the Next Decade: \$4,762,367

#### Item No. 1: Deferred Maintenance Issue (architectural)

Re-clad the east and west exterior elevations with a metal skin and remove and replace glazing on the east and west elevations, to remedy the on-going water infiltration at the exterior wall assembly

# Estimated cost: \$2,320,842 (metal skin) + \$2,088,758 (glazing) = \$4,409,600\*

\*Estimated cost of additional issues over the decade: \$232,084 (metal skin) + \$139,251 (glazing) = \$371,335



#### Item No. 2: Deferred Maintenance Issue (architectural) Remove and replace the majority or the roofing system. Estimated cost: \$278,501

Item No. 3: Critical Deferred Maintenance Issue (mechanical) Replace AHU-2 coil and repair/replace dampers. Estimated cost: \$30,171\* \*Estimated cost of additional issues over the decade: \$1,930,940

 Item No. 4:
 Critical Deferred Maintenance Issue (plumbing)

 Domestic water pressure booster system needs replacing.

 Estimated cost: \$23,208\*

 \*Estimated cost of additional issues over the decade: \$1,485,339

Item No. 5: Critical Deferred Maintenance Issue (electrical) Install GFCI's at kitchen and bathroom sink locations. Replace all Zinsco power distribution panels. Provide cleaning of main electrical equipment. Estimated cost: \$171,742\*

\*Estimated cost of additional issues over the decade: \$649,835

Item No. 6: Critical Deferred Maintenance Issue (lighting) Failing and aging lamps and fixtures, etc., will require replacement. \*Estimated cost of additional issues over the decade: \$208,876

Item No. 7:Critical Deferred Maintenance Issue (voice/data)Failing and aging equipment will require replacement and upgrades.\*Estimated cost of additional issues over the decade: \$116,042

#### The Towers:

Total Current Critical Issues: \$206,184 Total Additional Issues over the Next Decade: \$6,329,834

Item No. 1: Deferred Maintenance Issue (architectural) Repair minor cracking within the surface of the precast concrete panels. Estimated cost: \$109,965

Item No. 2: Critical Deferred Maintenance/Energy Efficiency Issue (mechanical)

Penthouse air handler coil and cooling tower fill needs replacement. Estimated cost: \$96,219\*

\*Estimated cost of additional issues over the decade: \$2,549,802

Item No. 3:Critical Deferred Maintenance Issue (plumbing)Failing and aging fixtures will require replacement/updates and consideration<br/>for efficiency.

\*Estimated cost of additional issues over the decade: \$2,144,308

Item No. 4: Critical Deferred Maintenance Issue (main electrical)

Provide replacement/repairs of aging/failing equipment through usual methods (includes emergency power generation).

\*Estimated cost of additional issues over the decade: \$206,184

Item No. 5: Critical Deferred Maintenance Issue (electrical distribution)

Provide replacement/repairs of aging/failing equipment through usual methods.

\*Estimated cost of additional issues over the decade: \$515,459

Item No. 6: Critical Deferred Maintenance Issue (lighting) Failing and aging lamps and fixtures, etc., will require replacement. \*Estimated cost of additional issues over the decade: \$742,261

Item No. 7:Critical Deferred Maintenance Issue (voice/data)Failing and aging equipment will require replacement and upgrades.\*Estimated cost of additional issues over the decade: \$171,820

#### **University Tower:**

#### Total Current Critical Issues: \$447,959

Total Additional Issues over the Next Decade: \$8,189,650

Item No. 1:Deferred Maintenance Issue (architectural)Replace building joints at the precast concrete panels.Estimated cost: \$191,982

# Item No. 2: Critical Deferred Maintenance/Energy Efficiency Issue (mechanical)

Penthouse air handler coil and cooling tower fill needs replacement. Chilled water pumps need replacing. **Estimated cost: \$111,990**\*

\*Estimated cost of additional issues over the decade: \$3,359,693

Item No. 3: Critical Deferred Maintenance Issue (plumbing)

Failing and aging fixtures will require replacement/updates and consideration for efficiency.

\*Estimated cost of additional issues over the decade: \$2,879,736

Item No. 4: Critical Deferred Maintenance Issue (main electrical) Provide proper clearances for Automatic Transfer Switch panels and other equipment panels.

Estimated cost: \$31,997\*

\*Estimated cost of additional issues over the decade: \$239,978



Item No. 5: Critical Deferred Maintenance Issue (electrical distribution)

Provide replacement/repairs of aging/failing equipment through usual methods.

\*Estimated cost of additional issues over the decade: \$599,945

Item No. 6: Critical Deferred Maintenance Issue (lighting) Failing and aging lamps and fixtures, etc., will require replacement. \*Estimated cost of additional issues over the decade: \$710,335

Item No. 7:Critical Deferred Maintenance Issue (voice/data)Failing and aging equipment will require replacement and upgrades.\*Estimated cost of additional issues over the decade: \$399,963

Item No. 8:CriticalPropertyProtection/LifeSafetyIssue(electrical)Provide lightning protection for the building.Estimated cost: \$112,000

#### **Atchison Hall (South):**

Total Current Critical Issues: \$1,143,320 Total Additional Issues over the Next Decade: \$2,259,354

Item No. 1: Deferred Maintenance Issue (architectural) Remove and replace entire roofing system. Estimated cost: \$272.869

Item No. 2: Critical Deferred Maintenance Issue (architectural) Remove and replace deteriorating precast concrete sills. Estimated cost: \$682.172

Item No. 3:Critical Deferred Maintenance Issue (mechanical)Provide Priority1 and Priority2 needs for mechanical systems.Detailed Report.

Estimated cost: \$106,418\* \*Estimated cost of additional issues over the decade: \$993,242

 Item No. 4:
 Critical Deferred Maintenance Issue (plumbing)

 Provide Priority 1 and Priority 2 needs for plumbing systems.
 See Detailed

 Report.
 Image: Comparison of the priority of the prior

Estimated cost: \$54,574\* \*Estimated cost of additional issues over the decade: \$764,033

Item No. 5: Building Code / Life Safety Issue (electrical) Provide proper electrical disconnecting devices for roof-mounted fans. Estimated cost: \$27,287\*

\*Estimated cost of additional issues over the decade: \$204,652

Item No. 6: Critical Deferred Maintenance Issue (lighting) Failing and aging lamps and fixtures, etc., will require replacement. \*Estimated cost of additional issues over the decade: \$229,210

Item No. 7: Critical Deferred Maintenance Issue (voice/data) Failing and aging equipment will require replacement and upgrades. \*Estimated cost of additional issues over the decade: \$68,217 Ghafari Hall (North):

# Total Current Critical Issues: \$804,842

Total Additional Issues over the Next Decade: \$1,975,522

Item No. 1: Critical Deferred Maintenance Issue (architectural) Remove and replace deteriorating precast concrete sills. Estimated cost: \$630,754

Item No. 2:Critical Deferred Maintenance Issue (mechanical)Provide Priority 1 and Priority 2 needs for mechanical systems. SeeDetailed Report.Estimated cost: \$98,398\*\*Estimated cost of additional issues over the decade: \$983,976

Item No. 3: Critical Deferred Maintenance Issue (plumbing) Provide Priority 1 and Priority 2 needs for plumbing systems. See Detailed Report.

Estimated cost: \$50,460\*

\*Estimated cost of additional issues over the decade: \$655,984

Item No. 4:Building Code / Life Safety Issue (electrical)Provide proper electrical disconnecting devices for roof-mounted fans.Estimated cost: \$25,230

Item No. 5: Critical Deferred Maintenance Issue (lighting) Failing and aging lamps and fixtures, etc., will require replacement. \*Estimated cost of additional issues over the decade: \$272,486

Item No. 6:Critical Deferred Maintenance Issue (voice/data)Failing and aging equipment will require replacement and upgrades.\*Estimated cost of additional issues over the decade: \$63,076



# **Vital Statistics**

# **Chatsworth Tower Apartments**

Use Type(s):High-rise HousingBuilt:1929Area:125,295 SFFloors:9 (85 apartment units)

# **Summary:**

Chatsworth Tower, when originally constructed, was constructed of appropriate durable materials. However, its age and significant deferred maintenance has created concern as to the "return on investment" of the "patching-up" of this somewhat preserved structure. Another major concern on that "return on investment" is the many Life Safety issues that are of paramount significance.

# **Observation Highlights:**

- Listed on the National Register of Historic Places.
- Code related issues such as: non-rated door assemblies at dwelling units, non-rated door assemblies at egress stairs, configuration / obstructions at egress stairs, and dead end corridors, require immediate resolution.
- Built-up roofing systems, including flashings, are at the end of their useful service life, replacing the system in its entirety is recommended.
- The glazing system is at the end of its useful service life, replacing the system in its entirety is recommended.
- In various areas, the masonry façade (clay brick, terra cotta, decorative tile, and limestone shapes) requires mortar joint tuck-pointing.
- In various areas of the masonry façade, clay brick units, terra cotta shapes, and limestone shapes are deteriorated, replace the deteriorated units.





- Building sealant joints are at the end of their useful service life, remove and replace the system in its entirety.
- Corridor supply air fans and coils have failed and should be replaced.
- Boiler plant replaced in the last five years with new piping.
- Original plumbing fixtures: 25% of the fixtures are still original, at the end of their useful life, and require replacement.
- The pipe insulation appears to be original and is suspected to contain asbestos.
- Plaster ceilings and walls, at various locations throughout the facility; require repair / replacement due to water leaks caused by deteriorating mechanical systems and / or from water leaks caused by a deteriorating roof system.
- Fire Suppression System covers Boiler Plant area only, standpipes in Tower areas. A Fire Alarm System is needed.
- The facility is non-ADA compliant per the requirements of Public Accommodations for either 1991 Edition or the 2010 Edition. There is no continuous accessible "path of travel". There are no ADA accessible dwelling units. Given the historical condition of the facility, a strategy should be developed jointly with the WSU ADA policy regarding an attempt at limited ADA compliance. Alterations to historic properties shall comply, to the maximum extent. If it is not feasible to provide physical access ("path of travel") to a historic property in a manner that will not threaten or destroy the historic significance of the building or facility, alternative methods of access shall be provided.
- There is no emergency generator power for the building emergency battery back-up lighting units are failing.
- Replaced electrical outlets are not properly grounded.
- Electrical main distribution and panelboards are beyond useful service life and should be replaced.



Roofing system is at the end of its useful life



Majority of the masonry façade requires mortar joint tuck-pointing.





Open bussing in main switchboard presents a shock hazard to personnel and does not meet clearance requirements.



Supply air units in stairways are failing and beyond useful service life.



Leaking steam pipes are damaging insulation and surrounding items.



Replaced receptacles do not have ground wires tied to the ground slot.





Exhaust fan in the attic is failed and beyond its useful service life.



# **Summary:**

Chatsworth Tower, when originally constructed was constructed of appropriate durable materials. However, its age and significant deferred maintenance has created concern as to the "return on investment" of the "patching-up" of this somewhat preserved structure. Another major concern on that "return on investment" is the many Life Safety issues that are of paramount significance.

Most importantly, several life safety issues require immediate attention to increase occupant safety and to bring the building into compliance with current requirements.

Although a central fire alarm system is in place, it does not meet ADA requirements. There is no central smoke or fire detection system; each unit has a battery operated residentialgrade smoke detector only audible in the apartment. A fire alarm system should be provided.

The building has an automatic fire suppression system in the Boiler Plant only, and needs to be fully sprinkled per new state requirements for student housing.

The lack of emergency power, fire-rated egress doors and panic hardware on egress doors also need attention.

Electrical outlets replaced recently need to be reviewed. The grounding slot is not tied to a ground wire and presents a shock hazard. Receptacles near sinks should be replaced with GFCI's.

The original design of the building creates dead-end corridors where occupants might become lost or trapped in a smokefilled environment. This issue may be resolved by the relocating of some dwelling unit entry doors.

The heating and ventilation systems are past the point of maintainability and are overdue for replacement. Pipe leaks are damaging other components and posing a safety issue.

Most of the plumbing fixtures and faucets are past their useful service lives, and hot water supply is unable to meet current needs. Drains are becoming restricted due to age.

# **Recommendation:**

Critical **first-year** deferred maintenance items listed in the appendix, including those related to code-compliance, those capable of causing collateral damage, and especially those pertaining to life safety must be dealt with by the University as soon as possible to protect against additional damage, increased repair costs, and to improve occupant safety.

Roof

- Built-up Bituminous Roofing System. Roofing system is at the end of its useful service life; remove and replace the entire roofing system.
- Flashing and Sheet Metal. The majority of the flashing/coping system is at the end of its useful service life, remove and replace the entire flashing system.

Glazing

• Operable Windows. The operable glazing units are at the end of their useful service life, remove and replace all of the operable 572 window units. Replacement units (operable, single-hung) to consist of aluminum-clad wood frames with insulated glazing and screens.

Cladding

- Brick Mortar Restoration (tuck-pointing) At the wall areas of deteriorated mortar joints, tuck-point the mortar joints of, brick masonry, terra cotta, decorative tile and limestone shapes. Areas of deteriorated mortar joints include; the exterior surface of the façade, the roof side of the taller parapets, chimney structures and the exterior façade of the penthouse.
- Clay Unit Masonry and Terra Cotta Repair and / or replace all deteriorated, clay unit masonry and terra cotta accent shapes. Also to be included is the reconstruction of the failing tall parapet wall on the south facing wall, north of the Main Entrance.
- Building Joint Seals Remove and replace all deteriorated building joint sealants.
- Painting and Coating Surface preparation and finish coating of the metal canopy and entrance components.



HVAC

- The ventilation fan and steam heating coil on each floor are beyond their useful life. On six out of nine floors, the fans were not operating. None of the nine floors' steam heating coils is working, so there is no tempering of air during the winter.
- The exhaust system in the attic is a DC powered variable speed fan is the original fan and has been repaired multiple times over the years. Brushes and springs have been replaced numerous times. At the time of SHW's visit, the fan was not operational. The flexible ductwork connections to the common header in the attic have failed and have numerous holes.

Distribution

- The existing, branch circuit wiring going to each receptacle does not have a ground wire. The older twoslot receptacles have been replaced with NEMA 5-15R receptacles and there is no ground wire tied to the ground slot of the receptacle. This situation needs to be corrected by installing GFCI receptacles ahead of the NEMA 5-15R replacement receptacles.
- There are no GFCI receptacles in the bathrooms or kitchen within 6 feet of sinks. These receptacles were installed before the GFCI requirement was in the code, but it is highly recommended to install these.

Lighting

• The exit signs have no emergency power source. The exit signs need to be replaced with exit signs with battery back-up units.

# Ceilings

- Plaster and Gypsum Board: Repair / replace deteriorated plaster construction ceiling system.
- Painting and Coating: Surface preparation and finish coating of the plaster ceilings.

Walls/Cabinetry

- Plaster and Gypsum Board: Repair / replace deteriorated plaster construction wall system.
- Mortar Bed Tiling: Repair / replace deteriorated tile grout (patch).

• Painting and Coating: Surface preparation and finish coating of the plaster walls.

Doors

- Wood Doors: Remove and replace non-rated wood doors at both individual dwelling units and at stairwells.
- Door Hardware: Remove and replace all hardware at both individual dwelling units and at stairwells.
- Painting and Coating: Surface preparation and finish coating of the doors.

Floors

- Resilient Flooring: Begin phasing of resilient tile removal and replacement with Dwelling Units.
- Carpeting: Remove and replace carpet at First Floor Level public corridors.
- Carpeting: Begin phasing of carpet removal and replacement with Dwelling Units (50%).

Bldg., Fire, ADA, Elevators

- Wood Doors & Hardware. Shortening up the dead-end corridor at the south end and re-configure the stair entry door at the north end. Correction of code related means-of-egress issues.
- The existing fire alarm system is beyond its useful service life and does not meet the current code requirements. It has been noted that another engineering firm is looking into the replacement of the fire alarm system.

Immediate Site, Exterior Lighting, etc.

• Metal Railings. Provide a metal railing on each side of Main Entrance ramp.

Building systems and components listed in the appendix as **one to five year** deferred maintenance items should be prioritized and budgeted for repair or replacement as soon as practical.

The most cost effective way to address deferred maintenance items and to perform needed aesthetic renovations is to deal with both concerns simultaneously. If a group of apartments is off-line to replace heating system components and upgrade life safety equipment, then other renovations, such as painting,



carpet replacement and plumbing fixture replacement are best performed at the same time.

HVAC

- Make-up air needs to be provided to the sub-basement dryer area. Provide make up air unit.
- There is a small steam leak near the domestic water heaters in the sub-basement. This leak needs to be repaired.

### Plumbing

- The domestic water booster system has had issues with the pumps. Only one of the two pumps is operating on the drives. The system is relatively new, but the controls need to be looked and corrected.
- The condensate system for the steam has had issues. New impulse traps need to be installed
- Shower/tubs are in bad shape. 50% of the units have bad rust spots or chips.
- 25% of the plumbing fixtures are original and should be replaced with non-scalding devices.

Primary/Secondary

• The existing main distribution board is beyond its useful service life. It is unknown if the main and feeder switches will operate during an over-current situation. The main board has electrical equipment inside of it and cannot be accessed without shutting down the main switchboard's bussing. This board should be replaced with current NEMA rated switchgear.

Distribution

• The panelboards are beyond there useful lives and have not been regularly exercised. It is unknown if the over current devices will work. The panel boards should be replaced with new breakers.

Walls/Cabinetry

 Manufactured Wood (Plastic – Laminated) Casework. Remove and replace balance of original Kitchen cabinetry with updated plastic-laminated product.

Floors



- Mortar Bed Tiling. Repair / replace deteriorated grout.
- Resilient Flooring. Continue the phasing of resilient tile removal and replacement with Dwelling Units.
- Carpeting. Continue the phasing of carpet removal and replacement with Dwelling Units (50%).

Building, Fire, ADA, Elevators

• Develop a strategy to provide an ADA accessible "path of travel".

# **Vital Statistics**

# **Helen DeRoy Apartments**

Use Type(s):High-rise HousingBuilt:1970Area:206,297 SFFloors:15 (252 apartment units)

# **Summary:**

DeRoy Apartments is nearing a point where in order to provide continued service to the University, many years of deferred maintenance, especially those related to the building's envelop need to be addressed. Significant water and air filtration issues have been documented and studied extensively, but implemented solutions to correct these issues have not resulted in a final solution. The WSU Health Center is located on the south end of the facility on both the First and Second Floor Levels.

# **Observation Highlights:**

- The windows are apparently not leaking. Leaks & air infiltration at perimeter & window heads is an ongoing problem.
- Exterior precast brick clad concrete panels, reinforcing corroding brick cracking 10-15% per year. Movement in horizontal brick panels. Panel problems appear to be responsible for water infiltration.
- Water infiltration damage is evident at ceilings adjacent to window in every apartment and should be inspected. Exterior precast brick clad concrete panels and aluminum framed casement windows appear to be contributing to this issue. Further investigation and replacement of these systems may not be required.





- Original apartment kitchen cabinets are dated and showing significant wear – 10% per year replacement beginning 2004.
- Exterior hollow metal stairwell doors panic bars, jambs & doors in poor condition need replacement.
- Corridor carpet shows wear, due for replacement soon.
- Circuit breakers in apartments need testing and exercising. GFCI's are needed for safety at sinks.
- Penthouse Make-up Air Handler dampers and coil are not operational and need repair.
- Galvanized water piping is starting to leak at joints.
- Domestic water booster needs repair/replacement.
- Main electrical transformer housing requires periodic cleaning.
- No standby emergency power is provided for the building.
- Fire suppression system in mechanical room, lobby only not in apartments.
- Fire alarm: Simplex pull stations, strobes & horns tied to public safety.



Evidence of water infiltration





Evidence of water infiltration







Transformer housing requires periodic cleaning.



Pipe insulation failing on the water main.



Galvanized pipe connections starting to fail and leak.



# **Summary:**

Helen DeRoy Apartments, although newer than other housing facilities on campus, is nearing or past the lifespan of many mechanical/plumbing systems. The building exhibits several fundamental problems that must be remedied in the short-term to avoid increased damage to other building components.

The most significant, non-life safety issue at DeRoy is the deteriorating condition of the brick-clad precast concrete panels. Problems include rusting reinforcing steel, bowing panels and as-of-yet untraceable leaking into the building interior.

Recent attempts to eliminate the leaking by replacing the window system have eliminated problems associated with that part of the exterior skin, however, water infiltration continues through other parts of the exterior panels.

While the fire alarm and smoke detection systems are newer and functioning adequately, several other life safety issues require immediate attention to increase occupant safety or to bring the building into compliance with current requirements for student housing.

The building has a fire suppression system in mechanical rooms and the lobby only, and needs to be fully sprinkled per new state requirements. This system will also require installation of a fire pump.

Damaged panic hardware and the lack of emergency power also need addressing to improve occupant safety.

The electrical system has several problems, including the main transformer housing needs through cleaning and circuit breakers in the housing units are aging. Incandescent ceiling fixture lamps in the apartments should be replaced with compact fluorescent lamps.

# **Recommendation:**

Critical **first-year** deferred maintenance items listed in the appendix, including those related to code-compliance, those capable of causing collateral damage, and especially those pertaining to life safety must be dealt with by the University as soon as possible to protect against additional damage, increased repair costs, and to improve occupant safety.

Roof

• Modified Bitumen roofing system including sheet metal and flashing, at the East main roof, South Chiller and penthouse areas is at the end of its useful service life; remove and replace the entire roofing system.

Glazing

• Windows: Remove and replace window systems on the west and east elevations. This is part of a solution to the water infiltration issues at the spandrel panels.

Cladding

- Prefabricated brick clad concrete spandrel panels -Leaks & water infiltration in panels at perimeter & window head - ongoing problem. Problem requires additional in-depth investigation to determine best course(s) of action.
- Mortar joints deteriorating, tuck-pointing needed.
- Building Joint Seals Remove and replace all deteriorated joint sealants at glazing system perimeter.
- Metal Panels Clad over the existing brick masonry construction on the west and east elevations. This is part of a solution to the water infiltration issues at the spandrel panels.

HVAC

• AHU-2 in the penthouse should have its filters replaced, the dampers made operational by replacing the motorized dampers and controls, and bottom coil replaced in order to temper the incoming supply air.

Plumbing



• The domestic water, booster pump system should be looked at being replaced. One of the three pumps currently is not operational.

#### Primary/Secondary

• The dry-type, 1000KVA, transformer needs to be cleaned in order to prevent the transformer from failing.

#### Distribution

• GFCI receptacles should be provided at each sink in the kitchen and bathroom.

### Lighting

- Nine out of 10 of the emergency battery units did not operate when tested. Batteries should be replaced on all units and exit signs (eight per floor).
- The egress lighting does not meet the current one footcandle requirement. Additional units should be added in the corridors (estimated amount of seven per floor).

# Ceilings

- First Floor Level common areas, suspended linear metal ceiling system are damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.
- First Floor Level service areas and Activity Room suspended acoustical ceiling system is damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.
- Typical dwelling unit, ceiling system at exterior wall window soffit is water damaged repair of problem not recommended until source of leaking (water infiltration) is corrected.
- Common corridors, suspended lay-in acoustical ceiling system, is water stained and damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.

### Walls/Cabinetry

• Original kitchen cabinetry is present in (35) units. The original cabinetry is at the end of its useful service life,

remove and replace the entire plastic-laminated cabinetry system.

Doors

• Metal Doors and Frames - First Floor level service areas hollow metal doors are damaged, and should be replaced.

Immediate Site, Exterior Lighting, etc.

• Provide metal railings at the steps and along the ramp on the South side.

Building systems and components listed in the appendix as **one to five year** deferred maintenance items should be prioritized and budgeted for repair or replacement as soon as practical.

The most cost effective way to address deferred maintenance items and to perform needed aesthetic renovations is to deal with both concerns simultaneously. If a group of apartments is off-line to replace heating system components and upgrade life safety equipment, then other renovations, such as painting, carpet replacement and plumbing fixture replacement are best performed at the same time.

### HVAC

• The chilled water pumps should be rebuilt or replaced in the next five years.

Plumbing

- The insulation on the incoming water line should be fixed and encapsulated.
- The galvanized piping should be tested to check the condition and wall thickness. The piping is 40 years old and leaks are starting to develop.

# Primary/Secondary

• All of the main switchboard equipment should be tested and exercised. It is unknown if and of the overcurrent devices will operate.



• The replacement of the Zinsco brand distribution equipment needs to be considered because replacement parts will become harder and harder to find as the gear gets older.

Distribution

• Provide exercise and testing of panelboard overcurrent devices.

### Lighting

• The incandescent and T12 light sources should be replaced as they fail with CFL's and T8 lamps respectively.

Doors

• Exterior aluminum and glass doors and hardware are showing wear and pitting and should be replaced.



# **Vital Statistics**

# The Towers

Use Type(s):	High-rise Housing
Built:	2005
Area:	305,457 SF
Floors:	11

# **Summary:**

Being the newest housing unit, The Towers is in very good condition. Continued regular maintenance should provide additional years of service to the University. Various retail spaces are located on the First Floor Level.

# **Observation Highlights:**

- The building envelope of glass, precast concrete panels, and metal panels are generally in good condition. Joint sealants are showing signs of deterioration though.
- Dishwashing Area does not have adequate exhaust to clear water vapor from space.
- Heat pumps provide heating/cooling in housing units.
- Elevator air conditioning condenser unit needs to be cleaned.
- Electrical Rooms are exhausted into Storage Rooms. Electrical Rooms are running hot; needs remediation.
- Non-weatherproof electrical transformer located in the Waste Area is exposed to hose water spray from trash operations.
- 120/208V electrical transformers need to be cleaned.
- Cooling tower fill needs replacement.
- Four emergency generators, in good condition, provide back-up power for Life Safety, Kitchen Coolers, and the Fire Pump.







Exhaust fan from Electrical Room into Storage Room may be too small. Electrical Room is too warm.



Open, dry-type, electrical transformer in Waste Area susceptible to water spray.



Elevator room air conditioning unit condenser requires coil cleaning.



Minor cracking in precast concrete panels – clean crack and seal



# **Summary:**

The Towers Apartments is a newer housing facility, is in very good condition, and well maintained.

Life safety equipment is up to date and meets applicable ADA design requirements.

Non-life safety issues requiring priority attention include the following: minor amounts of roof flashing is showing signs of deterioration, exterior building sealant joints are showing signs of deterioration, and what appears to be "surface-cracking" of several precast concrete wall panels will require repair procedures.

Routine maintenance of interior finish materials will be required. Specifically, common corridor carpet is starting to show minimal wear, primarily staining (as would be expected) and should be planned for phased replacement in the 10-year range.

Non-life safety issues needing priority attention include the following:

- Provide adequate exhaust to dishwashing area and electrical room.
- Cooling tower repair or replacement.
- General HVAC issues need remediation.

# **Recommendation:**

Critical **first-year** deferred maintenance items listed in the appendix, including those related to code-compliance, those capable of causing collateral damage, and especially those pertaining to life safety must be dealt with by the University as soon as possible to protect against additional damage, increased repair costs, and to improve occupant safety.

Roof

• Some components of the metal flashing system are beginning to show signs of deterioration and should be repaired/replaced.

Cladding

- Building Joint Seals Many building joints appear to failing, and nearing the end of their useful service life. Remove and replace all deteriorated joint sealants.
- Building Joint Seals Apply repair procedures at hairline cracking within the surface of the precast concrete panels.

HVAC

- The supply air handler in the penthouse needs to have its coil replaced in order to temper the air.
- The cooling tower fill is in poor condition and requires replacement.

#### Distribution

• The transformer in the trash area needs to be relocated out of this space or a protective enclosure put around it to prevent water entry. This is a hazard due to the use of spray down hoses and this transformer is neither watertight nor weatherproof.

Floors

• Replace a small amount of tile located adjacent to the exterior door.

Building systems and components listed in the appendix as **one to five year** deferred maintenance items should be prioritized and budgeted for repair or replacement as soon as practical.



The most cost effective way to address deferred maintenance items and to perform needed aesthetic renovations is to deal with both concerns simultaneously. If a group of apartments is off-line to replace heating system components and upgrade life safety equipment, then other renovations, such as painting, carpet replacement and plumbing fixture replacement are best performed at the same time.

### HVAC

- The heat buildup in the electrical closets needs to be address. Provide separate exhaust and make up air unit or provide cooling to rooms.
- The programming disk for the Honeywell system needs to be obtained in order to change system settings.
- The elevator condenser unit needs to be cleaned.
- Have a test and balance report done on the kitchen dishwasher exhaust system to determine if proper CFM is occurring through exhaust.

#### Distribution

• The heat build-up in the electrical closets needs to be addressed.

#### Lighting

- The incandescent sources should be replaced as they fail with CFL's.
- The lights above the doors in the units need to replace with more secure units or a way to secure them better.



# **Vital Statistics**

# **University Tower**

Use Type(s):High-rise HousingBuilt:1996Area:355,523 SFFloors:11 (298 apartment units)

# **Summary:**

University Tower Apartments is a 298-unit apartment building, which also consists of the WDET Radio Station at the East wing of the first floor level and the WSU Early Childhood Center at the North wing of the first floor level. It is in good condition and well maintained.

# **Observation Highlights:**

- Precast concrete exterior panels staining at joints & window framing, minor spalling at corners. Sealant cracking, leaking.
- Make-up air steam coil not functioning, due for immediate replacement.
- Corridor walls show abuse ongoing repair issue.
- Exterior door hardware wearing from high traffic replaced as required. Interior doors have lever hardware throughout.
- Corridor carpet showing excessive wear, fraying, buckling. Need complete replacement. 9th floor - trip hazard, replace immediately.
- New boiler plant built next to building provides steam for heat/water use.
- Heating hot water circulation pump motors are reaching the end of their useful service life.
- Temperature control compressed air lines are leaking enough to require the compressor to run most of the time.
- Cooling tower fill is in bad shape and needs replacement.







Failing sealant.



Heating hot water circulating pump motors at end of useful service life.



Transfer switch/panelboard inter-panel clearance may be service issue.





Cooling tower fill is in poor condition and requires replacement.



Make-up Air Handler unit coil is not operational.



# **Summary:**

University Tower Apartments housing facility is in good condition.

Life safety equipment is up-to-date and meets applicable ADA requirements. The only notable issues with the life safety equipment are primarily related to tenant damage of signs and emergency lighting.

• Exit signage requires lamp replacement.

Non-life safety issues needing priority attention include the following:

- The precast concrete exterior panels are exhibiting sealant failure and water infiltration. The exterior wall panels of the Boiler House are "buckling" and will require replacement.
- Portions of both the HVAC and domestic plumbing system need attention. Make-up air heating coils are not functioning. Heating hot water pump motors are at the end of their useful service. Pneumatic air tubing for temperature controls is leaking air and causing the compressor to run excessively. The cooling tower fill requires replacement.
- Carpeting in the corridors is showing excessive wear and due for replacement.
- The roof system is nearing the end of its useful service life; remove and replace in its entirety.
- General HVAC issues require remediation.

# **Recommendation:**

The few **first-year** deferred maintenance items listed in the appendix, including those related to code-compliance, those capable of causing collateral damage, and those pertaining to life safety can be addressed with minimal time and relatively little expense. The two top priorities should be to inspect the precast concrete panels and solve the continuing problem of plugging drain lines.

Roof

• Some components of the metal flashing system are in need of adjustment, (I.E. slices of coping not laying down flat or sealed properly). Some of the metal components of the roof expansion joint system are showing signs of deterioration, rusting.

Cladding

• Many building joints are failing and are at the end of their useful service life. Remove and replace all deteriorated joint sealants.

HVAC

- The supply air handler in the penthouse needs to have its coil replaced in order to temper air properly.
- The cooling tower fill requires replacement.

Lighting

• Over 50% of the exit signs were not lit. Lamps should be replaced.

Ceilings

- First Floor Level service areas, suspended lay-in acoustical ceiling systems, system is damaged and stained. System is at the end of its useful service life, remove and replace entire ceiling system.
- First Floor Level, WDET Radio Station, suspended layin acoustical ceiling systems, system has some damaged and some stained components. Replace damaged and stained components.
- First Floor Level, Early Childhood Center, suspended lay-in acoustical ceiling systems, system has some damaged and some stained components. Replace damaged and stained components.


• Common corridors, suspended lay-in acoustical ceiling systems, majority of the system is damaged and stained, remove and replace entire ceiling system.

Immediate Site, Exterior Lighting, etc.

- Small quantity of concrete walkway is frost-heaved at the north exit stair.
- Some minor earth back-fill is required alongside the concrete walkway at the entrance to the Early Childhood Center.

Building systems and components listed in the appendix as **one to five year** deferred maintenance items should be prioritized and budgeted for repair or replacement as soon as practical.

Roof

• Elastomeric Membrane Roofing (ballasted) - Current roofing system is nearing the end of its useful service life and should be replaced.

**HVAC** 

- The chiller water pump motors should be replaced in the next 5 years.
- The possible leak in the pneumatic controls system needs remediation.

### Primary/Secondary

• The ATS switches may have a clearance problem as installed. There is not proper clearance between the two, grounded surfaces. If this was accepted at installation, then it is only seen as a maintenance issue when working on live equipment.

### Distribution

• The existing distribution equipment should be tested and exercised. There is no evidence of testing.

Voice/Data

• Investigate the installation of a lightning protection system for the building.

Doors

- Exterior main entrance doors, aluminum and glass entrance systems, in fair condition, showing wear. Expect to replace with five-years.
- Exterior service doors, hollow metal doors and frames, in fair to good condition. Replace within five-years.

Floors

- Main Level Elevator Lobby: vinyl tile, worn should be replaced.
- WDET Lobby and Lunch Room, vinyl tile, worn, should be replaced.
- Childhood Center: carpet and vinyl tile, worn should be replaced.
- Common Corridors: carpet, stains and showing some wear, should be replaced with five years.
- Carpet / Resilient Tile - Typical Dwelling Unit, carpet, vinyl tile wearing and should be replaced within five years.

Immediate Site, Exterior Lighting, etc.

• Composite Fabrications. Remove and replace failing composite panels at the Boiler House.

### Lighting

• Incandescent lighting should be replaced with CFL's as they fail.



# **Vital Statistics**

## Atchison Hall (South)

Use Type(s):High-rise HousingBuilt:2004Area:121,275 SFFloors:6

## **Summary:**

Atchison Hall (South) is a 244-unit apartment building which also consists of some small-sized retail spaces on the first floor level. It is in good condition and well maintained.

## **Observation Highlights:**

- Roofing system is very problematic (numerous leaks reported) should be removed and replaced in its entirety.
- Exterior precast concrete window sills are excessively stained and probable deterioration is occurring, remove and replace in their entirety.
- Exterior building sealant joints are showing deterioration, remove and replace in their entirety.
- Common Corridor carpet is nearing end of life, remove and replace within 5-years, on a phased basis.

### HVAC

- The roof top make-up air units' gas burner flues need to be extended above the height of the alcove wall.
- A structural platform should be provided for service personnel at the make-up air units.
- Some exhaust fans were not running on the day of the observation.
- Exhaust was not working or not installed in many places that require exhaust. Janitor's closets were provided with exhaust; however, some fans were not working.
- Trash Compactor/recycle rooms, trash chute rooms, first level storage rooms, and common areas that have been provided with cooking equipment do not have any provisions for exhaust.





- Trash Compactor/recycle rooms, trash chute rooms, first level storage rooms, and common areas that have been provided with cooking equipment do not have any provisions for exhaust.
- The laundry room should be negatively pressurized to remove odors.
- The tenant fit-out area requires exhaust air control for both odors and generated heat.
- Numerous ceiling tiles are stained from condensate drainage piping from ceiling-mounted heat pumps.
- The electrical substation and room ventilation system needs to be cleaned.

Plumbing

- The roof slope does not appear to provide positive drainage to each drain, and significant ponding was observed. The presence of algae and scum indicated the ponding is chronic and presents a slip hazard. The ponding also appears to have contributed to numerous leaks throughout the 6<sup>th</sup> floor, damaging finishes.
- The natural gas piping traversing the roof is not painted, is corroding, and presents a trip hazard.
- Numerous storage rooms had storage stacked higher than 18" below fire protection heads. 18" clear must be maintained below fire protection heads.
- The fire protection in the tenant fit-out area did not appear to be revised based on the tenant's architecture. Proper sprinkler coverage for this area needs to be confirmed.
- The laundry's washing machines drain in to a common concrete trench and results in very objectionable odors.
- The rooftop, evaporative cooler basin drain must be piped to a sanitary drain to avoid discharging chemicals to the storm drainage system.

Electrical

- Disconnects for roof-mounted exhaust fans are not located within line of sight of the equipment per code. No lockout / tag-out provided for each disconnect, which are located in the 6<sup>th</sup> floor electrical closet.
- The panelboard for the tenant area was permanently obstructed by a cash safe.
- A duct was constructed over the primary electrical gear.



Windowsills with excessive staining suggest water management concerns and probable deterioration.



Roof slope does not allow for adequate drainage. Ponding is causing leaks inside building.





Heat trace cabling and power supply is not properly attached.



Exit signs at end of corridor are difficult to see; do not show path of egress.



Elevated rooftop equipment is too high to step over the steel framing and flue extensions are not extended to parapet elevation causing re-entrainment issue.



Stored items are too close to sprinkler head. Per code, 18 inches clear space is required.





Washing machines discharge into open trench causing significant odor issue.



Heating water loop isolation valve is leaking.



Need to step on ductwork to access the other side of the unit.



## **Summary:**

Atchison Hall is a newer housing facility, is generally in good condition, and well maintained.

Life safety equipment is up to date and meets applicable ADA design requirements.

Non-life safety issues requiring priority attention include the following:

- Total roofing system replacement, exterior building sealant joints are showing signs of deterioration, and what appears to be probable deterioration of the exterior precast concrete window sills (heavily stained) will require to be removed and replaced.
- Also, there may be internal water damage at those sill locations that will have to be evaluated when the sills are removed. The design flashing detail vs. actual constructed condition requires investigation.
- Routine maintenance of interior finish materials will be required. Specifically, common corridor carpet is starting to show minimal wear, primarily staining (as would be expected) and should be planned for phased replacement in the 5-year range.

There are significant and extensive HVAC, ventilation, exhaust air, and plumbing issues. Some require immediate attention.

## **Recommendation:**

Critical **first-year** deferred maintenance items listed in the appendix, including those related to code-compliance, those capable of causing collateral damage, and especially those pertaining to life safety must be dealt with by the University as soon as possible to protect against additional damage, increased repair costs, and to improve occupant safety.

Roof

• Built-up Bituminous Roofing – Roofing system is very problematic (numerous leaks) and should be removed and replaced in its entirety. Re-use existing coping.

Cladding

• Precast Concrete Sills - Remove and replace.

HVAC

- The roof top, make-up air unit, gas burner flues extend above the height of the unit, but do not extend above the height of the alcove wall. Provide extensions of flues above the height of the alcove wall.
- The arrangement of the mechanical equipment on the roof and the roof access available requires walking on top of roof mounted ductwork to get to the opposite half of the roof.
- Provide repair of non-running exhaust fans re-balance for those with vibration.
- Provide repair or replacement of exhaust fans for Janitor's Closets.
- Provide exhaust fans or exhaust ductwork connections for trash compactor/recycle rooms, trash chute rooms, first level storage rooms, and common areas that have been provided with cooking equipment do not have any provisions for exhaust.
- Provide freeze protection for loading areas/storage areas and vestibules with exterior exposures that are protected by wet-pipe fire protection.
- Clear obstructions around wet-pipe fire protection equipment for maintenance, operation, and safety concerns.



Plumbing

- The roof requires re-sloping to provide positive drainage to each drain and prevent ponding.
- Provide storage rooms with 18" clear space below fire protection heads per code.
- Proper fire protection in the Tenant Fit-out Area needs to be confirmed. If inadequate, then provide.
- Provide closed connection drainage for the Laundry Area equipment to prevent odor migration.
- Roof-top, evaporative cooler, basin drain must be piped to a sanitary connection to prevent chemicals draining into the storm drainage system.

Distribution

- Provide disconnects for roof-mounted exhaust fans located within line of sight of the equipment per code.
- Remove permanently obstruction of panelboard for the tenant area or relocate the cash safe.
- Relocate ductwork (unrelated to the substation room) located above the primary gear.

Lighting

• Provide additional exit signs mounted on the walls below the ceiling coffers in order to provide unobstructed vision of the path of egress.

Building, Fire, ADA, Elevators

- Provide freeze protection for loading areas/storage areas and vestibules with exterior exposures that are protected by wet-pipe fire protection.
- Clear obstructions around wet-pipe fire protection equipment for maintenance, operation, and safety concerns.

Building systems and components listed in the appendix as **one to five year** deferred maintenance items should be prioritized and budgeted for repair or replacement as soon as practical.

The most cost effective way to address deferred maintenance items and to perform needed aesthetic renovations is to deal with both concerns simultaneously. If a group of apartments is off-line to replace heating system components and upgrade life safety equipment, then other renovations, such as painting, carpet replacement and plumbing fixture replacement are best performed at the same time.

Cladding

• Building Joint Seals – Remove and replace all deteriorated building joint sealants.

HVAC

- The structural platform that supports each make-up air unit exceeds typical occupational safety guidelines and a ladder and platform should be provided for service personnel.
- Provide proper negative-pressurization for Laundry Area to remove odors from corridors.
- Provide means to clean the laundry exhaust system to reduce fire hazard.
- Provide proper exhaust fans or exhaust ductwork connections for the Tenant Fit-out Area to remove both odors and generated heat.
- The first level mechanical room is heated by a single gas-fired unit heater. Failure may present a freeze concern.

Plumbing

• The natural gas piping traversing the roof should be painted to prevent corrosion. Evaluate pipe loss before painting; replacement may be required.

Primary/Secondary

• The dry type transformer needs to have its coils vacuumed.

Floors

• Common Corridors, carpet, stains and showing some wear, should be replaced within five years.

Building, Fire, ADA, Elevators

• Door Hardware - Replace door and hardware at Room 101.



# **Vital Statistics**

### Ghafari Hall (North)

Use Type(s):	High-rise Housing
Built:	2003
Area:	112,134 SF
Floors:	6

## **Summary:**

Ghafari Hall (North) is a 194-unit apartment building that also consists of some small-sized retail spaces on the first floor level. It is in good condition and well maintained.

## **Observation Highlights:**

- Exterior precast concrete window sills are excessively stained and probable deterioration is occurring, remove and replace in their entirety.
- Common Corridor carpet is nearing end of life, remove and replace within 5-years, on a phased basis.

### HVAC

- Plumbing vents and exhaust sources of odor are closer than 10' to adjacent outdoor air intake hoods.
- Some condensate drain traps on roof top air handling equipment were PVC plastic piping and were broken.
- Exhaust was not working or not installed in many places that require exhaust (e.g. janitor's closets)
- Trash compactor/recycle rooms, trash chute rooms, first level storage rooms, and common areas with cooking equipment needs exhaust.
- The exhaust for laundry areas appears to be inadequate. Significant odors remain in the laundry room. Exhaust system should be provided.
- The tenant fit-out area does not have provisions for exhaust for both odors and generated heat.
- Loading areas/storage areas and vestibules with exterior exposures are protected by wet-pipe fire protection without adequate heat for freeze protection or the equipment was obstructed and rendered non-functional.





• Numerous ceiling tiles are stained from condensate drainage piping from ceiling-mounted heat pumps.

#### Plumbing

- Numerous storage rooms had storage stacked higher than 18" below fire protection heads. 18" clear space must be maintained below fire protection heads.
- The laundry's washing machines drain into a common concrete trench that is the source of objectionable odors.
- The city water pressure was observed to have significant fluctuations. Incoming water pressure had dropped to less than 35psig during observations.

Electrical

- Disconnects for roof-mounted exhaust fans are not located within line of sight of the equipment per code. No lockout / tag-out provided for the electrical disconnects, which are located in the 6<sup>th</sup> floor electrical closet.
- The panelboards for the tenant area were permanently obstructed by storage items.





Ceilings damaged from heat buildup.



Disconnect switches for roof-mounted exhaust fans are not in line-of-site of the equipment and violate code. They also cannot use lock-out/tag out products for safe maintenance



PVC condensate drain pan traps are broken due to UV breakdown or stepping on.



Panelboards are obstructed in Tenant Fit-out Area.





Stored materials are too close to fire suppression sprinkler heads. 18 inches of clear space is required by code.



Washing machines discharge into open trench causing significant odor issue.



## **Summary:**

Ghafari Hall is a newer housing facility, is generally in good condition, and well maintained.

Life safety equipment is up to date and meets applicable ADA design requirements.

Non-life safety issues requiring priority attention include the following:

- What appears to be probable deterioration of the exterior precast concrete window sills (heavily stained) will require to be removed and replaced.
- Also, there may be internal water damage at those sill locations that will have to be evaluated when the sills are removed. The design flashing detail vs. actual constructed condition requires investigation.
- Routine maintenance of interior finish materials will be required. Specifically, common corridor carpet is starting to show minimal wear, primarily staining (as would be expected) and should be planned for phased replacement in the 5-year range.

There are significant and extensive HVAC, ventilation, exhaust air, and plumbing issues. Some require immediate attention.

## **Recommendation:**

Critical **first-year** deferred maintenance items listed in the appendix, including those related to code-compliance, those capable of causing collateral damage, and especially those pertaining to life safety must be dealt with by the University as soon as possible to protect against additional damage, increased repair costs, and to improve occupant safety.

Cladding

• Precast Concrete Sills - Remove and replace.

HVAC

- Plumbing vents and exhaust sources of odors that are too close to fresh air intakes need to be relocated.
- Janitor Closet exhaust fans need replacement if missing they need to be provided.
- Trash compactor/recycle rooms, trash chute rooms, first level storage rooms, and common areas that have been provided with cooking equipment need exhaust fans or exhaust air ductwork connections.
- Some exhaust fans require replacement or balancing and some were not running.
- Laundry Area exhaust for negative-pressurization should be provided.
- Heat source for freeze protection of wet-pipe sprinkler equipment is needed. Obstructions to wet-pipe sprinkler equipment areas need to be removed for safety, operation, and maintenance concerns.
- Provide replacement of Boiler #4 exhaust flue.

Plumbing

- The roof requires re-sloping to provide positive drainage to each drain and prevent ponding.
- Storage rooms require 18" clear space below fire protection heads.
- Laundry Area drainage into a closed connection should be provided to prevent odor.



• Roof-top, evaporative cooler, basin drain must be piped to a sanitary connection to prevent chemicals draining into the storm drainage system.

#### Distribution

- Provide disconnects for roof-mounted exhaust fans within line of sight of the equipment.
- Remove obstructions in tenant area panelboard locations.

Building, Fire, ADA, Elevators

- Heat source for freeze protection of wet-pipe sprinkler equipment is needed.
- Obstructions to wet-pipe sprinkler equipment areas need to be removed for safety, operation, and maintenance concerns.

Building systems and components listed in the appendix as **one to five year** deferred maintenance items should be prioritized and budgeted for repair or replacement as soon as practical.

The most cost effective way to address deferred maintenance items and to perform needed aesthetic renovations is to deal with both concerns simultaneously. If a group of apartments is off-line to replace heating system components and upgrade life safety equipment, then other renovations, such as painting, carpet replacement and plumbing fixture replacement are best performed at the same time.

HVAC

- Some condensate drain traps located on roof top equipment are broken and require replacement.
- The tenant fit-out area needs proper exhaust air to contain odors and remove heat. Ceiling tiles damaged by excessive heat require replacement.
- The first level mechanical room is heated by a single gas-fired unit heater. Failure may present a freeze concern.

Plumbing

- The natural gas piping traversing the roof should be painted to prevent corrosion. Evaluate pipe loss before painting; replacement may be required.
- The plumbing fixtures (faucets, shower heads, and urinal flush valves) should have aerators or replaced with low-flow fixtures.
- Investigate city water pressure fluctuations and remediate.
- Sewer flies in the mechanical room require pest control.

Floors

• Carpet - Common Corridors, carpet, stains and showing some wear, should be replaced within five years.







2012 Update

## **Facility Assessment Database Reports:**

The following facility assessment pages contain information collected through interviews with key facility personnel and facility walk-throughs. The Current Replacement Value shown for each facility was determined using industry standard costs for typical facilities of this type and do not include site costs, design fees, furniture or other owner overhead costs. The individual building component budgets are based on current understandings of the facility condition and should be considered a starting point in the repair cost budgeting process.



# Deferred Maintenance Report - All Facilities Wayne State University

### Stats

Number of Building	6
Oldest Building	1929
Newest Building	2005
Avg. Year Built	1985
Avg. Cost per S.F.	\$225

### **Facilities Condition Index - All Facilities**

	0-1 Year D	Data			0-5 Year Data					
1,225,981	\$275,845,725	\$11,758,178	\$5,345,077	4.3%	GOOD	\$16,267,378	\$6,893,684	5.9%	\$5,516,915	FAIR
TOTAL S.F.	CRV	DMB	EXCESS	FCI	RATING	DMB	EXCESS	FCI	\$/YR MAINTAIN	RATING

### **Building/Campus/College Comparison Report**

### Wayne State University

	Year	Building	Pct. of		Pct. of		Pct. of Tota	l 1Yr	FCI		Pct. of Total	0-5 Yr	6-10 Yr	0-10
Facility	Built	Area (S.F.)	Total S.I	F. CRV	Total CRV	0-1 Yr DMB	0-1 Yr DMB	FCI	Rating	0-5 Yr DMB	0-5 Yr DMB	FCI	FCI	Yr
All Facilities		1,225,981		\$275,845,725		\$11,758,178		4.3%	GOOD	\$16,267,378		5.9%	12.6%	18.5%
Housing		1,225,981	100.0%	\$275,845,725	100.0%	\$11,758,178	100.0%	4.3%	GOOD	\$16,267,378	100.0%	5.9%	12.6%	18.5%
Atchison Hall (South)	2004	121,275	9.9%	\$27,286,875	9.9%	\$919,568	7.8%	3.4%	GOOD	\$1,347,972	8.3%	4.9%	11.8%	16.7%
Ghafari Hall (North)	2003	112,134	9.1%	\$25,230,150	9.1%	\$652,199	5.5%	2.6%	GOOD	\$936,039	5.8%	3.7%	12.1%	15.9%
The Towers	2005	305,457	24.9%	\$68,727,825	24.9%	\$264,602	2.3%	0.4%	GOOD	\$353,948	2.2%	0.5%	12.0%	12.5%
Helen DeRoy Apartments	1970	206,297	16.8%	\$46,416,825	16.8%	\$5,465,581	46.5%	11.8%	POOR	\$5,737,120	35.3%	12.4%	12.4%	24.8%
Chatsworth Tower Apartments	1929	125,295	10.2%	\$28,191,375	10.2%	\$3,609,906	30.7%	12.8%	POOR	\$4,886,975	30.0%	17.3%	14.1%	31.4%
University Tower	1996	355,523	29.0%	\$79,992,675	29.0%	\$846,323	7.2%	1.1%	GOOD	\$3,005,325	18.5%	3.8%	13.1%	16.9%

#### Legend

CRV: Current Replacement Value of facility

DMB: Deferred Maintenance Backlog

FCI: Facilities Condition Index (DMB divided by CRV)

## SHWGROUP

# Deferred Maintenance Detail Report - by Building Wayne State University

### Building: Atchison Hall (South)

Area: 121275sf Yr Built: 2004 Floors:6

	CRV	of Component	% of Compo	nent Requirin	ng Repair/Replac	cement in:	
<u>Components</u>	X	\$	0-1 Year	1-5 Years	6-10 Years	11+ Years	Notes
Structure	18	\$4,911,638	0	0	5	95	Description: - Load-bearing CMU wall system with precast concrete plank floor slabs, concrete slab on grade.
							Priority 1: - No reported problems.
							Priority 2: - No reported problems.
							2011: - During interviews and walk-thru observations, no significant issues were noted of observed.
							2005: - This facility was not included in the February 2005 Assessment.

2 \$545,738 50 0 5 45 Description:

- Built-up Bituminous roofing system.

- 8-inch high parapet walls.

- Metal flashings and prefinished metal copings.

- The roof drainage system consists of internal conductors and roof drains. Emergency roof drains (scuppers at the exterior parapet wall) are present.

#### Priority 1:

- 07510 - Built-up Bituminous Roofing – Roofing system is very problematic (numerous leaks) and should be removed and replaced in its entirety. It also requires correct sloping to provide positive drainage to each drain and prevent ponding. Re-use existing coping.

#### Priority 2:

- No reported problems

2011:

- Information acquired from interviews:

- The roofing is original.

- The roof is leaking in several locations.

- The roof is not properly "sloped".

- Information acquired from walk-thru observations:

- Roofing surface was partially covered by a light dusting of snow at the time of assessment.

- The roofing surface appeared to be in "sound" condition. No pockets, voids or bubbles were observed.

- Drainage patterns do not appear to be well defined, evidence of ponding water was observed in many locations.

- Evidence of ceiling water damage at the 6th-floor Elevator Lobby and at the North-South Corridor adjacent to the Elevator

Lobby.

2005:

						Atchison Hall (South)
Glazing	6	\$1,637,213	0	0	5	<ul> <li>95 Description:</li> <li>Insulated, double-glazed with clear anodized aluminum framing, fixed units and operable single-hung units with screens.</li> <li>Insulated, double-glazed with clear anodized aluminum framing, curtain wall system.</li> <li>Insulated, double-glazed with clear anodized aluminum framing, store front system.</li> </ul>
						- No reported problems.
						Priority 2: - No reported problems.
				2011: - During interviews and walk-thru observations, no significant issues were noted or observed.		
						2005: - This facility was not included in the February 2005 Assessment.
Cladding	10	\$2,728,688	20	5	5	<ul> <li>70 Description:</li> <li>Brick veneer with concrete masonry unit (CMU) back-up, cavity wall construction.</li> </ul>
						Priority 1: - 03300 - Precast Concrete Sills - Remove and replace.
						Priority 2: - 07920 – Building Joint Seals – Remove and replace all deteriorated building joint sealants.
						2011: - During interviews, no significant issues were noted.
						<ul> <li>During walk-through, excessive staining was observed at most window sills, probable deterioration.</li> <li>During walk-through, exterior building sealant joints are starting to show deterioration</li> </ul>
						2005.
						- This facility was not included in the February 2005 Assessment.

						Atchison Hall (South)
HVAC	13	\$3,547,294	1	2	28	<ul> <li>69 Description: <ul> <li>The majority of the building is served by water source unitary heat pumps located in or near the zones they serve. Each individual resident room has its own in-wall heat pumps or celling hung heat pumps with ducted air distribution. The heat pump loop is pumped by constant volume pumps located in the first floor mechanical room and receives heat energy from a plate and frame heat exchanger served by a branch of the adjacent Bioscience building's heating hot water loop. Atchison Hall's heat pump loop is cooled by an evaporative cooler located on the buildings roof.</li> <li>Some corridors with exterior exposures are heated with electric resistance baseboard heating.</li> <li>The mechanical space is heated by a single gas-fired unit heater, located near the gravity air intake and water service entrance.</li> <li>Numerous constant volume exhaust fans (located on the roof) serve resident rooms' toilets and showers.</li> <li>Tempered make-up air is provided to the building's corridors, and is transferred to the resident rooms.</li> <li>The roof-top air handling units are standard efficiency units with natural gas fired heating and direct expansion cooling. The AHUs are elevated 24-30° off the roof on structural steel platforms.</li> </ul> </li> <li>Priority 1: <ul> <li>237413 - The roof top, make-up air unit, gas burner flues extend above the height of the unit, but do not extend above the height of the alcove wall. Provide extensions of flues above the height of the alcove wall.</li> <li>The arrangement of the mechanical equipment on the roof and the roof. Receives available requires walking on top of roof mounted ductwork to get to the opposite half of the roof. Provide extensi on port or of mounted ductwork to get to the opposite half of the roof. Provide extensi on port or of mounted ductwork to get to the opposite half of the roof. Provide extensi on port or of mounted ductwork to get to the opposite half of the roof. Provide extensi fans re-balance for those with vibration.</li></ul></li></ul>
						<ul> <li>The overall ventilation scheme for the building needs to be reviewed. Many areas are not exhausted which require exhaust, and many areas exhibited evidence of improper pressure</li> </ul>

relationships. Multiple roof-mounted exhaust fans were not functioning during the time of the walk-through.

- Roof-top, make-up air unit, gas burner exhaust flues need to be extended in height to avoid entraining products of combustion in to the associated units' fresh air intake.

- The unitary heat pump system appears to be functioning properly and maintaining comfortable conditions. Replace failed compressors or internal components as required, however, the equipment should still be near the middle of its useful life.

- Replace stained ceiling tiles and insulate condensate lines to avoid excessive moisture above the ceiling.

2005:

					Atchison Hall (South)
Plumbing	10 \$2,728,688	1.5	0.5	28	<ul> <li>70 Description: <ul> <li>The building domestic cold water is served by a packaged city water booster pump package. Domestic hot water is generated and stored at 140°F in two large storage tanks. Two 120°F hot water recirculation loops are served by a master mixing valve. A separate recirculating 140°F hot water loop is provided for laundry use. The arrangement of the domestic water isolation valves currently require two resident rooms to be shut off if service is required on either.</li> <li>Sanitary and storm piping are likely to be no-hub cast iron; no major, systemic problems were reported.</li> <li>The roof is drained by primary roof drains located near the center of the roof, with scupper openings through the roof coping acting as a secondary method of roof drainage.</li> <li>The building appears to be fully sprinkled, though no standpipe hose connections were observed. Based on current building codes, standpipes are required.</li> <li>An electric-powered fire pump and jockey pump are located in the first level mechanical room.</li> </ul> </li> </ul>
					<ul> <li>Priority 1:</li> <li>Provide storage rooms with 18" clear space below fire protection heads per code - maintenance/safety issue.</li> <li>Proper fire protection assessment and report of the Tenant Fit-out Area.</li> <li>232113 - Provide closed connection drainage for the Laundry Area equipment to prevent odor migration.</li> <li>232113 - Rooftop, evaporative cooler, basin drain must be piped to a sanitary connection to prevent chemicals from draining into the storm drainage system.</li> </ul> Priority 2:
					<ul> <li>- 231123 - The flatular gas pipiling traversing the foor should be plained to prevent condition.</li> <li>Evaluate pipe loss before painting; replacement may be required.</li> <li>- The plumbing fixtures (faucets, shower heads, and urinal flush valves) should be evaluated for replacement with low-flow fixtures.</li> </ul>
					<ul> <li>2011:</li> <li>The majority of the plumbing equipment and fixtures in the building appear to be original and are in good shape, but are not water efficient. Replace or repair fixtures as required, however, most should still be near the beginning of their useful lives. Replacing or modifying existing showerheads and faucet aerators with more water efficient models can also reduce energy consumption.</li> <li>The natural gas-fired domestic water boilers appear to be in good functioning order, but are standard efficiency. Consider replacing units with high efficiency boilers. A simple return on investment analysis could be conducted to determine if replacement is cost-effective prior to the existing boilers' end of life.</li> <li>Revise the laundry drainage trench system to provide a more direct means of drainage for each washing machine and avoid the odors currently caused by the open trench.</li> <li>The roof drainage system (or roof itself) needs to be revised to properly drain all areas of the roof and avoid numerous trip hazards that are currently present.</li> <li>The improper chemical discharge in to the storm drainage system needs to be corrected.</li> <li>Fire protection for tenant fit-out areas needs to be reviseed and revised as necessary.</li> </ul>
					2005:

						- No data available for report.
Primary/Secondary	2 \$545,7	738 1	3	15	81	Description: - The building is served from Detroit Edison with a dry-type, single ended, 480/277V substation located on the first level. - The secondary distribution is circuit breakers. - The diesel-powered, emergency generator is located indoors adjacent to the substation room.
						Priority 1: - No reported problems.
						Priority 2: - The dry type transformer needs to have its coils vacuumed. The coils are dusty.
						2011: - Routine vacuuming and cleaning of the Electrical Room equipment is needed. - No other issues reported during observations or interviews.
						2005: - This Facility was not included in the February 2005 Assessment.
Distribution	5 \$1,364,3	344 0	2	15	83	<ul> <li>Description:</li> <li>Lighting and power distribution panels on alternating floors are fed from the unit substation.</li> <li>Panelboards that serve resident rooms observed appear to be in good condition and are provided with acceptable working clearances.</li> <li>The quantity of power receptacles for resident rooms appears to be at code minimum.</li> <li>GFCI receptacles are provided in each resident room's toilet room.</li> <li>The addition of time-switch controlled residential cooking ranges in common areas has obstructed the GFCI receptacles in those areas.</li> </ul>
						<ul> <li>Priority 1:</li> <li>262816 - Provide disconnects for roof-mounted exhaust fans located within line of sight of the equipment per code.</li> <li>Remove obstructions from panelboard in the Tenant Area - maintenance/safety issue.</li> <li>233113 - Relocate ductwork (unrelated to the substation room) located above the primary gear.</li> </ul>
						Priority 2: - No reported problems.
						<ul> <li>2011:</li> <li>Disconnects for roof-mounted exhaust fans are not located within line of sight of the equipment. No lockout/tag out is provided for each disconnect, which are located in the 6th floor electrical closet.</li> <li>The panelboard for the tenant area was permanently obstructed by a cash safe.</li> <li>A duct (unrelated to the substation room) was routed on top of the primary gear.</li> </ul>
						2005: - This Facility was not included in the February 2005 Assessment.

						Atchison Hall (South)
Lighting	3	\$818,606	1	4	28	<ul> <li>67 Description: <ul> <li>Lighting throughout public spaces was observed to be mostly recessed 2x2 fluorescent fixtures or recessed triple-tube CFL can lights.</li> <li>Elevator lobbies and resident area corridors are provided with fluorescent sconce fixtures.</li> <li>Lighting levels throughout the building appeared adequate.</li> <li>Some permanent lighting is provided in resident rooms, with the expectation that some lamps are to be provided by the residents.</li> <li>Emergency exit signs in the corridors are surface mounted on ceiling coffers. These lights are obstructed by the remaining ceiling coffers, and are almost impossible for someone to see the exit sign if they were standing in the middle of the corridor.</li> <li>Egress lighting is provided thru selected fixtures by the building generators</li> <li>No occupancy based lighting in study lounges/kitchenettes.</li> </ul> </li> <li>Priority 1: <ul> <li>262726 - Provide additional exit signs mounted on the walls below the ceiling coffers in order to provide unobstructed vision of the path of egress.</li> </ul> </li> </ul>
						Priority 2: - No reported problems. 2011: - Exit signs must provide unobstructed vision of the path of egress. - No other issues were noted during walk-through observations or interviews.
						2005: - This Facility was not included in the February 2005 Assessment.
Voice/Data	1	\$272,869	0	0	25	<ul> <li>75 Description:</li> <li>Voice lines provided for 1st floor and management offices. No phone line service available for individual rooms.</li> <li>CAT5 (or better) wiring ethernet to every room.</li> <li>WiFi coverage for 100% of the building. Wireless access points have been installed throughout the building with surface-mounted raceway running through the corridors.</li> <li>Priority 1:</li> </ul>
						- No reported problems.
						Priority 2: - No reported problems.
						2011: - No other issues were noted during walk-through observations or interviews.
						2005: - This Facility was not included in the February 2005 Assessment.

Ceil	linas
001	mgo

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- First Floor Main Lobby Area: suspended acoustical ceiling system.
- First Floor Level Service Areas: suspended lay-in acoustical ceiling systems.

- Typical Dwelling Unit: gypsum board ceiling system and exposed concrete deck planks ("popcorn" stucco finish).

- Common Corridors: exposed concrete deck planks ("popcorn" stucco finish) and some gypsum board ceiling systems.

Priority 1:

95 Description:

- No reported problems.

Priority 2:

- No reported problems.

2011:

- First Floor Main Lobby Area: suspended acoustical ceiling system, is in good condition.

- First Floor Level Service Areas: suspended lay-in acoustical ceiling systems, are in good condition.

- Typical Dwelling Unit: both, gypsum board ceiling system and exposed concrete deck planks ("popcorn" stucco finish), are in good condition.

- Common Corridors: exposed concrete deck planks ("popcorn" stucco finish) and some gypsum board ceiling systems, are in good condition.

- Minor finish damage was observed in the area of the 6th-floor Elevator Lobby and in the North-South Corridor adjacent to the Elevator Lobby.

2005:

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- First Floor Level Service Areas walls: gypsum board and exposed CMU, painted.
- First Floor Level Toilet Rooms walls: gypsum board and 2" x 2" ceramic tile.
- Typical Dwelling Unit walls, gypsum board. Fiberglass shower surround.
- Common Corridors walls, gypsum board, painted.
- Cabinetry at typical Dwelling Unit Bathrooms: plastic-laminated.
- Cabinetry at First Floor Main Lobby and Laundry: plastic-laminated.
- Cabinetry at Typical Lounge Areas: Plastic-laminated.

#### Priority 1:

95 Description:

- No reported problems.

#### Priority 2:

#### - No reported problems.

#### 2011:

- First Floor Level walls at Service Areas: gypsum board and exposed CMU, painted, in good condition.

- First Floor Level Toilet Rooms: gypsum board and 2"x2" ceramic tile, in good condition.

- Typical Dwelling Unit walls: gypsum board, in good condition. Fiberglass shower surround, in good condition.

- Common Corridors walls: gypsum board, painted, in good condition.
- Cabinetry at typical Dwelling Unit Bathrooms: plastic-laminated, in good condition.
- Cabinetry at First Floor Main Lobby and Laundry: plastic-laminated, in good condition.
- Cabinetry at Typical Lounge Areas: plastic-laminated, in good condition.

#### 2005:

					Atchison Hall (South)
Doors	6 \$1,637,213	0	0	5	<ul> <li>95 Description:</li> <li>97 First Floor Level Service Areas: solid-core, flush, wood doors and hollow metal frames.</li> <li>97 Exterior Main Entrance: aluminum and glass entrance systems.</li> <li>97 Typical Dwelling Unit (interior): hollow metal doors and frames.</li> <li>97 Typical Dwelling Unit (entry): hollow metal doors and frames. Lever door handle and door hinge closer. Door opening is rating labeled.</li> <li>97 Typical Stair: hollow metal door (with wire-glass vision lite) and frame, panic hardware, and closer. Door opening is rating labeled.</li> <li>97 Priority 1:</li> <li>98 No reported problems.</li> <li>92 Priority 2:</li> <li>99 No reported problems.</li> <li>90 Priority 2:</li> <li>90 No reported problems.</li> <li>90 Exterior Service: hollow metal doors and frames, in geod condition.</li> <li>91 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>92 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>93 Exterior Service: hollow metal doors and frames, in generally good condition.</li> <li>94 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>94 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>95 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance: aluminum in glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance: aluminum in glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance: aluminum in glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance: aluminum in glass entrance systems, in good condition.</li> <li>97 Exterior Main Entrance</li></ul>

4	4	\$1,091,475	0	10	5	85 Description:
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- Vestibule: ceramic tile and walk-off mat.
- Lobby: vinyl tile
- Main Level Elevator Lobby: vinyl tile.
- First Floor Level Service Areas: vinyl tile.
- First Floor Level, Laundry, and Living Room: vinyl tile.
- First Floor Level Toilet Rooms: 2" x 2" ceramic tile.
- Elevator Lobbies: vinyl tile and carpet.
- Common Corridors: carpet.
- Typical Lounge Area: carpet and vinyl tile.
- Stairs: vinyl tile.
- Typical Dwelling Unit: vinyl tile and 2" x 2" ceramic tile in Bathrooms.

#### Priority 1:

- No reported problems.

#### Priority 2:

- 09680– Carpet - Common Corridors, carpet, stains and showing some wear, should be replaced within five years.

#### 2011:

- Vestibule: ceramic tile and walk-off mat, in good condition.
- Lobby: vinyl tile, in good condition.
- Main Level Elevator Lobby: vinyl tile, in good condition.
- First Floor Level Service Areas: vinyl tile, in good condition.
- First Floor Level; Laundry, and Living Room: vinyl tile, in good condition.
- First Floor Level Toilet Rooms: 2" x 2" ceramic tile, in good condition.
- Elevator Lobbies: vinyl tile and carpet, in good condition.
- Common Corridors: carpet, wearing as expected, in good condition.
- Typical Lounge Area: carpet and vinyl tile, in good condition.
- Stairs: vinyl tile, in good condition.
- Typical Dwelling Unit: vinyl tile and 2" x 2" ceramic tile in Bathrooms, in good condition.

2005:

- This facility was not included in the February 2005 Assessment.

Floors

	_				-		
Bldg., Fire, ADA, Elevator	8	\$2,182,950	0.5	1	4	94.5	Description: - Dwelling unit entry doors and frames are rating labeled. - Dwelling unit entry doors have door closers. - Stair doors are rating labeled and have panic hardware. - Wet-pipe fire protection.
							Priority 1: - 235533 - Provide freeze protection for loading areas/storage areas and vestibules with exterior exposures that are protected by wet-pipe fire protection. - Clear obstructions around wet-pipe fire protection equipment for maintenance, operation, and safety concerns.
							Priority 2: - 08700 - Door Hardware - Replace door and hardware at Room 101.
							<ul> <li>2011:</li> <li>Dwelling unit entry doors and frames are rating labeled, in good condition.</li> <li>Dwelling unit entry doors have door closers, in good condition.</li> <li>Stair doors are rating labeled and have panic hardware, in good condition.</li> <li>It was observed on the First Floor Level, between retail space "Salad 101" and Electrical Room 101, that the door / frame assembly did not consist of a rating label.</li> <li>In general, ADA compliant.</li> </ul>
							2005: - This facility was not included in the February 2005 Assessment.
Immed. Site, Ext. Ltg., etc	2	\$545,738	0	0	5	95	Description: - West side; concrete walkways, lawn area with deciduous trees, North side; courtyard lawn area, concrete walkway and concrete patio area, East side; concrete service drive, South side; concrete drive, minimal lawn area. - Commercial Retail spaces are present at the First Floor Level of the facility, this area was not included as part of this Facility Assessment.
							Priority 1: - No reported problems.
							Priority 2: - No reported problems.
							2011: - Immediate surrounding area around the facility in good condition.
							2005: - This facility was not included in the February 2005 Assessment.



**Campus: Housing** 

### Building: Ghafari Hall (North)

Area: 112134sf Yr Built: 2003 Floors:6

	CRV	of Component	% of Component Requiring Repair/Replacement in:			cement in:	
Components	X	\$	0-1 Year	1-5 Years	6-10 Years	11+ Years	Notes
Structure	18	\$4,541,427	0	0	5	95	Description: - Load-bearing CMU wall system with precast concrete plank floor slabs, concrete slab on grade.
							Priority 1: - No reported problems.
							Priority 2: - No reported problems.
							2011: - No other issues were noted during walk-through observations or interviews.
							2005: - This facility was not included in the February 2005 Assessment.
Roof	2	\$504,603	0	0	5	95	Description: - Built-up Bituminous roofing system. - 8-inch high parapet walls. - Metal flashings and prefinished metal copings. - The roof drainage system consists of internal conductors and roof drains. Emergency roof drains (scuppers at the exterior parapet wall) are present. Priority 1:
							- No reported problems.
							- No reported problems.
							2011: - No other issues were noted during walk-through observations or interviews.
							2005: - This facility was not included in the February 2005 Assessment.

Glazing	6	\$1,513,809	0	0	5	<ul> <li>95 Description: <ul> <li>Insulated, double-glazed with clear anodized aluminum framing, fixed units and operable single-hung units with screens.</li> <li>Insulated, double-glazed with clear anodized aluminum framing, curtain wall system.</li> <li>Insulated, double-glazed with clear anodized aluminum framing, store front system.</li> </ul> </li> <li>Priority 1: <ul> <li>No reported problems.</li> </ul> </li> <li>Priority 2: <ul> <li>No reported problems.</li> </ul> </li> <li>2011: <ul> <li>No other issues were noted during walk-through observations or interviews.</li> </ul> </li> </ul> <li>2005: <ul> <li>This facility was not included in the February 2005 Assessment</li> </ul> </li>
Cladding	10	\$2,523,015	20	5	5	<ul> <li>70 Description: <ul> <li>Brick veneer with concrete masonry unit (CMU) back-up, cavity wall construction.</li> </ul> </li> <li>Priority 1: <ul> <li>03300 - Precast Concrete Sills - Remove and replace.</li> </ul> </li> <li>Priority 2: <ul> <li>No reported problems.</li> </ul> </li> <li>2011: <ul> <li>During interviews, no significant issues were noted.</li> <li>During walk-through, excessive staining was observed at most window sills, probable deterioration.</li> </ul> </li> </ul>
						2005: - This facility was not included in the February 2005 Assessment.

						Ghafari Hall (North)
HVAC	13 \$3,279	9,920 2.5	6 0.5	30	67	<ul> <li>Description:</li> <li>The majority of the building is served by water source unitary heat pumps located in or near the zones they serve. Each individual resident room has its own in-wall heat pumps or ceiling hung heat pumps with ducted air distribution. The heat pump loop is pumped by constant volume pumps located in the first floor mechanical room and receives heat energy from atmospheric, standard efficiency, natural gas-fired, hot water boilers. The heat pump loop is cooled by an evaporative cooler located on the roof.</li> <li>Some corridors with exterior exposures are heated with electric resistance baseboard heating units.</li> <li>The mechanical space is heated by a single gas-fired unit heater, located near the gravity air intake and water service entrance.</li> <li>Numerous constant volume exhaust fans (located on the roof) serve resident rooms' toilets and showers. Tempered make-up air is provided to the building's corridors, and is transferred to the resident rooms. The roof-top air handling units are standard efficiency units with natural gas fired heating and direct expansion cooling. The AHUs are mounted to the roof with typical 6-8° tall roof curbs.</li> <li>A portion of Ghafari Hall is dedicated to cooking and dining purposes. The kitchen exhaust and gas-fired, make-up air equipment (with direct expansion cooling) is located on the building's single story roof.</li> <li>Priority 1:</li> <li>232113/233113 - Plumbing vents and exhaust sources of odors that are too close to fresh air intakes need to be relocated.</li> <li>233416 - Trash compactor/recycle rooms, trash chule rooms, first level storage rooms, and common areas that have been provided with cooking equipment need exhaust fans or exhaust air ductwork connections.</li> <li>233416 - Trash compactor/recycle rooms, trash chule rooms, first level storage rooms, and common areas that have been provided with cooking equipment are broken and require replacement.</li> <li>230593 - Laundry Area exhaust for negative-pressurization should b</li></ul>
						<ul> <li>2011:</li> <li>The overall ventilation scheme for the building needs to be reviewed. Many areas are not exhausted which require exhaust, and many areas exhibited evidence of improper pressure relationships. Multiple roof-mounted exhaust fans were not functioning during the time of the walk-through.</li> <li>The unitary heat pump system appears to be functioning properly and maintaining comfortable conditions. Replace failed compressors or internal components as required,</li> </ul>

however, the equipment should still be near the middle of its useful life.

- Replace stained ceiling tiles and insulate condensate lines to avoid excessive moisture above the ceiling.

- Roof top make-up air units' outdoor intakes need to be reviewed in relation to sources of exhaust, and corrections made if necessary.

- Outdoor equipment condensate drain traps should be replaced with copper piping for longevity. Unprotected PVC piping will degrade due to UV radiation and failures due to brittle piping were observed.

- Repair is needed for the flue on boiler #4.

2005:
Plumbing	10 \$2,523,015	1	1	26	<ul> <li>72 Description: <ul> <li>The building domestic cold water is served by a packaged city water booster pump package. Domestic hot water is generated and stored at 140°F in two large storage tanks. Two 120°F hot water recirculation loops are served by a master mixing valve. A separate 140°F hot water loop is provided for laundry uses, and is also recirculated. The arrangement of the domestic water isolation valves currently require two resident rooms to be shut off if service is required on either.</li> <li>Sanitary and storm piping are likely to be no-hub cast iron.</li> <li>The roof is drained by primary roof drains located near the center of the roof, with scupper openings through the roof coping acting as a secondary method of roof drainage.</li> <li>The building appears to be fully sprinkled, though no standpipe hose connections were observed. Based on current building codes, standpipes are required.</li> <li>An electric-powered fire pump and jockey pump are located in the first level mechanical room.</li> </ul> </li> <li>Priority 1: <ul> <li>The roof is ponding and not draining properly, but interviews stated there are no leaks. The roof construction is identical to Atchison where leaking is occurring. Monitor the condition of</li> </ul> </li> </ul>
					<ul> <li>bit construction is identical to Alchison where leaking is occurring. Monitor the condition of the roof to prevent internal leaks and damage.</li> <li>Storage rooms require 18" clear space below fire protection heads - maintenance/safety issue.</li> <li>232113 - Laundry Area drainage into a closed connection piping system should be provided to prevent odor.</li> <li>232113 - Roof-top, evaporative cooler, basin drain must be piped to a sanitary connection to prevent chemicals draining into the storm drainage system.</li> </ul>
					<ul> <li>Priority 2:</li> <li>231123 - The natural gas piping traversing the roof should be painted to prevent corrosion.</li> <li>Evaluate pipe loss before painting; replacement may be required.</li> <li>The plumbing fixtures (faucets, shower heads, and urinal flush valves) should be evaluated for replacement with low-flow fixtures.</li> <li>Hire service company to investigate city water pressure fluctuations and provide report on remediation.</li> <li>Sewer flies in the mechanical room require trap sealing or trap primers.</li> </ul>
					<ul> <li>2011:</li> <li>The majority of the plumbing equipment and fixtures in the building appear to be original and are in good shape, but are not water efficient. Replace or repair fixtures as required, however, most should still be near the beginning of their useful lives. Replacing or modifying existing showerheads and faucet aerators with more water efficient models can also reduce energy consumption.</li> <li>The natural gas-fired domestic water boilers appear to be in good functioning order, but are standard efficiency. Consider replacing units with high efficiency boilers. A simple return on investment analysis could be conducted to determine if replacement is cost-effective prior to</li> </ul>
					<ul> <li>the existing boilers' end of life.</li> <li>Revise the laundry drainage trench system to provide a more direct means of drainage for each washing machine and avoid the rotting odors currently caused by the open trench.</li> <li>The roof drainage system (or roof itself) needs to be revised to properly drain all areas of the roof and avoid numerous trip hazards that are currently present.</li> </ul>

Ghafari Hall (North)

							Ghafari Hall (North)
							<ul> <li>The improper chemical discharge in to the storm drainage system needs to be corrected.</li> <li>Fire protection for tenant fit-out areas needs to be reviewed and revised as necessary.</li> <li>Incoming city water pressure was very low (less than 10psig). Low water pressure levels are below the required suction head of the booster pumps which could cause equipment damage and/or shorten equipment life.</li> <li>Some mechanical rooms have sewer flies.</li> </ul>
							2005: - This facility was not included in the February 2005 Assessment.
Primary/Secondary	2	\$504,603	1	3	15	81	Description: - The building is served with 480/277 V power from Atchison substation. The incoming switchgear is in good shape consist molded case circuit breakers about 8 years old. - Emergency power comes from the adjacent diesel-powered, emergency generator located in the adjacent Atchison Building.
							Priority 1: - No reported problems.
							Priority 2: - No reported problems.
							2011: - No other issues reported during observations or interviews.
							2005: - This facility was not included in the February 2005 Assessment.

Distribution	5	\$1,261,508	2	0	15	83	<ul> <li>Description: <ul> <li>Step-down transformers on every other floor feed lighting and power distribution panels.</li> <li>Panelboards that serve resident rooms observed appear to be in good condition and are provided with acceptable working clearances.</li> <li>The branch circuit wiring is done with MC type cable.</li> <li>The quantity of power receptacles for resident rooms appears to be at code minimum. GFCI receptacles are provided in each resident room's toilet room.</li> </ul> </li> <li>Priority 1: <ul> <li>262816 - Provide disconnects for roof-mounted exhaust fans within line of sight of the equipment.</li> <li>Remove obstructions in tenant area panelboard locations - maintenance/safety issue.</li> </ul> </li> </ul>
							<ul> <li>2011:</li> <li>Disconnects for roof-mounted exhaust fans are not located within line of sight of the equipment. No lockout/tag out is provided for each disconnect, which are located in the 6th floor electrical closet.</li> <li>The panelboards for the tenant area were permanently obstructed by storage items.</li> </ul>
							2005: - This facility was not included in the February 2005 Assessment.
Lighting	3	\$756,905	0	0	36	64	<ul> <li>Description:</li> <li>Lighting throughout public spaces was observed to be mostly recessed 2x2 fluorescent fixtures or recessed triple-tube CFL can lights.</li> <li>Elevator lobbies and resident area corridors are provided with fluorescent sconce fixtures.</li> <li>Lighting levels throughout the building appeared adequate.</li> <li>Some permanent lighting is provided in resident rooms, with the expectation that some lamps are to be provided by the residents.</li> <li>Emergency exit signs in the corridors are surface mounted on ceiling coffers. These lights are obstructed by the remaining ceiling coffers, and are almost impossible for someone to see the exit sign if they were standing in the middle of the corridor.</li> <li>Egress lighting and power for the exit signs is provided from the life safety branch of the Atchison generator.</li> </ul>
							Priority 1: - No reported problems.
							Priority 2: - No reported problems.
							2011: - No other issues reported during observations or interviews.
							2005: - This facility was not included in the February 2005 Assessment.

Ghafari Hall (North)

Ghafari Hall	(North)
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Voice/Data	1	\$252,302	0	0	25	75 Desc - Voi for ir - CA - Wif throu Prior - No Prior - No	cription: ice lines provided for 1st floor and management offices. No phone line service available ndividual rooms. T5 (or better) wiring ethernet to every room. Fi coverage for 100% of the building. Wireless access points have been installed ughout the building with surface-mounted raceway running through the corridors. rity 1: reported problems.
						2011 - No	l: other issues reported during observations or interviews.
						2005 - Thi	s: is facility was not included in the February 2005 Assessment.
Ceilings	3	\$756,905	0	0	5	95 Desc - Firs - Firs - Typ ("pop - Coi gyps Prior - No Prior - No 2011 - Firs - Firs cond - Typ planl - Coi gyps 2005	cription: st Floor Main Lobby Area: suspended acoustical ceiling system. st Floor Level Service Areas: suspended lay-in acoustical ceiling systems. bical Dwelling Unit: gypsum board ceiling system and exposed concrete deck planks bocorn" stucco finish). mmon Corridors: exposed concrete deck planks ("popcorn" stucco finish) and some sum board ceiling systems. rity 1: reported problems. fity 2: reported problems. I: st Floor Main Lobby Area: suspended acoustical ceiling system, is in good condition. st Floor Level Service Areas: suspended lay-in acoustical ceiling systems, are in good dition. bical Dwelling Unit: both, gypsum board ceiling system and exposed concrete deck ks ("popcorn" stucco finish), are in good condition. mmon Corridors: exposed concrete deck planks ("popcorn" stucco finish) and some sum board ceiling systems, are in good condition. store Dwelling Unit: both, gypsum board ceiling system and exposed concrete deck ks ("popcorn" stucco finish), are in good condition. mmon Corridors: exposed concrete deck planks ("popcorn" stucco finish) and some sum board ceiling systems, are in good condition.
						- Thi	s facility was not included in the February 2005 Assessment.

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- First Floor Level Service Areas walls: gypsum board and exposed CMU, painted.
- First Floor Level Toilet Rooms walls: gypsum board and 2" x 2" ceramic tile.
- Typical Dwelling Unit walls, gypsum board. Fiberglass shower surround.
- Common Corridors walls, gypsum board, painted.
- Cabinetry at typical Dwelling Unit Bathrooms: plastic-laminated.
- Cabinetry at First Floor Main Lobby and Laundry: plastic-laminated.
- Cabinetry at Typical Lounge Areas: Plastic-laminated.

#### Priority 1:

95 Description:

- No reported problems.

### Priority 2:

- No reported problems.

## 2011:

- First Floor Level walls at Service Areas: gypsum board and exposed CMU, painted, in good condition.
- First Floor Level Toilet Rooms: gypsum board and 2"x2" ceramic tile, in good condition.
- Typical Dwelling Unit walls: gypsum board, in good condition. Fiberglass shower surround, in good condition.
- Common Corridors walls: gypsum board, painted, in good condition.
- Cabinetry at typical Dwelling Unit Bathrooms: plastic-laminated, in good condition.
- Cabinetry at First Floor Main Lobby and Laundry: plastic-laminated, in good condition.
- Cabinetry at Typical Lounge Areas: plastic-laminated, in good condition.

## 2005:

- This facility was not included in the February 2005 Assessment.

Doors	6	\$1,513,809	0	0	5	<ul> <li>95 Description:</li> <li>First Floor Level Service Areas: solid-core, flush, wood doors and hollow metal frames.</li> <li>Exterior Service: hollow metal doors and frames.</li> <li>Exterior Main Entrance: aluminum and glass entrance systems.</li> <li>Typical Dwelling Unit (interior): hollow metal doors and frames.</li> <li>Typical Dwelling Unit (entry): hollow metal doors and frames. Lever door handle and door hinge closer. Door opening is rating labeled.</li> <li>Typical Stair: hollow metal door (with wire-glass vision lite) and frame, panic hardware, and closer. Door opening is rating labeled.</li> </ul>
						Priority 1: - No reported problems.
						Priority 2: - No reported problems.
						<ul> <li>2011:</li> <li>First Floor Level Service Areas: solid-core, flush, wood doors and hollow metal frames, in good condition.</li> <li>Exterior Service: hollow metal doors and frames, in generally good condition.</li> <li>Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>Typical Dwelling Unit (interior): hollow metal doors and frames, in good condition.</li> <li>Typical Dwelling Unit (entry): hollow metal doors and frames in good condition.</li> <li>Typical Dwelling Unit (entry): hollow metal doors and frames in good condition.</li> <li>Typical Stair: hollow metal door (with wire-glass vision lite) and frame, panic hardware and closer in good condition. Door opening is rating labeled.</li> </ul>
						2005: - This facility was not included in the February 2005 Assessment.

4	\$1,009,206	0	10	5	85 Description:
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- Vestibule: ceramic tile and walk-off mat.
- Lobby: vinyl tile
- Main Level Elevator Lobby: vinyl tile.
- First Floor Level Service Areas: vinyl tile.
- First Floor Level, Laundry, and Living Room: vinyl tile.
- First Floor Level Toilet Rooms: 2" x 2" ceramic tile.
- Elevator Lobbies: vinyl tile and carpet.
- Common Corridors: carpet.
- Typical Lounge Area: carpet and vinyl tile.
- Stairs: vinyl tile.
- Typical Dwelling Unit: vinyl tile and 2" x 2" ceramic tile in Bathrooms.

#### Priority 1:

- No reported problems.

### Priority 2:

- 09680– Carpet - Common Corridors, carpet, stains and showing some wear, should be replaced within five years.

#### 2011:

- Vestibule: ceramic tile and walk-off mat, in good condition.
- Lobby: vinyl tile, in good condition.
- Main Level Elevator Lobby: vinyl tile, in good condition.
- First Floor Level Service Areas: vinyl tile, in good condition.
- First Floor Level; Laundry, and Living Room: vinyl tile, in good condition.
- First Floor Level Toilet Rooms: 2" x 2" ceramic tile, in good condition.
- Elevator Lobbies: vinyl tile and carpet, in good condition.
- Common Corridors: carpet, wearing as expected, in good condition.
- Typical Lounge Area: carpet and vinyl tile, in good condition.
- Stairs: vinyl tile, in good condition.
- Typical Dwelling Unit: vinyl tile and 2" x 2" ceramic tile in Bathrooms, in good condition.

2005:

- This facility was not included in the February 2005 Assessment.

Floors

Bldg., Fire, ADA, Elevator	8	\$2,018,412	0.5	0	4.5	<ul> <li>95 Description: <ul> <li>Dwelling unit entry doors and frames are rating labeled.</li> <li>Dwelling unit entry doors have door closers.</li> <li>Stair doors are rating labeled and have panic hardware.</li> <li>The building has an addressable fire alarm system with strobes and speakers. The coverage is adequate to meet current code.</li> <li>The building is served by a wet pipe fire suppression system.</li> </ul> </li> <li>Priority 1: <ul> <li>235533 - Heat source for freeze protection of wet-pipe sprinkler equipment is needed.</li> <li>Obstructions to wet-pipe sprinkler equipment areas need to be removed for safety, operation, and maintenance concerns.</li> </ul> </li> <li>Priority 2: <ul> <li>No reported problems.</li> </ul> </li> <li>2011: <ul> <li>Dwelling unit entry doors and frames are rating labeled, in good condition.</li> <li>Dwelling unit entry doors have door closers, in good condition.</li> <li>Stair doors are rating labeled and have panic hardware, in good condition.</li> <li>In general, ADA compliant.</li> </ul> </li> </ul>
Immed. Site, Ext. Ltg., etc	2	\$504,603	0	0	5	<ul> <li>95 Description: <ul> <li>West side; concrete walkways, lawn area with deciduous trees, North side; courtyard lawn area, concrete walkway and concrete patio area, East side; concrete service drive, South side; concrete drive, minimal lawn area.</li> <li>Commercial Retail spaces are present at the First Floor Level of the facility, this area was not included as part of this Facility Assessment.</li> </ul> </li> <li>Priority 1: <ul> <li>No reported problems.</li> </ul> </li> <li>2011: <ul> <li>Immediate surrounding area around the facility, in good condition.</li> </ul> </li> <li>2005: <ul> <li>This facility was not included in the February 2005 Assessment.</li> </ul> </li> </ul>



# **Building: The Towers**

Area: 305457sf Yr Built: 2005 Floors: 11

	CRV	/ of Cor	mponent	% of Compo	nent Requirin	g Repair/Repla	cement in:	
Components	X		S	0-1 Year	1-5 Years	6-10 Years	11+ Years	Notes
Structure	18	\$12,3	371,009	0	0	5	95	Description: - Load-bearing concrete walls with precast concrete plank floors slabs, crawl-space, concrete slab on grade at Kitchen.
								Priority 1: - No reported problems.
								Priority 2: - No reported problems.
								2011: - During interviews and walk-thru observations, no significant issues were noted or observed.
								2005: - This facility was not included in the February 2005 Assessment.

2 \$1,374,557 1 0 4 95 Description:

- Built-up Bituminous roofing system.

- 12 to 18 – inch high parapet walls.

- Metal flashings and prefinished metal copings.

- The roof drainage system consists of internal conductors and roof drains. Emergency roof drains are present.

Priority 1:

- 07510 – Flashing and Sheet Metal. Some components of the metal flashing system are beginning to show signs of deterioration, and should be replaced.

Priority 2:

- No reported problems.

2011:

- Information acquired from interviews:

- The roofing is original.

- No leaks are currently being reported. However, previous minor leaks have been repaired.

- Information acquired from walk-thru observations:

- Roofing surface was partially covered by a light dusting of snow at the time of assessment.

- The roofing surface appeared to be in "sound" condition. No pockets, voids or bubbles were observed.

- Drainage patterns appeared to be well defined, no evidence of ponding water was observed.

- Some components of the metal flashing system are beginning to show signs of deterioration, and should be replaced.

2005:

- This facility was not included in the February 2005 Assessment.

Roof

Glazing	4	\$2,749,113	0	0	5	95	Description:         - Insulated, double-glazed with clear anodized aluminum framing, operable horizontal sliding units with screens. Prefinished aluminum composite panels accompany the window unit system.         - Insulated, structural sealant-glazed curtain wall system.         - Insulated, structural sealant-glazed curtain wall system.         - Storefront-type system is present at the first floor level.         Priority 1:         - No reported problems.         Priority 2:         - No reported problems.         2011:         - During interviews and walk-thru observations, no significant issues were noted or observed.         2005:         - This facility was not included in the Eebruary 2005 Assessment
Cladding	8	\$5,498,226	2	0	3	95	<ul> <li>Description:</li> <li>Two different types of architectural precast concrete panels (Type 1 – light acid etch, 7-1/2" thick and Type 2 – heavy acid etch, 6" thick).</li> <li>Prefinished horizontal metal panel system.</li> <li>Prefinished metal panel soffit system.</li> <li>Priority 1:</li> <li>07920 – Building Joint Seals – Many building joints appear to failing, and nearing the end of their useful service life. Remove and replace all deteriorated joint sealants.</li> <li>07920 – Building Joint Seals – Apply repair procedures at hair-line cracking within the surface of the precast concrete panels.</li> <li>Priority 2:</li> <li>No reported problems.</li> <li>2011:</li> <li>At various locations the architectural precast concrete panels, appear to have hair-line stress cracks within the surface of the panel. Panel replacement not feasible, cracks to routed-out and sealed with sealant.</li> <li>Many building joints appear to failing, nearing the end of their useful service life.</li> </ul>

HVAC	14	\$9.621.896	1	0.5	26	72.5	Description:
-		+ - , - ,			-	-	- Mechanical system for units are water-source heat pumps. They provide both heating and
							cooling.
							- Gas-fired, copper-finned, boilers are on the first floor to provide hot water to the heat pumps.
							- Chilled water is provided from cooling tower located on the roof. Chemical treatment is
							provided and there are no reported problems of scaling or growth.
							- Supply air to the units in provided from roof mounted air handling units at stairway.
							- Exhaust air is through a headered duct system and exhaust fans on the root. Kitchen
							exhaust is handled from a re-circulating hood.
							- The MDF/IDF off every official and a subjected but into the adjacent storage room.
							- The controls are Honeywell in this building
							- The elevator has a separate cooling unit with a condenser on the roof.
							- The dishwashing exhaust system does not seem to be doing the proper job on exhausting.
							····· ································
							Priority 1:
							- 238216 - The supply air handler in the penthouse needs to have its coil replaced in order to
							temper the air.
							- 236500 - The cooling tower is bad shape. The fill is in bad shape.
							Priority 2:
							- The heat buildup in the electrical closets needs to be address. Provide separate exhaust
							and make up air unit or provide cooling to rooms.
							- 230900- the programming disk for the Honeywell system needs to be obtained in order to
							change settings.
							- The elevator condenser unit needs to cleaned.
							- 230593- Have a lest and balance report done on the kitchen dishwasher exhaust system to determine if proper CEM is occurring through exhaust
							determine it proper of Mits occurring through exhaust.
							2011:
							- The heat pumps in each of the units are original. The units are in good condition and are
							tairly well maintained.
							- The chilled water and not water piping is in good condition.
							- The cooling lower is in good shape.
							- The elevator condenser unit is clogged.
							- This facility was not included in the February 2005 Assessment.

						The Towers
Plumbing	12	\$8,247,339	0	0	26	<ul> <li>74 Description: <ul> <li>The domestic water system is in good condition.</li> <li>The domestic water booster pumps are in good condition.</li> <li>Domestic hot water is supplied from a gas-fired boiler and storage tanks on the first floor.</li> <li>The units have manual faucets and flush valve toilets. The public bathrooms have manual flush valves.</li> <li>The building has a 150 HP fire pump. The building has sprinkler fire suppression throughout using plastic pipe.</li> </ul> </li> </ul>
						Priority 1: No reported problems.
						Priority 2: No reported problems.
						2011: The domestic water booster system is in good shape. The fire protection system is starting to have some leaks.
						2005: - This facility was not included in the February 2005 Assessment.
Primary/Secondary	2	\$1,374,557	0	0	15	<ul> <li>85 Description:</li> <li>The building is fed from DTE with a double-ended 3000 kVA dry-type transformer substation with draw-out breakers.</li> <li>The building has emergency power from four natural gas-fired generators. ATS switches feed life safety, kitchen freezers/coolers, pressurization fans, and the fire pump.</li> </ul>
						Priority 1: - No reported problems.
						Priority 2: - No reported problems.
						2011: - The main distribution gear is in good shape and only 6 years old.
						2005: - This facility was not included in the February 2005 Assessment.

							The Towers
Distribution	5	\$3,436,391	0.5	0	15	84.5 Descrip - The ur 1600) ru - Distrib circuit b - Transf - A 225 - GFCI's	tion: hits are fed from electrical closet mounted panel boards. A bus system (800 and uns up from the first floor to feed each floor. The building is fed with 480/277V. ution equipment is Siemens. Main boards are switch fuse and panel boards are reaker. formers are in each closet and are causing heat to build up in the closets. kVA transformer is hung in the trash area. s are provided at the sinks in the kitchen or bathroom.
						Priority - 23311 protectiv spray do	1: 3 - the transformer in the trash area needs to be relocated out of this space or a ve enclosure put around it to prevent water entry. This is a hazard due to the use of own hoses and this transformer is not water- or weather-proof.
						Priority : - No rep	2: ported problems.
						2011: - The di	stribution equipment is in good shape.
						2005: - This fa	cility was not included in the February 2005 Assessment.
Lighting	3	\$2,061,835	0	2	36	62 Descrip - The lig - Egress	tion: phting is T8 in the corridors and mainly CFL's in the units. s lighting is provided by the fluorescent lights in the corridors and stairwells.
						Priority - No rep	1: ported problems.
						Priority : - 26272 - 26272 way to s	<ul> <li>2:</li> <li>6 - the incandescent sources should be replaced as they fail with CFL's.</li> <li>6 - the lights above the doors in the units need to replace with more secure units or a secure them better.</li> </ul>
						2011: - The lig sources - There	phting is in good condition. Lamps sources are getting replaced with more efficient as they fail. have been issues with light fixtures above the doors in the units being torn off.
						2005: - This fa	acility was not included in the February 2005 Assessment.

Voice/Data	1 \$687 278	0	0	25	75 Description
10100, 2010		U U	C C		- Voice lines provided for 1st floor and management offices. No phone line service available
					for individual rooms
					CATE (or better) wiring othernet to every room
					WiEi coverage for 100% of the building. Wireless access points have been installed
					- WIFI COVERAGE IOF TOO'S OF THE DURINITY. WHERE'S ACCESS POINTS Have been installed
					inroughout the building with surface-mounted faceway running through the contdors.
					Priority 1:
					- No reported problems.
					Priority 2:
					- No reported problems.
					2011:
					- The system is operational and meets the current code.
					2005:
					- This facility was not included in the February 2005 Assessment.
Ceilings	3 \$2,061,835	0	0	5	95 Description:
					- First Floor Level Service Areas: both gypsum board ceiling system and suspended lay-in
					acoustical ceiling systems.
					- Living Room: suspended lay-in acoustical ceiling system.
					- Typical Dwelling Unit: both gypsum board ceiling system and exposed concrete deck planks
					("popcorn" stucco finish).
					- Common Corridors: exposed concrete deck planks ("popcorn" stucco finish).
					- Common Elevator Lobbies: gypsum board ceiling system.
					Priority 1:
					- No reported problems.
					Priority 2:
					- No reported problems.
					2011:
					- First Floor Level Service Areas: both gypsum board ceiling system and suspended lay-in
					acoustical ceiling systems, in good condition.
					- Living Room: suspended lav-in acoustical ceiling system in good condition.
					- Typical Dwelling Unit: both gypsum board ceiling system and exposed concrete deck planks
					("noncorn" stucco finish) in good condition
					- Common Corridors: exposed concrete deck planks ("popcorn" stucco finish) in good
					condition
					- Common Elevator Lobbies: avosum hoard ceiling system. Gyosum hoard system is in good
					condition
					- In general, the ceiling systems of the facility are in good condition
					- This facility was not included in the February 2005 Assessment.

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95 Description: - First Floor Level walls at Service Areas: exposed CMU, painted.

- Typical Dwelling Unit walls: gypsum board and CMU (veneer plastered). Fiberglass shower surround.

- Common Corridors walls: gypsum board, painted.
- Cabinetry at typical Dwelling Unit Bathrooms: plastic-laminated.
- Cabinetry at typical Kitchenettes: plastic-laminated.

## Priority 1:

- No reported problems.

# Priority 2:

- No reported problems.

## 2011:

- In general the condition of the walls, is good, no reported issues.
- Cabinetry in the Dwelling Unit Bathrooms is wearing well, no reported issues.
- Cabinetry at the typical Kitchenettes is wearing well, no reported issues.

### 2005:

- This facility was not included in the February 2005 Assessment.

Doors

						The Tow
6	\$4,123,670	0	0	5	95	<ul> <li>Description:</li> <li>First Floor Level Service Areas: hollow metal doors and frames.</li> <li>Exterior Service: hollow metal doors and frames.</li> <li>Exterior Main Entrance: aluminum and glass entrance systems.</li> <li>Typical Dwelling Unit (interior): hollow metal and hollow metal frames.</li> <li>Typical Dwelling Unit (entry): hollow metal and hollow metal frame. Lever door handle and door closer.</li> <li>Typical Stair: hollow metal door (with wire-glass vision lite) and frame, panic hardware. Opening has rating label.</li> </ul>
						Priority 1: - No reported problems.
						Priority 2: - No reported problems.
						<ul> <li>2011:</li> <li>First Floor Level Service Areas: hollow metal doors and frames, in good condition.</li> <li>Exterior Service: hollow metal doors and frames, in good condition.</li> <li>Exterior Main Entrance: aluminum and glass entrance systems, in good condition.</li> <li>Typical Dwelling Unit (interior): hollow metal and hollow metal frames, in good condition.</li> <li>Typical Dwelling Unit (entry): hollow metal and hollow metal frame. Lever door handle and door closer, in good condition.</li> <li>Typical Stair: hollow metal door (with wire-glass vision lite) and frame, panic hardware, in good condition.</li> </ul>
						2005: - This facility was not included in the February 2005 Assessment.

- First Floor Level Service Areas: vinyl tile.
- Living Rooms: vinyl tile.
- Common Corridors: carpet.
- Laundry Areas: vinyl tile.
- Stairs: exposed concrete.
- Lounge Areas: carpet.
- Kitchenettes / Lofts: vinyl tile and carpet.
- Dwelling Units: vinyl tile, Bath Room ceramic tile (2" x 2").

#### Priority 1:

- 09650 – Resilient Flooring – replace a small amount of tile located adjacent to the exterior door.

## Priority 2:

- No reported problems.

#### 2011:

- First Floor Level Service Areas: vinyl tile, in good condition.
- Living Rooms:, vinyl tile, generally in good condition, minor damage adjacent to the exterior door.
- Common Corridors: carpet, wearing as expected, in good condition.
- Laundry Areas: vinyl tile, in good condition.
- Stairs: exposed concrete, in good condition.
- Lounge Areas: carpet, minor staining, in good condition.
- Kitchenettes / Lofts: vinyl tile and carpet, in good condition.
- Dwelling Units: vinyl tile, Bath Room ceramic tile (2" x 2"), in good condition.

### 2005:

- This facility was not included in the February 2005 Assessment.

Floors

					The Towers
Bldg., Fire, ADA, Elevator	8 \$5,498,226	0	0	5	<ul> <li>95 Description:</li> <li>Dwelling unit entry doors and frames are rating labeled.</li> <li>Dwelling unit entry doors do have door closers.</li> <li>Stair doors are rating labeled and have panic hardware.</li> <li>Lightning protection system is installed on this building.</li> <li>Fire:</li> </ul>
					<ul> <li>The fire alarm system is a Simplex system with mass notification. Each unit has its own separate smoke detector and speaker.</li> <li>Each bedroom has a smoke detector installed. The corridor had speaker/strobes for annunciation with pull stations at the egress exit.</li> </ul>
					ADA: - In general compliance with ADA.
					Priority 1: - No reported problems.
					Priority 2: - No reported problems.
					<ul> <li>2011:</li> <li>Dwelling unit entry doors and frames are rating labeled, in good condition.</li> <li>Dwelling unit entry doors do have door closers, in good condition.</li> <li>Stair doors are rating labeled and have panic hardware, in good condition.</li> <li>In general compliance with ADA.</li> </ul>
					2005: - This facility was not included in the February 2005 Assessment.
Immed. Site, Ext. Ltg., etc	2 \$1,374,557	0	0	5	<ul> <li>95 Description:</li> <li>West side; concrete walkways, North side; concrete walkways, East side; concrete loading dock area, South side; concrete drive, courtyard lawn area with a few deciduous trees.</li> <li>Commercial Retail spaces are present at the First Floor Level of the facility, this area was not included as part of this Facility Assessment.</li> </ul>
					Priority 1: - No reported problems.
					Priority 2: - No reported problems.
					2011: - Immediate surrounding area around the facility, in good condition.
					2005: - This facility was not included in the February 2005 Assessment.



# Building: Helen DeRoy Apartments

Area: 206297sf Yr Built: 1970 Floors: 15

	CRV	of Component	% of Compo	nent Requirin	ng Repair/Repla	cement in:	
Components	X	\$	0-1 Year	1-5 Years	6-10 Years	11+ Years	Notes
Structure	18	\$8,355,029	0	0	5	95	Description: - Load-bearing CMU wall system with precast concrete plank floors slabs, concrete slab on grade.
							Priority 1: - No reported problems.
							Priority 2: - No reported problems.
							2011: - During interviews and walk-thru observations, no significant issues were noted or observed.
							<ul> <li>2005:</li> <li>Brick in hallways - cracking from structural movement on interior walls at south end top floors, further investigation needed to determine potential repair cost.</li> <li>Settlement cracking at loading dock ramp, re-point brick.</li> <li>Correct structural settlement problem noted above once scope and cost are determined.</li> </ul>

						Helen DeRoy Apartment
Roof	2	\$928,337	30	0	0	<ul> <li>70 Description: At the East main roof area:</li> <li>Modified Bitumen roofing system (torched down).</li> <li>36 to 48 – inch high CMU parapet walls.</li> <li>Metal flashings and prefinished metal copings.</li> <li>The roof drainage system consists of internal conductors and roof drains. No emergency roof drains are present.</li> </ul>
						At the South chiller roof area: - Modified Bitumen roofing system (torched down). - CMU parapet walls. - Metal flashings. - The roof drainage system consists of an internal conductor and roof drain. An emergency roof drain is not present.
						At the North main roof area: - EPDM single-ply roofing system (self-adhered), precast concrete walkway pavers are present at the perimeter. - 36 to 48 – inch high CMU parapet walls. - Metal flashings and prefinished metal copings. - The roof drainage system consists of internal conductors and roof drains. No emergency roof drains are present.
						At the Penthouse roof area: - Modified Bitumen roofing system (torched down). - 8 - 10 – inch high CMU parapet walls. - Metal flashings and prefinished metal copings. - The roof drainage system consists of internal conductors and roof drains. No emergency roof drains are present.
						At the Mech/Elect (Cell phone equipment) enclosure on the East roof area: - Prefinished standing seam metal roofing system. - The roof drainage system consists of a low-slope, mono roof plane.
						Priority 1: - 07520 – Modified Bitumen roofing system, at the East main roof area. Roofing system is at the end of its useful service life; remove and replace the entire roofing system. - 07600 – Flashing and Sheet Metal, at the East main roof area. The majority of the flashing system is at the end of its useful service life, remove and replace the entire flashing system.

- 07520 – Modified Bitumen roofing system, at the South chiller roof area. Roofing system is at the end of its useful service life; remove and replace the entire roofing system.

- 07600 – Flashing and Sheet Metal, at the South chiller roof area. The majority of the flashing system is at the end of its useful service life, remove and replace the entire flashing system.

- 07520 - Modified Bitumen roofing system, at the Penthouse roof area. Roofing system is at the end of its useful service life; remove and replace the entire roofing system.

- 07600 - Flashing and Sheet Metal, at the Penthouse roof area. The majority of the flashing system is at the end of its useful service life, remove and replace the entire flashing system.

#### Priority 2: - No reported problems.

#### 2011:

- Information acquired from interviews:

- No leaks are currently being reported.

- The Penthouse roof is most likely the original.

- The Northern roof area (EPDM membrane, self-adhered) is very prone to "uplift", generally around the Christmas time of the year. This roofing system has been replaced three times. The latest replacement was approximately two-years ago.

- The eastern roof has been patched many times.

- Information acquired from walk-thru observations:

- Ponding of water is present over most of the roof surface; at the East roof, the South chiller roof, and the Penthouse roof areas, in poor condition.

In many locations the metal flashings and pre-finished metal copings are damaged, deteriorated, or loose from its intended anchorage detail, in poor condition.
Leaks (water infiltration) were observed when looking above the finished ceiling of the 15th-floor level, at the north and south end walls of each of the main north-south corridors.

## 2005:

- Typical ongoing replacement expected

- North - single-ply, self-adhered

- South & East bituminous roll roofing - little insulation. No reported problems.

					Helen DeRoy Apartments
Glazing	6 \$2,785,010	75	0	5	<ul> <li>20 Description: <ul> <li>Double-glazed, insulated and tinted, colored-anodized, aluminum framing with thermal breaks. Operable units include: sliders, hoppers and casements, with screens.</li> <li>Storefront-type units with opaque spandrel panels are present at the first floor level.</li> </ul> </li> <li>Priority 1: <ul> <li>08500 - Windows: Remove and replace window systems on the west and east elevations. This is part of a solution to the water infiltration issues at the spandrel panels.</li> </ul> </li> <li>Priority 2: <ul> <li>No reported problems.</li> </ul> </li> <li>2011: <ul> <li>Information acquired from interviews:</li> <li>No leaks (water infiltration) are currently being reported due to the glazing system.</li> <li>Leaks are prevalent around the perimeter of the window system, perhaps the main source of water infiltration is occurring at the masonry construction was</li> <li>conducted by Howard Noziska &amp; Associates, Inc., in 1991. Numerous deficiencies were discovered by that investigation, primarily in the masonry construction of the exterior wall assembly.</li> <li>The window system has been replaced twice, from the second floor level, upward.</li> </ul> </li> <li>Information acquired from walk-thru observations: <ul> <li>Glazing system appears to be in good condition.</li> </ul> </li> </ul>

					Helen DeRoy Apartments
Cladding	10 \$4,641,683	50	0	5	<ul> <li>45 Description: <ul> <li>Brick veneer (the brick units measure 12" long x 4" high) backed-up and bonded to load bearing concrete masonry units (CMU), composite wall construction.</li> <li>Prefabricated spandrel panels are present between each east-west bearing wall, and between the head and sill of each horizontal window system. The spandrel panels consist of brick veneer bonded to a reinforced concrete core.</li> <li>Prefinished metal siding system is present at the Cell Phone Equipment enclosure on the East Main Roof.</li> </ul> </li> </ul>
					<ul> <li>Priority 1:</li> <li>03400 / 04250 - Prefabricated brick clad concrete spandrel panels - Leaks &amp; water infiltration in panels at perimeter &amp; window head - ongoing problem. Problem requires additional in-depth investigation to determine best course(s) of action.</li> <li>04050 - Mortar joints deteriorating, tuck-pointing needed.</li> <li>07920 - Building Joint Seals - Remove and replace all deteriorated joint sealants at glazing system perimeter.</li> <li>07420 - Metal Panels. Clad over the existing brick masonry construction on the west and east elevations. This is part of a solution to the water infiltration issues at the spandrel panels.</li> </ul>
					Priority 2: - No reported problems.
					<ul> <li>2011:</li> <li>Information acquired from interviews: <ul> <li>Leaks (water infiltration) are currently being reported.</li> <li>As stated above, Leaks are prevalent around the perimeter of the window system, the main source of water infiltration seems <ul> <li>to be occurring at the masonry construction around the window system. An</li> <li>independent investigation of the masonry <ul> <li>construction was conducted by Howard Noziska &amp; Associates, Inc., in 1991. Numerous</li> </ul> </li> <li>deficiencies were discovered by that <ul> <li>investigation, primarily in the masonry construction of the exterior wall assembly.</li> <li>Numerous repairs methodologies have been instituted (IE, mortar tuck-pointing and actual brick masonry replacement) and <ul> <li>yet water infiltration is still a big issue.</li> </ul> </li> </ul></li></ul></li></ul></li></ul>
					<ul> <li>Information acquired from walk-thru observations: <ul> <li>At the exterior surface:</li> <li>Water infiltration was observed at the general area above the window head construction within Dwelling Unit #911.</li> <li>Many of the sealant joints, at the perimeter of the window system openings, are at the end of their useful service life, remove and replace.</li> </ul> </li> </ul>
					<ul> <li>At the northern end of the west elevation at the first floor level the following observations were made:</li> <li>Sealant joint material is missing between the aluminum window frame and masonry opening, cracked brick masonry units,</li> </ul>

open mortar joints and extreme efflorescence staining. All of which deficiencies that indicate that water infiltration is still very

an on-going issue.

Previous corrective procedures to the exterior masonry wall system, have not completely resolved all the water infiltration

issues.

## 2005:

- Precast brick clad concrete panels - masonry reinforcing corroding, brick cracking 10-15% per year. Movement in precast horizontal brick panels, some panels bowed out. Joint line at brick bands above windows is irregular on some panels. Leaks & air infiltration in panels at perimeter & window head - ongoing problem. Problem requires in-depth investigation to determine best course of action.

- Mortar joints deteriorating on north side of penthouse, tuck-pointing needed.

- Repair/replace precast concrete panels as required to resolve structural, air infiltration and leaking problems.

					Helen DeRoy Apartments
HVAC	13 \$6,034,187	0.5	0.5	32	<ul> <li>67 Description: <ul> <li>Mechanical system for apartments is McQuay unit ventilators. They provide both heating and cooling.</li> <li>Steam is provided to the building from the Chatsworth steam plant. A heat exchanger is located on the first floor provides hot water distribution to the unit ventilators.</li> <li>Chilled water is provided from a York absorption chiller and cooling tower located in the penthouse and roof. Chemical treatment is provided and there are no reported problems of scaling or growth.</li> <li>Supply air to the units in provided from two air handling units. One is located on the first floor (multi-zone) and the second is located in the penthouse (AHU-2).</li> <li>Exhaust air is through a louver in each bathroom near the tub shower. The kitchens do not have separate exhaust. It is handled from a re-circulating hood.</li> <li>Each floor has its own Laundry Area. Supply air is provided to each room and the dryer exhaust is vented to the roof.</li> <li>Verizon has a cell tower on top of the building along with their equipment room. There is a separate air handler on the roof for the Verizon room. This equipment is less 10 years old.</li> </ul> </li> </ul>
					Priority 1: - AHU-2 in the penthouse should have its filters replaced, the dampers made operational by replacing the motorized dampers and controls, and bottom coil replaced in order to temper the incoming supply air.
					Priority 2: - 232123 - The chiller water pumps should be rebuilt or replaced in the next five years.
					<ul> <li>2011:</li> <li>The unit ventilators in each of the units are original unless they have been replaced. The units are in fair condition and are fairly maintained.</li> <li>The chilled water and hot water piping is in fair condition. Two of the chilled water pumps are starting to leak and should repaired/replaced.</li> <li>The cooling tower and chiller are in good shape.</li> <li>The supply air unit (AHU-2) has clogged air filters that need replacement. The outdoor air dampers are closed and not operating.</li> <li>The controls and the operating mechanism need to be replaced. The bottom coil needs to be replaced; it leaks and is no longer piped.</li> </ul>
					<ul> <li>2005:</li> <li>15830 - HV fan working, scheduled for replacement within 5 years. Coils repaired recently, in good condition.</li> <li>15830 - Make-up fan for corridors scheduled for replacement within 5 years.</li> <li>15830 - (2) exhaust systems, bathroom exhaust system needs cleaning &amp; balancing. Laundry exhaust system in good condition.</li> <li>Other: 3 year old absorber &amp; cooling tower; new tower pumps; new main circulating pumps; steam heat from DTE is planned to be fed from Chatsworth Tower.</li> </ul>

Helen DeRo	y Apartments
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- The domestic water piping system is in poor to fair condition.
- The domestic water booster system is in poor to fair condition.
- Domestic hot water is supplied from a steam-fired heat exchanger on the first floor.
- The apartments have manual faucets and tank-type toilets.

- The building has a 75 HP fire pump. Only the first floor and penthouse have fire sprinklers.

## Priority 1:

67 Description:

- 22112313 - The domestic water, booster pump system should be looked at being replaced. One of the three pumps currently is not operational.

## Priority 2:

- 220700 - The insulation on the incoming water line should be fixed and encapsulated.
- 221116 - The galvanized piping should be tested to check the condition and wall thickness.
The piping is 40 years old and leaks are starting to develop.

## 2011:

- One of the domestic water booster system pumps has failed.

- The galvanized, domestic water main piping needs to be watched. Leaks are starting to occur at joints.

- The fire protection system is in good condition.

#### 2005:

- 15130 - Domestic booster pumps in good condition.

- 15100 - 8th floor reducing stations in good condition.

							Helen DeRoy Apartments
Primary/Secondary	2	\$928,337	0.5	5.5	20	74	<ul> <li>Description:</li> <li>The building is fed off one of the WSU loops from Detroit Public Lighting. The main medium voltage vacuum breakers are located on the first floor.</li> <li>The building is fed from a dry type substation transformer. The transformer is the original, 1000KVA, 120/208V with fusible switches for the main distribution.</li> <li>The distribution equipment is manufactured by Zinsco.</li> </ul>
							Priority 1: - The dry-type 1000KVA transformer needs to be cleaned in order to prevent the transformer from failing.
							<ul> <li>Priority 2:</li> <li>260999 - all of the main switchboard equipment should be tested and exercised. It is unknown if and of the overcurrent devices will operate.</li> <li>262416 - The replacement of the Zinsco brand distribution equipment needs to be considered due to the fact that replacement parts will become harder and harder to find as the gear gets older.</li> </ul>
							<ul> <li>2011:</li> <li>The equipment is fair condition. There is no evidence of testing or exercising of the main switchboard.</li> <li>The existing 1000KVA transformer needs to be cleaned. There is a large build-up of dust on the windings and the ventilation louvers.</li> </ul>
							<ul> <li>2005:</li> <li>16300 - Floors 1-7 busses replaced twice. System is adequate, but runs through janitor's closet. Plumbing fixtures to be moved out of those rooms immediately.</li> <li>16300 - Floors 8-15 busses use original aluminum knife disconnects, jumpers installed to floors above/below to maintain service - needs immediate replacement.</li> </ul>
							Other/Comments: - PLD 208/120 Power fluctuates 10-15% +/ Most equipment has rectifiers.

					Helen DeRoy Apartments
Distribution	5 \$2,320,841	3	2	20	<ul> <li>75 Description:</li> <li>Each unit has its own circuit breaker panel board. A bus system runs up from the first floor to feed each floor. One bus feeds floors 2 - 8, the other floors 9 - 15.</li> <li>The distribution boards and panelboards in each unit are manufactured by Zinsco.</li> <li>No GFCI's are provided at the sinks in the kitchen or bathrooms.</li> </ul>
					Priority 1: - 262726 - GFCI receptacles should be provided at each sink in the kitchen and bathroom.
					Priority 2: - 260999 - Provide exercise and testing of panelboard over-current devices.
					<ul> <li>2011:</li> <li>The existing Zinsco panelboards need to be exercised and tested to make sure the over current devices are operational The panelboards should be considered for replacement since they are 40 years old and Zinsco in not in business. Replacement parts will be hard to find.</li> <li>GFCI's were not evident at sink and bath locations and should be installed.</li> </ul>
					2005: - 16300 - Circuit breakers in apartments adequate.

					Helen DeRoy Apartments
Lighting	3 \$1,392,505	2	0	15	<ul> <li>83 Description:</li> <li>The lighting is T12 lamps in the stairways, some T8 in the corridors and mainly incandescent and CFL's in the apartments.</li> <li>Egress lighting is provided by emergency battery units in the corridors and stairwells.</li> </ul>
					<ul> <li>Priority 1:</li> <li>262726 - Nine out of 10 of the emergency battery units did not operate when tested.</li> <li>Batteries should be replaced on all units and exit signs (eight per floor).</li> <li>262726 - the egress lighting does not meet the current one foot-candle requirement.</li> <li>Additional units should be added in the corridors (estimated amount of seven per floor).</li> </ul>
					Priority 2: - No reported problems.
					2011: - The lighting is in fair condition. As light sources fail, they are being replaced with sources that are more efficient. - Egress lighting levels are not adequate.
					2005: - 16500 - Apartments - incandescent ceiling fixture sockets at end of life. Cases reported of overheating wires and damaged sockets. Partial replacement, balance should be completed within 5 years.
					<ul> <li>Other/Comments:</li> <li>Corridors - fluorescent fixtures - T-12. No reported problems.</li> <li>Elevator lobby &amp; main lobby - recessed downlights, no reported problems.</li> </ul>
Voice/Data	1 \$464,168	0	0	25	<ul> <li>75 Description:</li> <li>Voice lines provided for 1st floor and management offices. No phone line service available for individual rooms.</li> <li>DSL network provided to all rooms.</li> <li>WiFi coverage for 100% of the building.</li> </ul>
					Priority 1: - No reported problems.
					Priority 2: -No reported problems.
					2011:
					2005: - 16700 - All data lines upgraded Individual phone service, no reported problems.

Ceilings	3	\$1,392,505	10	0	5	85	<ul> <li>Description:</li> <li>First Floor Level Common Areas: suspended linear metal ceiling system.</li> <li>First Floor Level Service Areas: suspended lay-in acoustical ceiling system.</li> <li>First Floor Level Activity Room: suspended lay-in acoustical ceiling system.</li> <li>Typical Dwelling Unit: gypsum board ceiling system at Kitchens, Bath Rooms and at exterior wall window soffit, exposed concrete deck planks ("popcorn" stucco finish) in all other rooms.</li> <li>Common Corridors: suspended lay-in acoustical ceiling system.</li> </ul>
							<ul> <li>Priority 1:</li> <li>09540- First Floor Level Common Areas: suspended linear metal ceiling system is damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.</li> <li>09540- First Floor Level Service Areas: suspended acoustical ceiling system is damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.</li> <li>09540- First Floor Level Service Areas: suspended acoustical ceiling system is damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.</li> <li>09540- First Floor Level Activity Room: suspended acoustical ceiling system is damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.</li> <li>09200- Typical Dwelling Unit: ceiling system at exterior wall window soffit is water damaged - repair of problem not recommended until source of leaking (water infiltration) is corrected.</li> <li>09510 - Common Corridors: suspended lay-in acoustical ceiling system, is water stained and damaged. System is at the end of its useful service life, remove and replace the entire ceiling system.</li> </ul>
							Priority 2: - No reported problems.
							<ul> <li>2011:</li> <li>First Floor Level Common Areas: suspended linear metal ceiling system is damaged in many areas.</li> <li>First Floor Level Service Areas and Activity Room: suspended acoustical ceiling system is damaged.</li> <li>Typical Dwelling Unit: gypsum board ceiling system at Kitchens, Bath Rooms and at exterior wall window soffit, exposed concrete deck planks ("popcorn" stucco finish) in all other rooms. Exterior wall window area where water staining and water damage is present.</li> <li>Common Corridors: suspended lay-in acoustical ceiling system. Lay-in system is water stained and damaged.</li> <li>Common Elevator Lobbies: gypsum board ceiling system. Gypsum board system is in good condition.</li> </ul>
							<ul> <li>2005:</li> <li>Water damage of ceiling finish typical at window in every unit inspected. Repair of problem not recommended until source of leaking is determined.</li> <li>Corridors - suspended ceiling - panels &amp; grid, old and discolored, water damage common. Replacement recommended.</li> <li>Concrete plank ceilings with textured stucco typical.</li> <li>Bathrooms, kitchens and elevator cabs - drywall ceiling, no reported problems.</li> <li>Lobby - metal grid ceiling, no reported problems.</li> </ul>

Helen DeRoy Apartments

7

12

2

- 84 Description:First Floor Level walls at Common Areas: brick masonry.
  - First Floor Level walls at Service Areas: exposed CMU.
  - Typical Dwelling Unit walls: gypsum board and CMU (veneer plastered). Ceramic tile (4.25"

x 4.25") tub surround.

- Common Corridors walls: CMU (veneer plastered).

- Cabinetry at typical Dwelling Unit kitchens: plastic-laminated base and wall cabinets, and plastic-laminated countertops (post-formed).

### Priority 1:

- 12300 - Original kitchen cabinetry is present in (35) units. The original cabinetry is at the end of its useful service life, remove and replace the entire plastic-laminated cabinetry system.

Priority 2:

- No reported problems.

#### 2011:

- In general the condition of the walls, is good, no reported issues.
- Original kitchen cabinetry is showing extreme wear and tear.

- Owner has stated that replacement of kitchen cabinetry is on-going. Of the 243 total dwelling units, original kitchen cabinetry has been replaced in 208 units (85%). Thirty-five units (15%) still have the original cabinetry.

### 2005:

- Original kitchen cabinets in apartments, showing significant wear & tear - at end of life. Replacing approx. 10% of base cabinets & countertop per year beginning 2004. Partial replacement, balance should be completed within 10 years.

- Continue work described above.
- Drywall typical. Apartment walls repaired as required.
- Lobby some ceramic tile on walls, no reported problems.

#### Doors

5

2

3

- First Floor Level, Vestibules: aluminum and glass doors and aluminum frames.
- First Floor Level Service Areas: hollow metal doors and frames.
- Exterior Service Doors: hollow metal doors and frames.
- Typical Dwelling Unit (interior doors): solid-core wood doors and hollow metal frames.
- Typical Dwelling Unit (entry door): solid-core wood door and hollow metal frame.
- Typical Stair Door: hollow metal door and frame, lever door handle.

#### Priority 1:

90 Description:

- 08110 – Metal Doors and Frames - First Floor level service areas hollow metal doors are damaged, and should be replaced.

### Priority 2:

- 08400 - Entrances. Exterior aluminum and glass doors and hardware are showing wear and pitting and should be replaced.

### 2011:

- First Floor Level Service Areas: hollow metal doors are damaged.
- Exterior aluminum and glass doors and hardware are showing signs of wear and pitting.
- Exterior hollow metal service doors and frames are showing signs of deterioration.

- Dwelling Unit entry doors have door knobs, do not have closers, and rating labels are not present at the door or frame.

#### 2005:

- Exterior hollow metal stairwell doors - panic bars, jambs & doors in poor condition, units need replacement.

- Receiving dock hollow metal doors need replacement. Hardware in good condition.

- Interior hardware in operating condition. Typical ongoing replacement expected.

- Exterior hardware in operating condition, thresholds in adequate condition. Typical ongoing replacement expected.

- Exterior aluminum & glass lobby doors in good condition - have panic bars, ADA buttons/operators.

- Interior apartment doors - solid core wood, no reported problems.

Floors	
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0

- First Floor Level Public Areas: quarry tile, recessed walk-off matts at main entry vestibules.
- First Floor Level Service Areas: coated concrete.

- Common Corridors: carpet.

- First Floor Activity Room: vinyl tile.

- Laundry: vinyl tile.

- Dwelling Units: Kitchen, Living Room, and Bedroom: vinyl tile. Bath Room: ceramic tile (1" x 1").

Priority 1:

95 Description:

- No reported problems.

Priority 2:

- No reported problems.

2011:

- First Floor Level Public Areas: quarry tile, recessed walk-off matts at main entry vestibules, wearing as expected, in good condition.

- First Floor Level Service Areas: coated concrete, in good condition.
- Common Corridors: carpet, wearing as expected, in good condition.
- Laundry: vinyl tile, wearing as expected, in good condition.
- Dwelling units: Kitchen, Living Room, and Bedroom: vinyl tile. Bath Room: ceramic tile (1" x

1"), wearing as expected, in good condition.

## 2005:

- Corridors: carpet replaced as needed. Near end of life, due for replacement within 5 years.

- Apartments: living spaces - carpet; bathrooms - ceramic tile; kitchen - 12 x 12 VCT or sheet vinyl. Typical ongoing replacement as needed. Partial replacement, balance should be completed within 10 years.

- Mechanical area rubber flooring in good condition.

- Main lobby ceramic tile in fair condition.
- Activity room vinyl tile in fair condition.
0

- Dwelling unit entry doors and frames are not fire rating-labeled.
- Dwelling unit entry doors do not have door closers.
- Standpipes present in stairs, owner reports that they are functioning and have been tested.

- The fire alarm system is a Simplex system with mass notification with pull stations and speakers/strobes. Each unit has a separate smoke detector. The corridors have speakers/strobes for annunciation with pull stations at the egress exit.

#### Priority 1:

95 Description:

- No reported problems.

### Priority 2:

- No reported problems.

### 2011:

- Dwelling unit entry doors and frames are not rating labeled.
- Dwelling unit entry doors do not have door closers.

- Elevators have been up-graded 5-years ago. Up-grades on the equipment and new elevator cab finishes.

## 2005:

- Sprinklers in mechanical room and lobby only. Automatic fire suppression for entire building needed.

- No emergency power, install emergency generator.

- (2) passenger, (1) service elevator funded for replacement by Thyssen Krupp. Will switch to full maintenance contract with Thyssen Krupp.

- ADA apartment units designated, access by elevator only. Levers only in ADA apartment. Grab bar at toilet, shower - handheld + temperature control ADA. No reported problems.

- Fire alarm: Simplex pull stations, strobes & horns tied to public safety. System 3-4 years old, functioning.

- Smoke detectors: Corridor units - activate alarm & signal public safety. Room units - signal building panel & public safety.

							Helen DeRoy Apartments
Immed. Site, Ext. Ltg., etc	2	\$928,337	1	0	4	95	Description: - West side; concrete walks and lawn area, North side; loading dock area, East side; fenced- in play area and lawn area, South side; concrete steps, concrete ramp and lawn area. - WSU University Health Center is located on the South end of the facility, on both the First and Second Floor Levels. This area was not included as part of this Facility Assessment.
							Priority 1: - 05520 – metal railings. Provide metal railings at the steps and along the ramp on the South side.
							Priority 2: - No reported problems.
							2011: - Immediate surrounding area around the facility, in good condition.
							<ul> <li>2005:</li> <li>Concrete walks in good condition.</li> <li>Receiving/dock in good condition.</li> <li>Exterior lighting : mercury vapor wall packs. Front: timer and photocell functioning. Rear photocell functioning.</li> </ul>
CRV Totals:	\$	46,416,825\$5,	465,581 \$27	1,538 \$5,7	′69,611 \$34,9′	10,094	
<b>0-1 Year Data</b> \$46,416,825 <b>CRV DN</b>	5,581 <b>B</b>	\$3,144,740 <b>EXCESS</b>	) 11.8% FCI	PO RAT	OR NG	0-5 \$5,7 D	Year Data (additive)           '37,120         \$3,416,278         12.4%         \$928,337         POOR           MB         EXCESS         FCI         \$/YR MAINTAIN         RATING

# Building: Chatsworth Tower Apartments

**Area:** 125295sf **Yr Built:** 1929 **Floors:** 9

CRV	of Component	% of Compo	nent Requirin	ig Repair/Replac	ement in:	
X	\$	0-1 Year	1-5 Years	6-10 Years	11+ Years	Notes
18	\$5,074,448	0	0	5	95	Description: The apartment tower is concrete-framed; owner states that spray-on fire-proofing is present. The underground garage structure is steel-framed (encased in concrete).  Priority 1: No reported problems.  Priority 2: No reported problems.  2011: During interviews and walk-through observations, no significant issues were noted or observed.  2005: The underground parking structure to be renovated into steam plant.
						- Project will include repair to spalling concrete in the parking structure.
	<b>CRV</b> <u>X</u> 18	CRV of Component           X         S           18         \$5,074,448	CRV of Component         % of Component           X         S         0-1 Year           18         \$5,074,448         0	CRV of Component X% of Component Requirin 0-1 Year18\$5,074,44800	CRV of Component X% of Component Requiring Repair/Replace 0-1 Year18\$5,074,44800555	CRV of Component X% of Component Requiring Repair/Replacement in: 0-1 Year% of Component Requiring Repair/Replacement in: 6-10 Years18\$5,074,44800595

Roof

1

90

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10 Description: - Built-up bituminous roofing system.

- Copper flashings, no metal parapet copings.

- Clay crock copings are present at the northern end of the structure and at the Penthouse roof.

- The Main roof drainage consists of internal conductors and (5) roof sumps. No emergency roof drains are present.

- Edge gutter and downspout present at Penthouse roof.

## Priority 1:

- 07510 – Built-up Bituminous Roofing System. Roofing system is at the end of its useful service life; remove and replace the entire roofing system.

- 07600 – Flashing and Sheet Metal. The majority of the flashing/coping system is at the end of its useful service life, remove and replace the entire flashing system.

# Priority 2:

- No reported problems.

## 2011:

- During interviews and walk-through observations, leaks were observed within the attic space and within the penthouse. In many locations, the roof surface has "voids or bubbles" that when stepped on, crack open, and create a visible opening in the roofing membrane surface.

- In many locations the metal flashings are damaged, or deteriorated, or loose from its intended anchorage detail.

- Ponding water is present over most of the roof surface.

## 2005:

- Built-up roof, no know leaks, age unknown, at least 15 years old, due for replacement. Some bubbles present.

- Missing a large part of parapet flashing on the back-side of high southern wall.

- Remaining flashing is old, some rusting, due for replacement.

					Chatsworth Tower Apartments
Glazing	4 \$1,127,655	90	0	5	<ul> <li>5 Description:</li> <li>Single-glazed, non-insulating, wood sash window units with singled-glazed aluminum storm units.</li> <li>Window units are primarily double-hung type, with some inward pivoting casement types at the First Floor Level.</li> <li>Single-glazed, non-insulating, fixed leaded units are located at the Main Entrance of the facility.</li> </ul>
					Priority 1: - 08500 – Operable Windows. The operable glazing units are at the end of their useful service life, remove and replace all of the operable 572 window units. Replacement units (operable, single-hung) to consist of aluminum-clad wood frames with insulated glazing and screens.
					Priority 2: - No reported problems.
					<ul> <li>2011:</li> <li>During interviews and walk-through observations, most window units were reported to be in poor condition, painted shut and not functional. Observations validate the owner's statements on overall condition.</li> <li>Air drafts were also perceived.</li> <li>Of the units that were attempted to be opened, extreme difficulty and very worn hardware was experienced.</li> </ul>
					<ul> <li>2005:</li> <li>Double-hung wood windows, not original, many painted shut and inoperable.</li> <li>Air infiltration problem, due for reglazing/recaulking or replacement.</li> <li>Partial replacement, balance should be completed within 10 years.</li> <li>Original leaded glazing at First Floor Level, no reported problems.</li> </ul>

					Chatsworth Tower Apartments
Cladding	8 \$2,255,310	25	0	5	<ul> <li>70 Description: <ul> <li>Brick masonry façade including terra cotta and decorative tile detailing, with a limestone base.</li> <li>The exterior wall is of composite construction, consisting of a clay brick masonry and concrete masonry unit (CMU).</li> <li>A metal canopy assembly is present at the Main Entrance.</li> </ul> </li> </ul>
					<ul> <li>Priority 1:</li> <li>04050 – Brick Mortar Restoration (tuck-pointing) – At the wall areas of deteriorated mortar joints, tuck-point the mortar joints of, brick masonry, terra cotta, decorative tile and limestone shapes. Areas of deteriorated mortar joints include; the exterior surface of the façade, the roof side of the taller parapets, chimney structures and the exterior façade of the penthouse.</li> <li>04210 – Clay Unit Masonry and Terra Cotta – Repair and / or replace all deteriorated, clay unit masonry and terra cotta accent shapes. Also to be included is the re-construction of the failing tall parapet wall on the south facing wall, north of the Main Entrance.</li> <li>07920 – Building Joint Seals – Remove and replace all deteriorated building joint sealants.</li> <li>09900 – Painting and Coating – Surface preparation and finish coating of the metal canopy and entrance components.</li> </ul>
					Priority 2: - No reported problems.
					<ul> <li>2011:</li> <li>During interviews and walk-through observations, owner reports no leaks and no settlement issues.</li> <li>Observations included; deteriorated building joints, deteriorated brick mortar joints over 50% of surface wall area and deteriorated portions of the terra cotta assemblies.</li> <li>The tall parapet of south facing wall (north of the Main Entrance), is leaning backward, toward the roof, and many open brick mortar joints were observed.</li> <li>Metal canopy and entrance components need to be prepped and re-painted.</li> </ul>
					<ul> <li>2005:</li> <li>Approximately 50% of the exterior wall area requires tuck-pointing, 10% of wall area now, balance within 5 years.</li> <li>Metal entry canopy, needs painting.</li> <li>Mix of terra cotta, brick and decorative tile.</li> <li>Parapets are in good condition.</li> </ul>

						Chatsworth Tower Apartments
HVAC	14 \$3,946,793	5	1	30	64	<ul> <li>Description:</li> <li>Mechanical system is mainly steam radiators in all occupied spaces. Ventilation is provided by fans and heating coils at the stairs on each level. Exhaust air is handled through one DC variable speed fan in the attic. This pulls exhaust from a small louver in each unit's kitchen.</li> <li>The dryer exhaust is achieved by venting through the sub-basement's windows. There was evidence of make-up air for this space.</li> <li>There is currently no air conditioning except for window-mounted air conditioning units. Heating is provided from steam, produced in the lower level of Chatsworth.</li> <li>There is one newer (5-10 years old) make-up air unit for the boilers in the sub-basement. The unit is in very good shape.</li> <li>The existing elevator machine room on the roof has a newer dedicated HVAC unit to provide proper cooling for the room. This unit is in good shape.</li> </ul>
						Priority 1: - 238219 - The ventilation fan and steam heating coil on each floor are beyond their useful service life. On six out of nine floors, the fans were not operating. All nine floors steam heating coils are not working, so there is no tempering of air during the winter. - 233416 - The exhaust system in the attic is a DC powered variable speed fan is the original fan and has been repaired multiple times over the years. Brushes and springs have been replaced numerous times. At the time of SHW's visit, the fan was not operational. The flexible ductwork connections to the common header in the attic has failed and has numerous holes in it.
						Priority 2: - 238219 - Make-up air needs to be provided to the sub-basement dryer area. Provide make up air unit. - 232213 - There is a small steam leak near the domestic water heaters in the sub-basement. This leak needs to be repaired.
						<ul> <li>2011:</li> <li>The corridor ventilation system is working some places and not in others. Ventilation air is brought in through the stairwells using fans and a steam heating coil. All of the coils have failed. The incoming air is not tempered.</li> <li>Ventilation air is achieved through natural ventilation of opening windows. The fan was not operational during SHW field investigation and flexible connection had failed and needed replacement.</li> <li>The attic exhaust fan was fixed in past years but was not working during the walk-through.</li> <li>The flexible duct piece in the attic needs to be replaced.</li> </ul>
						<ul> <li>2005:</li> <li>15100 - Condensate return lines beginning to show leaking. Replace critical sections immediately. Partial replacement, balance should be completed within 5 years.</li> <li>15100 - Condensate return piping in boiler room needs extensive work - occasionally overloads and dumps condensate on floor - safety issue.</li> <li>15100 - Condensate return piped through abandoned domestic water heater exchanger.</li> <li>15100 - Steam traps failing, extensive replacement expected - very complicated to replace.</li> <li>Partial replacement, balance should be completed within 5 years.</li> <li>15100 - Continue replacement of condensate return lines.</li> <li>15100 - Continue replacement of steam traps,</li> </ul>

- 15400 - Condensate return pump failing, needs immediate work.

- 15500 - No functioning ventilation system in building - original fresh air system & subsequent package systems failed & abandoned. Due for replacement with new package units.

- 15550 - Only single fan for building exhausts, no reported problems, but inadequate. Upgrade when practical.

- 15550 - Addition of steam generation plant in parking garage funded. (4) 300 HP boilers to be installed to supply this building.

No A/C.

- 15950 Radiators - one failed, has been replaced. Control valves obsolete, replacement valves prevent occupant control - currently experimenting with thermostatic valves.

- 15950 Manual control with timer (15 minute cycle) - functions but requires constant supervision & adjustment depending on outside conditions. Replace when practical

					Chatsworth Tower Apartments
Plumbing	12 \$3,382,965	0	10	30	<ul> <li>60 Description: <ul> <li>The domestic water system is in fair condition. A good percentage of the piping is existing going to the residences. The domestic hot water is produced by two newer gas fired hot water heaters in the sub-basement. There is duplex domestic water booster pump in the sub-basement.</li> <li>Plumbing fixtures in the residences are a mixture of the original and new. The fixtures have been replaced as they have failed.</li> <li>The building currently has no fire pump and is not sprinklered in most of the building. Boiler area is only area that is sprinkled. Stand pipes existing in all the resident areas.</li> <li>A new boiler plant was installed five years ago and feeds this building and other buildings. The equipment is in good shape.</li> </ul> </li> </ul>
					Priority 1: - Monitor asbestos insulated piping on a regular basis and provide report to Owner.
					<ul> <li>Priority 2:</li> <li>22112313 - the domestic water booster system has had issues with the pumps. Only one of the two pumps is operating on the drives. The system is relatively new, but the controls need to be looked and corrected.</li> <li>232213 - the condensate system for the steam has had issues. New impulse traps need to be installed</li> <li>Shower/tubs are in bad shape. 50% of the units have bad rust spots or chips. Re-glaze units in place.</li> <li>224500 - 25% of the plumbing fixtures are original and should be replaced with non-scalding devices.</li> </ul>
					2011: - The existing domestic water system is operational, but there are reported problems with the booster pump assembly. Plumbing fixtures are being replaced on an as needed basis. - Some pipe insulation appears to be original and is suspected to contain asbestos.
					<ul> <li>2005:</li> <li>15130 - (2) temporary sump pumps for floor drains in garage and basement installed in 1997. Temporary pump still in place, inadequate - replacement recommended.</li> <li>15140 Some cold water lines in need of repair (5-10%)</li> <li>15150 - 8" discharge in mechanical room to city sewer corroded, needs replacement.</li> <li>15150 Drain lines restricted due to age, requiring increased snaking. Partial replacement, balance should be completed within 10 years.</li> <li>15300 - Stand pipes not functioning, further investigation needed.</li> <li>15300 Repair standpipes as noted above - cost undetermined until investigation completed.</li> <li>15400 Most water supply lines in good condition , no reported leaks. Two (2) gas water heaters working well, but cannot maintain adequate temperature in winter Booster pumps newer, no reported problems.</li> <li>15400 - Majority black iron waste lines. Risers upgraded to copper.</li> <li>15410 Most plumbing fixtures original - pedestal sinks in poor condition. Kitchen sinks original. Replace as part of Typical ongoing updates.</li> <li>15410 Faucets original, in poor condition. Stems &amp; handles replaced with original type equipment when possible - very labor intensive. Replace as units fail or sinks are replaced.</li> </ul>
	<b>D</b>				

						Chatsworth Tower Apartments
Primary/Secondary	2	\$563,828	21	4	30	<ul> <li>45 Description: <ul> <li>The building is fed from Detroit Public Lighting at 480V. In the basement electrical room there is a 480V to 120/240V transformer that feeds the building at 120/240V. The existing electrical incoming board is located in the basement main electrical room. This is the original electrical switchgear.</li> <li>The building has no generator back up except for the boiler plant in the sub-basement.</li> </ul> Priority 1:</li></ul>
						No reported problems. Priority 2: - 262413 - The existing main distribution board is beyond its useful service life. It is unknown if the main and feeder switches will operate during an over-current situation. The main board has electrical equipment inside of it and cannot be accessed without shutting down the main switchboard's bussing. This board should be replaced with current NEMA rated switchgear.
						2011: - The incoming electrical system is the original and should be looked at for replacement before a major failure occurs. There is not proper clearances and it is unknown if any over current device works.
						2005: - 16300 Two (2) new feeds, new transformer & main panels included in boiler upgrade package. - 16300 Power from Edison - no reported problems.

					Chatsworth Tower Apartments
Distribution	5 \$1,409,569	4	7	30	<ul> <li>59 Description:</li> <li>The main electrical switchgear feeds up to corridor distribution panels and then to corridor panel boards on each floor. The original distribution panels still exist. The distribution panels are open bus. The panel boards on each floor (3 total on each floor) are circuit breaker type and have been replaced in the last 40 years.</li> <li>50% of the receptacles are the original 2 slot with no ground receptacles.</li> </ul>
					<ul> <li>Priority 1:</li> <li>260526 - The existing branch circuit wiring going to each receptacle does not have a ground wire. The older 2 slot receptacles have been replaced with NEMA 5-15R receptacles and there is no ground wire tied to the ground slot of the receptacle. This situation needs to be corrected by installing GFCI receptacles ahead of the NEMA 5-15R replacement receptacles.</li> <li>262726 - There are no GFCI receptacles in the bathrooms or kitchen within 6 feet of sinks. These receptacles were installed before the GFCI requirement was in the code, but it is highly recommended to install these.</li> </ul>
					Priority 2: - 262416 - The panel boards are beyond there useful lives and have not been regularly exercised. It is unknown if the over-current devices will work. The panel boards should be replaced with new breakers.
					2011: - The electrical distribution system, except for the panel boards, is original. No testing has been completed on the electrical system.
					<ul> <li>2005:</li> <li>16300 Panels old and at capacity. Typical ongoing updates, Partial replacement, balance should be completed within 10 years.</li> <li>16100 Many outlets are 2 prong, no GFCI system. Typical ongoing updates, Partial replacement, balance should be completed within 10 years.</li> <li>16300 Panel parts still available. Hallway breakers, 2-3 to an apartment.</li> </ul>

							Chatsworth Tower Apartments
Lighting	3	\$845,741	2.5	0	25	72.5	Description: - The existing lighting system consists of fluorescent lighting in the maintenance and utility areas and incandescent lighting in all living spaces and corridors. Some incandescent lamps are getting changed out with Compact fluorescents and LEDs as lamps fail. - Egress lighting consists of incandescent exit signs without battery back up and emergency battery units.
							Priority 1: - 265200 - The exit signs have no emergency power source. The exit signs need to be replaced with battery back-up units. - 265200 - The existing EBUs need to have their batteries replaced. 10 out of the 11 units tested did not light.
							Priority 2: No reported problems.
							2011: - The building still has a large percentage of incandescent lighting and should be looked at for upgrades in lighting to fluorescent or LED.
							<ul> <li>2005:</li> <li>- 16500 Corridors &amp; apartments - original incandescent fixtures require routine socket replacement. Typical ongoing updates</li> <li>- Few fluorescent fixtures, in service areas only.</li> </ul>
Voice/Data	1	\$281,914	0	5	25	70	Description: - Voice lines provided for 1st floor and management offices. No phone line service available for individual rooms. - CAT5 cabling installed throughout. - DSL network provided to all rooms. - No WiFi coverage available.
							Priority 1: - No reported problems.
							Priority 2: - No reported problems.
							<ul><li>2011:</li><li>The existing low voltage systems are in fair condition, but the fire alarm system should be looked at for replacement.</li><li>The MDF room in the basement is caged and does not have cooling. There has been no reported issues with this.</li></ul>
							<ul><li>2005:</li><li>Typical ongoing updates.</li><li>Phone system working, no reported problems.</li><li>16700 Data CAT5 cabling installed 2003.</li></ul>

						Chatsworth Tower Apartments
Ceilings	3	\$845,741	10	0	10	<ul> <li>80 Description:</li> <li>Plaster typical throughout, original condition.</li> <li>Coffered ceiling at Main Lobby, consisting of dropped wooden beams and plaster ceiling planes.</li> </ul>
						Priority 1: - 09200 – Plaster and Gypsum Board. Repair / replace deteriorated plaster construction ceiling system. - 09900 – Painting and Coating – Surface preparation and finish coating of the plaster ceilings.
						Priority 2: -No reported problems.
						2011: - Surface damage was observed in multiple locations on the Ninth Floor Level. - Damage was also observed on lower Floor Levels, not as severe as what is present on the Ninth Floor.
						2005: - Plaster typical throughout. - Typical ongoing updates, usually one or more repairs ongoing due to leaks from plumbing or steam lines.

					Chatsworth Tower Apartments
Walls/Cabinetry	8 \$2,255,310	10	20	5	<ul> <li>65 Description: <ul> <li>Walls - Plaster typical throughout, original condition.</li> <li>Walls in Bath Rooms - 4.25 x 4.25 ceramic tiles (mud-set) halfway up the wall height, full height at shower stalls. Some areas of tile grout are deteriorated.</li> <li>Kitchen cabinetry - painted wood cabinetry and plastic-laminated countertops.</li> </ul> </li> <li>Priority 1: <ul> <li>09200 - Plaster and Gypsum Board. Repair / replace deteriorated plaster construction wall system.</li> <li>09320 = Mortar - Bed Tiling. Repair / replace deteriorated tile grout (patch).</li> <li>09900 - Planting and Coating - Surface preparation and finish coating of the plaster walls.</li> </ul> </li> <li>Priority 2: <ul> <li>12320 - Manufactured Wood (Plastic - Laminated) Casework. Remove and replace balance of original Kitchen cabinetry with updated plastic-laminated product.</li> </ul> </li> <li>2011: <ul> <li>Plaster walls in generally good condition, considering it is original construction.</li> <li>Surface spalling was observed throughout the building, probably due to previous water leaks and/or plumbing repairs.</li> </ul> </li> <li>2005: <ul> <li>Plaster walls typical issues, some water damage from leaks, typical ongoing updates.</li> <li>Painted wood cabinetry in Kitchens, mostly original, due for replacement. Partial replacement, balance should be completed within 10 years.</li> <li>Bathroom ceramic wall tile - grout missing, tile needed. Some tile replaced as shower pans fail.</li> <li>Repaint program in place - no reported problems.</li> <li>Bath Room mirrors - some replaced - (1) missing.</li> </ul> </li> </ul>

					Chatsworth Tower Apartments
Doors	6 \$1,691,483	20	0	5	<ul> <li>75 Description: <ul> <li>Exterior - Main Entry doors consist of leaded-glass (non-insulated) in wood doors. Push-pull door handles.</li> <li>Exterior - other doors consist of hollow-metal. Lever-type door handles.</li> <li>Interior - at individual dwelling units, wood rail and style doors with an inset wood panel (non-rated), with a 6-inch high wood transom above the door (non-rated). Hardware: knob-type door handles, no door closers.</li> <li>Interior - at statiwells, wood rail and style doors with an inset wood panel (non-rated), with 30° x 20° vision light consisting of wire-glass. Hardware: push/pull (non-latching), door closers.</li> <li>Priority 1:</li> <li>08140 - Wood Doors. Remove and replace non-rated wood doors at both individual dwelling units and at statiwells.</li> <li>08710 - Door Hardware. Remove and replace all hardware at both individual dwelling units and at statiwells.</li> <li>08710 - Door Hardware. Remove and replace all hardware at both individual dwelling units and at statiwells.</li> <li>09900 - Painting and Coating – Surface preparation and finish coating of the doors.</li> <li>Priority 2:</li> <li>No reported problems.</li> </ul> </li> <li>2011: <ul> <li>Exterior - Main Entry doors consist of leaded-glass (non-insulated) in wood doors. Main entry doors are not ADA compliant. Interior Vestibule Doors are showing extreme wear and require repair and refinishing.</li> <li>Other exterior doors consist of hollow-metal. Surface rusting is present at hollow-metal doors. Weather-stripping is damaged in need of replacement.</li> <li>Interior - at individual dwelling units, wood rail and style doors with an inset wood panel (non-rated), with 30° x 20° vision light consisting of wire-glass. Hardware to be removed and replaced with fire-rated assemblies.</li> </ul> </li> <li>2015: <ul> <li>Interior - at statiwells, wood rail and style doors with an inset wood panel (non-rated), with 30° x 20° vision light consisting of wire-glass. Hardware: push/pull (non-latching), door closers. Doors an</li></ul></li></ul>

25

20

- First Floor Level, Main Lobby area, marble and tile.
- First Floor Level, public areas, carpet and wood base.
- Public Corridors (Floor Levels 2 through 9), carpet and wood base.
- Dwelling units, carpet and wood base in the Living Areas, Bedrooms and Hallways.
- Dwelling units, resilient tile and wood base in Kitchens.
- Dwelling units, ceramic tile in Bathrooms.

#### Priority 1:

50 Description:

- 09650 – Resilient Flooring. Begin phasing of resilient tile removal and replacement with Dwelling Units.

- 09680 – Carpeting. Remove and replace carpet at First Floor Level public corridors.

- 09680 – Carpeting. Begin phasing of carpet removal and replacement with Dwelling Units (50%).

#### Priority 2:

- 09320 – Mortar – Bed Tiling. Repair / replace deteriorated grout.

- 09650 – Resilient Flooring. Continue the phasing of resilient tile removal and replacement with Dwelling Units.

- 09680 – Carpeting. Continue the phasing of carpet removal and replacement with Dwelling Units (50%).

#### 2011:

- Carpeting, in general throughout the facility, is showing extreme wear and is near its end of useful service life. Replacement should be phased over the next 5-year period.

- Carpeting in public corridors is deteriorated (physically torn) and is well beyond its useful service life. This condition presents a trip hazard, safety issue, and should be removed and replaced immediately.

- Resilient Tile, in general, is showing extreme wear and is near its end of useful service life. Replacement should be phased over the next 5-year period.

- Ceramic Tile, in general is in fair-to-good condition. Some areas of the grout needs to removed and replaced.

#### 2005:

- Carpet throughout in apartments and corridors, in fair condition, but nearing the end of life. Partial replacement, balance should be completed within 10 years.

- Resilient flooring in Kitchens, ceramic tile in Bath Rooms, in fair condition, but nearing end of life. Partial replacement, balance should be completed within 10 years.

- Marble and tile in entry Lobby, no reported problems.

						Chatsworth Tower Apartments
Bldg., Fire, ADA, Elevator	9	\$2,537,224	20	5	5	70 Description: - ADA; The facility is non-ADA compliant per the requirements of Public Accommodations for either 1991 Edition or the 2010 Edition. There is no continuous accessible "path of travel". There are no ADA accessible dwelling units. Given the historical condition of the facility, a strategy should be developed jointly with the WSU ADA policy regarding an attempt at limited ADA compliance. Alterations to historic properties shall comply to the maximum extent feasible. If it is not feasible to provide physical access ("path of travel") to a historic property in a manner that will not threaten or destroy the historic significance of the building or facility, alternative methods of access shall be provided.
						<ul> <li>Building code related issues such as: non-rated door assemblies at dwelling units, non- rated door assemblies at egress stairs, configuration / obstructions at egress stairs and dead- end corridors, require immediate resolution.</li> </ul>
						<ul> <li>Fire:</li> <li>Fire Suppression system installed in Boiler Plant area. Chatsworth Tower has standpipe located in stairwells with customary devices.</li> <li>The fire alarm system is a zoned system with speakers on each floor. There are no strobes in the building. The main fire alarm control panel is located in the Clerks office and has a hand set for making mass notifications. The system is manufactured by Simplex.</li> <li>Priority 1: <ul> <li>08140/08710 - Wood Doors &amp; Hardware. Shortening up the dead-end corridor at the south end and re-configure the stair entry door at the north end. Correction of code related means-of-egress issues.</li> <li>283111 - The existing fire alarm system is beyond is useful service life and does not meet the current code requirements. It has been noted that another engineering firm is looking into the replacement of the fire alarm system.</li> </ul> </li> </ul>
						Priority 2: - Develop a strategy to provide an ADA accessible "path of travel".
						2011: - Elevators were renovated, new equipment and new cabs, in 2009. - Items cited in the 2005 observations (below) still exist.
						<ul> <li>2005:</li> <li>-Wood stile and rail exit stair doors, not fire rated. Replace with rated doors.</li> <li>North-south corridor has 63' dead-end corridor. Does not comply with code, safety issue.</li> <li>Install wall and door just south of Apartment X03, labeled, "Not an Exit". This will shorten dead end corridor to 20-feet.</li> <li>East-West corridor is a 46-feet dead end corridor, does not comply with code, safety issue. Move entrance to Apartment X10 to just west of Apartment X08. This will shorten dead end corridor to 25-feet.</li> <li>No panic hardware on egress doors, to be added.</li> <li>No central smoke alarm system, only battery units in each Apartment.</li> <li>Two non-ADA pull stations per floor, no strobes. System works but obsolete, due for replacement.</li> <li>Sprinklers in garage only. Code compliant fire suppression system required for housing.</li> </ul>

						Chatsworth Tower Apartments
						<ul> <li>Two elevators, one original, one newer – both funded, contracted for replacement – to be made as ADA compliant as possible, under full contract with Thyssen Krupp. Will switch to full maintenance contract. Service elevator – manual operation.</li> <li>No emergency power, emergency generator is needed.</li> <li>Exit &amp; emergency lighting upgraded, on batteries – no reported problems.</li> </ul>
Immed. Site, Ext. Ltg., etc	3	\$845,741	2	2	2	<ul> <li>94 Description:</li> <li>Landscaping (lawn and shrubbery) is present at the east, south, and west sides of the facility and in good condition.</li> <li>Main public access to the facility is on the west side and in good condition. Secondary public access is along the east elevation (canvas enclosure, both walls and roof) and is in good condition. Vehicular access is limited to the north and east sides of the facility.</li> <li>In general, concrete pavement is in good condition.</li> <li>Site Lighting is excluded in this report.</li> </ul>
						Priority 1: - 05520 – Metal Railings. Provide a metal railing on each side of Main Entrance ramp. Priority 2:
						<ul><li>2011:</li><li>Ramp toward Main Entrance of the facility is at a slope of 1:12, and the rise in elevation is greater than 6-inches. The ramp is required to have handrails on both sides.</li></ul>
						2005: - Walks in good condition. - Service drive / loading dock in good condition. - Supply conduit to rear lighting flooded, damaged. Due for replacement. - Exterior lighting wall packs in rear. Some mercury vapor, decorative incandescent fixtures at front, all in good condition.
CRV Totals:	:	\$28,191,375\$3,6	09,906 \$1,27	77,069 \$3,96	3,707 \$19,3	340,693
<b>0-1 Year Data</b> \$28,191,375 \$3,60 <b>CRV N</b>	9,906 <b>IB</b>	\$2,200,337 <b>EXCESS</b>	12.8%		OR NG	0-5 Year Data (additive)           \$4,886,975         \$3,477,406         17.3%         \$563,828         POOR           DMB         EXCESS         FCI         \$/YR MAINTAIN         RATING

# Building: University Tower

Area: 355523sf Yr Built: 1996 Floors: 11

Componente V C 0.1 Veen 1 E Veene 11 Veene Notes	
Loumponents 7 3 0-1 tear 1-9 tears 0-10 tears 11+ tears Nuces	
Structure       18 \$14,398,682       0       0       5       95       Description -Structural         Priority 1: -No reporte       -No reporte       Priority 2: -No reporte       -No reporte       2011: -During int observed.         2005: - Settleme required. - No baser - No reporte       -No baser - No reporte	iption: tural steel frame with precast concrete floor slabs, concrete slab on grade. y 1: ported problems. y 2: ported problems. g interviews and walk-through observations, no significant issues were noted or ved. ement/movement cracks in east stairwell & service elevator; investigate and repair as ed. asement. eported problems.

•••	2 \$1,599,854	5	25	0	70 Description:
					- Single-ply EPDM membrane roof system, ballasted. Precast concrete walkway pavers are
					present at the perimeter.
					- 12 – 10 - IIICH HIGH Palapet Walls. Metal flashings and prefinished metal conings
					- The roof drainage system consists of internal conductors and roof drains. No emergency
					roof drains are present.
					Priority 1:
					- 0/510 – Flashing and Sheet Metal. Some components of the metal flashing system are in need of adjustment. (LE slices of coning not laving down flat or sealed property). Some of
					the metal components of the roof expansion joint system are showing signs of deterioration,
					rusting.
					Priority 2:
					end of its useful service life and should be replaced.
					2011:
					- Information acquired from interviews:
					- No leaks are currently being reported.
					- Information acquired from walk-thru observations:
					<ul> <li>The roofing system appeared to be in fairly, good condition. However, age-wise, the roofin system is partiag the and of its useful earlies life, and should be real-aced within five users.</li> </ul>
					- Some of the metal components of the roof expansion joint system are showing signs of
					deterioration, rusting.
					<ul> <li>Drainage patterns appeared to be well defined, no evidence of ponding water was observed Some components of the metal flashing system are in need of adjustment. If slices of conjugation of the second statement of the second statement</li></ul>
					not laying down flat or sealed properly.
					2005:
					- Canopy at Childhood Center leaks where soffit meets building wall, due for repair.
					- Ballasted single ply rubber roof in good condition but nearing midlife. Repairs expected to be needed within 5 years. Flashing in good condition.

Glazing	4 \$3,199,707	0	0	5	<ul> <li>95 Description:         <ul> <li>Insulated, double-glazed (tinted) with anodized aluminum framing, fixed units and operable awning units (5'-0" x 2'-0") with screens (one operable unit per apartment).</li> </ul> </li> <li>Priority 1:</li> </ul>
					<ul> <li>No reported problems.</li> <li>Priority 2:</li> <li>No reported problems.</li> </ul>
					2011: - During interviews and walk-through observations, no significant issues were noted or observed.
					2005: - Fixed units with awning units (1 per room) & screens. No reported problem beyond typical screen repairs.
Cladding	8 \$6,399,414	3	0	5	92 Description: - Architectural precast concrete panels.
					Priority 1: - 07920 – Building Joint Seals – Many building joints are failing, and are at the end of their useful service life. Remove and replace all deteriorated joint sealants.
					Priority 2: - No reported problems.
					2011: - Architectural precast concrete panels, appear to be in good condition. However, most of the exterior building sealant joints are deteriorating, and at the end of their useful service life. Remove and replace all deteriorating sealant joints.
					<ul> <li>2005:</li> <li>Panel sealant failing, allowing water infiltration.</li> <li>Water infiltration at concrete panel/window head at Childhood Center. Repair needed to prevent further collateral damage.</li> <li>Precast concrete panels staining at joints &amp; at window framing, minor spalling at panel corners. Clean and repair as required.</li> </ul>

		HVAC	14 \$11,198,975	0.5	0.5	30	69	<ul> <li>Description: <ul> <li>Mechanical system for units is unit ventilators. They provide both heating and cooling.</li> <li>Steam is provided to the building from newer on-site steam plant. A heat exchanger is located on the first floor to provide hot water distribution to the unit vents.</li> <li>Chilled water is provided from a York absorption chiller and cooling tower located on the first floor (chiller) and roof (lower). Chemical treatment is provided and there are no reported problems of scaling or growth.</li> <li>Supply air to the units in provided from air handling unit in the penthouse. There are four air handling units supplying areas on first floor.</li> <li>Unit exhaust air is through separate fractional HP fans in each of bathroom. Kitchens do not have exhaust; they use a re-circulating hood.</li> <li>The radio station has its own dry cooler on the roof for its studios.</li> <li>There is some low mounted ductwork at the dock area that needs to have its insulation encapsulated in order to prevent damage to the insulation.</li> <li>The laundry is located on the first floor, with supply air.</li> </ul> Priority 1: <ul> <li>238216 - The supply air handler in the penthouse needs to have its coil replaced in order to temper the air.</li> <li>236500 - the cooling tower is bad shape. The fill is in bad shape.</li> </ul> Priority 2: <ul> <li>232123 - The chiller water pump motors should be replaced in the next 5 years.</li> <li>The possible leak in the pneumatic controls system needs remediation.</li> </ul> 2011: <ul> <li>The cooling tower fill is in bad shape. The chiller is in good shape.</li> <li>The colling tower fill is in bad shape. The chiller is in good shape.</li> </ul> 205: <ul> <li>The controls air compressor seems to be running a lot. There may be a leak in the system.</li> </ul> 206: <ul> <li>SBC0 - (2) heat exchangers, one for first floor and one for remainder of building - working well. Condition of tubes unknown, use of untreated steam may have caused d</li></ul></li></ul>
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Plumbing

2

0

- The domestic water system is in good condition.
- The domestic water booster pumps are in good condition.
- Domestic Hot water is supplied from a heat exchanger on the first floor.
- The units have manual faucets and tank type toilets. The public bathrooms have flush valves.
- The building has a fire pump and fire sprinklers throughout.

#### Priority 1:

68 Description:

- No reported problems.

### Priority 2:

- No reported problems.

### 2011:

The domestic water booster system is in good shape. The fire protection system is in good condition.

### 2005:

- 15140 - Building backflow preventer leaks, due for replacement.

- 15150 - Numerous problems with drain lines plugging from kitchen waste. Vertical runs cleaned, but horizontal run above WDET plugging and causing overflowing sinks, toilets and tubs to leak into radio studio. Horizontal drain lines require installation of cleanouts and routine cleaning.

- 15150 - Laundry room drains plugging with lint, causing ponding water & floor damage. Floor drains should be replaced with larger units containing lint filters.

- 15180 - Secondary pressure maintaining water pump broken, due for replacement.

- 15400 - Kitchen faucets - brackets failing. Damaged faucets replaced with new units.

- 15400 - Toilet handles & flaps require higher than usual replacement. Toilet ball cocks no longer available - original units failing

- 15400 - Domestic hot water heat exchanger re-tubed in 2004, caused by use of untreated steam. Shut-off valves have leaked when used - requires shut down of riser to replace.

Primary/Secondary	2	\$1,599,854	0	2	15	83	Description:         • The building is fed from DTE and has a pad-mounted transformer.         • The building has emergency power from a generator. The two ATS switches feed life safety and the fire pump.         Priority 1:         • No reported problems.         Priority 2:         • 263600 - the ATS switches may have a clearance problem as installed. There is not proper clearance between the two grounded surfaces. If this was accepted at installation, then it is only seen as a maintenance issue when working on live equipment.         2011:         • Main distribution gear is in good shape and about 15 years old.         2005:         • Typical ongoing updates and Typical ongoing replacement expected.         • 16300 - DTE power, no reported problems.         • Emergency generator for radio station, elevator's & emergency lighting, no reported
Distribution	5	\$3,999,634	0.5	0	15	84.5	problems.         Description:         - The units are fed from panelboards mounted in the corridor. A bus system runs up from the first floor to feed each floor.         - The building is fed with 480/277V. Distribution equipment is Siemens.         - Main boards are switch fuse and panel boards are circuit breaker.         - GFCI's are provided at the sinks in the kitchen and bathrooms.         Priority 1:         - No reported problems.         Priority 2:         - 260999 - The existing distribution equipment should be tested and exercised. There is no evidence of testing.         2011:         - The distribution equipment is in good shape.         2005:         16100 - Available capacity in panels. No additional circuits needed.

Lighting	3 \$2,399,780	0.1	0.3	29.6	<ul> <li>70 Description:</li> <li>The lighting is T8 in the corridors and mainly CFL's in the units.</li> <li>Egress lighting is provided by the fluorescent lights in the corridors and stairwells.</li> </ul>
					- 262726 - Over 50% of the exit signs were not lit. Lamps should be replaced.
					Priority 2: - 262726 - Incandescent lighting should be replaced with CFL's as they fail.
					2011: - The lighting is in good condition. Lamps sources are getting replaced with more efficient sources as they fail.
					2005: - Typical ongoing replacement expected. - 15400 - Fluorescent T8 on electronic ballast - no reported problems. - 15400 - Incandescent fixtures in bathrooms, halls, kitchens - no reported problems. - 15400 - Fluorescent fixtures in kitchens - no reported problems.
Voice/Data	2 \$1,599,854	0	0	25	<ul> <li>75 Description: <ul> <li>Voice lines provided for 1st floor and management offices. No phone line service available for individual rooms.</li> <li>CAT5 (or better) wiring ethernet to every room.</li> <li>WiFi coverage for 100% of the building. Wireless access points have been installed throughout the building with surface-mounted raceway running through the corridors.</li> </ul> </li> </ul>
					Priority 1: - No reported problems.
					Priority 2: - No reported problems.
					2011: - The system is operational and meets the current code.
					2005: - 16700 - Original data and telecom systems, no reported problems.

University Tower
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3	\$2,399,780	15	0	5	80 Description:
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- First Floor Main Lobby Area: suspended linear metal ceiling system.

- First Floor Level Service Areas: suspended lay-in acoustical ceiling systems.
- First Floor Level, WDET Radio Station: suspended lay-in acoustical ceiling systems.
- First Floor Level, Early Childhood Center: suspended lay-in acoustical ceiling systems.
- Typical Dwelling Unit: both gypsum board ceiling system and exposed concrete deck planks.
- Common Corridors: suspended lay-in acoustical ceiling systems.
- Common Elevator Lobbies: suspended lay-in acoustical ceiling systems.

## Priority 1:

- 09540 - First Floor Level service areas, suspended lay-in acoustical ceiling systems, system is damaged and stained. System is at the end of its useful service life, remove and replace entire ceiling system.

- 09540 - First Floor Level, WDET Radio Station, suspended lay-in acoustical ceiling systems, system has some damaged and some stained components. Replace damaged and stained components.

- 09540 - First Floor Level, Early Childhood Center, suspended lay-in acoustical ceiling systems, system has some damaged and some stained components. Replace damaged and stained components.

- 09540 - Common corridors, suspended lay-in acoustical ceiling systems, majority of the system is damaged and stained, remove and replace entire ceiling system.

### Priority 2:

- No reported problems.

## 2011:

First Floor Main Lobby area, suspended linear metal ceiling system, is in good condition.
 First Floor Level service areas, suspended lay-in acoustical ceiling systems, system is damaged and stained.

- First Floor Level, WDET Radio Station, suspended lay-in acoustical ceiling systems, system has some damaged and some stained components.

- First Floor Level, Early Childhood Center, suspended lay-in acoustical ceiling systems, system has some damaged and some stained components.

- Typical dwelling unit, both, gypsum board ceiling system and exposed concrete deck planks, in good condition.

- Common corridors, suspended lay-in acoustical ceiling systems, system is damaged and stained.

- Common Elevator Lobbies, suspended lay-in acoustical ceiling systems, in good condition.

# 2005:

- 2 x 4 suspended grid system in corridors, metal panel in lobby. Some tiles damaged from supply pipes leaks, repaired as damage occurs

- Radio station - some ceiling tile stained, grid bent. Delay major repairs until plumbing problem is resolved.

Ceilings

0

- First Floor Level Service Areas: exposed CMU, painted.
- Typical Dwelling Unit: are gypsum board, fiberglass shower surround.
- Common Corridors: gypsum board, painted.
- Cabinetry at typical Dwelling Unit Kitchen and Bathroom: plastic-laminated.
- Cabinetry at First Floor Level Kitchen: plastic-laminated.
- Cabinetry at WDET Radio Station (Kitchen): plastic-laminated.
- Cabinetry at Childhood Center: plastic-laminated.

#### Priority 1:

95 Description:

- No reported problems.

### Priority 2:

- No reported problems.

### 2011:

- First Floor Level walls at Service Areas, exposed CMU, painted, in good condition.

- Typical Dwelling Unit walls, gypsum board, in good condition. Fiberglass shower surround, in good condition.

- Common Corridor walls, gypsum board, painted, in good condition.

- Cabinetry at typical Dwelling Unit Kitchens and Bathrooms, plastic-laminated, showing some customary wear, however in good condition.

- Cabinetry at First Floor Level Kitchen, plastic-laminated, in good condition.

- Cabinetry at WDET Radio Station (Kitchen), plastic-laminated, in good condition.

- Cabinetry at Childhood Center, plastic-laminated, in good condition.

## 2005:

- Gypsum board on metal studs. Corridor walls show some abuse - ongoing repair issue, apartment walls in good condition except for isolated water damage. Typical ongoing replacement.

6	\$4,799,561	0	3	5	92 Description:
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- First Floor Level Service Areas: hollow metal doors and frames.

- Exterior Service: hollow metal doors and frames.
- Exterior Main Entrance: aluminum and glass entrance systems.
- Typical Dwelling Unit (interior): solid-core wood and knock-down hollow metal frames.

- Typical Dwelling Unit (entry): solid-core, wood and knock-down hollow metal frame. Lever door handle and door closer. Door opening is rating labeled.

- Typical Stair: hollow metal door (with wire-glass vision lite) and frame, panic hardware. Opening has rating label.

### Priority 1:

- No reported problems.

Priority 2:

- 08400 - Entrances - Exterior main entrance doors, aluminum and glass entrance systems, in fair condition, showing wear. Replace with five-years.

- 08110 – Metal Doors and Frames - - Exterior service doors, hollow metal doors and frames, in fair to good condition. Replace within five-years.

### 2011:

- First Floor Level service areas, hollow metal doors and frames, in good condition.

- Exterior service doors, hollow metal doors and frames, in fair -to-good condition. Some of

the 5-inch x 20-inch vision lites don't possess a "tempering" stamp or a "fire-lite" stamp. - Exterior Main Entrance doors, aluminum and glass entrance systems, in fair condition, showing wear.

- Typical Dwelling Unit (interior doors), hollow metal and hollow metal frames, in good condition.

- Typical Dwelling Unit (entry door), hollow metal and hollow metal frame, in good condition. Lever door handle and door closer, in good condition.

- Typical stair door, hollow metal door (with wire-glass vision lite) and frame, panic hardware, in good condition. Opening has rating label.

## 2005:

- Exterior hardware wearing from high traffic (hinges, latches, closers), replaced as required. - Lever hardware throughout, student vandalism to levers typical, replaced as required.

Doors

Floors	4	\$3,199,707	0	40	5	55	Description:
							- Vestibule: ceramic tile and walk-off mat.
							- Lobby: carpet.
							- Main level elevator lobby: vinyl tile.
							- First Floor Level Service Areas: vinyl tile.
							- First Floor Level; Laundry, Multi-Purpose and Kitchen: vinyl tile.
							- First Floor Level Toilet Rooms: 2" x 2" ceramic tile.
							- WDET Offices: carpet.
							- WDET Lobby and Lunch Room: vinyl tile.
							- WDET Toilet Rooms: 2" x 2" ceramic tile.
							- Childhood Center: carpet and vinyl tile.
							- Elevator Lobbies: vinyl tile.
							- Common Corridors: carpet.
							- Stairs: exposed checker steel plate.
							- Typical Dwelling Unit: carpet, vinyl tile and ceramic tile in Bathrooms.
							Priority 1:
							- No reported problems.
							Priority 2:
							- 09650 – Resilient Tile - Main Level Elevator Lobby: vinyl tile, worn should be replaced.
							- 09650 – Resilient Tile - WDET Lobby and Lunch Room: vinyl tile, worn, should be replaced.
							- 09680 / 09650 – Carpet / Resilient Tile - Childhood Center: carpet and vinyl tile, worn
							should be replaced.
							- 09680– Carpet - Common Corridors: carpet, stains and showing some wear, should be
							replaced with five years.
							- 09680 / 09650 - Carpet / Resilient Tile Typical Dwelling Unit: carpet, vinyl tile wearing
							and should be replaced within five years.
							0011
							- Vestibule, ceramic tile and walk-off matt, in good condition.
							- Lobby, carpet, in good condition.
							- Main level elevator lobby, vinyi tile, worn should be replaced.
							- First Floor Level service areas, vinyl tile, in good condition.
							- First Floor Level; Laundry, Multi-Purpose and Kitchen, vinyl tile, in good condition.
							- First Floor Level Toilet Rooms, 2" x 2" ceramic tile, in good condition.
							- WDE I offices, carpet, in good condition.
							- WDE I lobby and lunch room, vinyl tile, worn, should be replaced.
							- WDE I toilet rooms, 2" x 2" ceramic tile, in good condition.
							- Childhood Center, carpet and vinyl tile, worn should be replaced.
							- Elevator Lobbies, vinyl tile, in good condition.
							- Common Corridors, carpet, stains and showing some wear, should be replaced with five
							years.
							- Stairs, exposed checker steel plate, in good condition.
							- Typical Dwelling Unit, carpet, vinyl tile and ceramic tile in Bathrooms, carpet and vinyl tile
							wearing and should be replaced within five years.

2005:

- Corridors -carpet on concrete showing excessive wear, staining, fraying, buckling - due for

					replacement. 9th floor carpet frayed, trip hazard. - Laundry Room - VCT floor damaged due to water backup, replacement floor tiles continuing to lift, creating trip hazard, alternative solution required. - Bathroom ceramic tile - some minor grout failure. Repair as required. - Apartment kitchen VCT nearing end of useful service life, due for replacement within 5 years. - Continue carpet replacement as needed.
Bldg., Fire, ADA, Elevator	7 \$5,599,487	2	0	3	<ul> <li>95 Description:</li> <li>Dwelling unit entry doors and frames are rating labeled.</li> <li>Dwelling unit entry doors do have door closers.</li> <li>Stair doors are rating labeled and have panic hardware.</li> <li>No lightning protection system is installed on this building.</li> <li>The fire alarm system is a Notifier system with mass notification.</li> <li>Each unit has its own separate smoke detector and speaker. The corridor has speaker/strobes for annunciation with pull stations at the egress exit.</li> <li>The Child Care area has smoke and carbon monoxide detectors.</li> <li>In general compliance with ADA.</li> <li>Priority 1:</li> <li>264100 - Provide lightning protection for building.</li> <li>Priority 2:</li> <li>No reported problems.</li> <li>2011:</li> <li>Dwelling unit entry doors and frames are rating labeled, compliant.</li> <li>Dwelling unit entry doors and frames are rating labeled, compliant.</li> <li>In general compliance with ADA.</li> </ul> 2011: <ul> <li>Priority 2:</li> <li>No reported problems.</li> </ul> 2011: <ul> <li>Dwelling unit entry doors and frames are rating labeled, compliant.</li> <li>Dwelling unit entry doors and frames are rating labeled, compliant.</li> <li>In general compliance with ADA.</li> </ul>

					University Tower
Immed. Site, Ext. Ltg., etc	3 \$2,399,780	1 2	5	92 Description: -West side; concrete walkways, lawn areas, Entrance to the Early Childhood Center, North side; concrete walkways, lawn areas, fenced-in play area, Entrance to the WDET Radio Station, East side; concrete walkways, lawn areas, South side; recessed concrete truck dock, concrete drives, lawn areas and Boiler Room Structure.	
					Priority 1: - 03300 – Cast-in-place Concrete – Small quantity of concrete walkway is frost-heaved at the north exit stair. - 31220 - Excavation and Fill - Some minor earth back-filling is required alongside the concrete walkway at the entrance to the Early Childhood Center.
					Priority 2: - 06800 - Composite Fabrications. Remove and replace failing composite panels at the Boiler House.
					<ul> <li>2011:</li> <li>Immediate area surrounding the facility, in generally good condition.</li> <li>Some minor earth back-filling is required alongside the concrete walkway at the entrance to the Early Childhood Center.</li> <li>Small quantity of concrete walkway is frost-heaved at the north exit stair, remove and replace.</li> </ul>
					2005: - Concrete walls in good condition, except some minor damage at receiving dock, repair as required.

# CRV Totals:

\$79,992,675 \$846,323 \$2,159,002 \$10,477,441 \$66,509,910

0-1 Year Data				0-5 Year Data (addi <u>tive)</u>					
\$79,992,675	\$846,323	\$0	1.1%	GOOD	\$3,005,325	\$0	3.8%	\$1,599,854	GOOD
<u> </u>	DMB	EXCESS	FCI	RATING	DMB	EXCESS	FCI	\$/YR MAINTAIN	RATING





# Section 2: Chatsworth Apartments Architectural / Engineering Drawings

Redevelopment of Chatsworth Apartments, within the context of Wayne State's housing master plan, has been preliminarily conceived as a renovation of the 122,172-GSF housing facility that will convert the available unit types from apartment-style housing into a combination of semi-suite- and full-suite-style units. Chatsworth currently includes 22 efficiency, 48 one-bedroom, and 16 two-bedroom units and could potentially accommodate up to approximately 400 suite-style beds, contingent upon the results of a facility assessment and test fit to determine the concept's feasibility; the Private Entity selected to implement the housing master plan – either in whole or in part, dependent upon the preferred scope indicated by the proposing entities – may be solicited by the University to complete the facility assessment and test fit for the Chatsworth redevelopment.

Provided in this appendix for reference are the following architectural / engineering drawings for Chatsworth Apartments:

- A-1 Garage Floor Plan
- A-2 Upper Basement Plan
- A-3 First Floor Plan
- A-4 Second & Third Floor Plan
- A-5 Fourth Floor Plan
- A-6 Ninth Floor Plan
- A-7 Attic Floor Plan
- A-8 Roof Plan
- A-9 Elevation & Section
- A-10 Court Elevations
- A-11 East Elevations
- A-12 Rear West Elevations
- A-13 East Building Section
- A-14 West Building Section
- A-15 Building Cross Sections
- A-16 Building Cross Sections
- A-17 Exterior Wall Details
- A-18 Exterior Wall Details
- A-19 Plot Plan
- A-20 Vestibule, Card Room & Office Details
- A-21 Lobby Details
- A-22 Lounge Details
- A-23 Details for Stair No. 1
- A-24 Kitchen Details

- A-25 Door & Bathroom Details
- A-26 Miscellaneous Interior Details
- A-27 Miscellaneous Interior Details
- A-28 Plumbing, Drainage & Sprinkler Plan
- A-29 Foundation Plan
- A-30 Column Schedule
- A-31 Upper Basement Framing Plan
- A-32 First Floor Framing Plan
- A-33 Second Floor Framing Plan
- A-34 Typical Floor Framing Plan
- A-35 Ninth Floor Framing Plan
- A-36 Roof Framing Plan
- A-37 Alterations to Existing Buildings
- E-1 First Floor Electrical Outlet Plan
- E-2 Typical Electrical Outlet Plan
- M-1 Boiler Room & Garage Mechanical Floor Plan
- M-2 Upper Basement Mechanical Floor Plan
- M-3 First Floor Mechanical Floor Plan
- M-4 Typical Floor Mechanical Plan
- M-5 Attic Mechanical Plan
- M-6 Mechanical Details & Riser Diagrams








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* • •	6	ST FLOOR VERT. BAR	1 <sup>7</sup> 2*12 13 5 4 - 1" G-	* 13 12 1"sq 8-	*12 12*1 <b>1</b> 4-	2 4+14 2* 4-78 8 4-1	$\frac{12 \times 12}{4 - \frac{1}{2}^{n} > 0}$	4-1"90 4-1"	4-1"	13×13 4-7/8"	14"×14" !' 4-% 8	<u>2×12° 12°</u> 3-柔" 4-	12" 12"KI	2" 12"×12" sq 4-1"	13×13" 8-7"	12"×12" 6-34"	12"+12" 4=5"5Q	16"×16" 4-1%"sa	16×16 8-1/4 sa	12**12* 4-\$"50	12*12"	12"+12"	12" 12"	12"+12"	13"×13"	13"×13" 1	2"*12"	2" 12" 12"*	12" 13 × 13	12"+12"	12".12"	12"112"	12"×12" 1	13"*13" 12"*1	3 03 12° 12°7	×12" 13"×13"	120
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۹.	L	1+ LUUK VERT BAR	8-1" 8-	1"59 8-	-1" 8-	7" 8-1"	59 4-1"	4-1" sq 4-1'8'se	a 4-1" (	6-3"	8-1"sq 4	4-1"sq 4-	12 12 11 12 sq 4- 38	14-14 10 4-1"S	a 8-1"	8-3"	8- <u>7</u> "	10×18 4-1%53a 4-1"59	4-1/30 4-1/850	12 × 12 4-1="sq	14×14 8-%	4- <u>7</u> "	12*12 4-7/35a	14*×14" 4-1" 4-34"	15"×15" 8-1"59	15*15 1 8-1"sq 4	4"× 14" 1"	2" 12" 13" +	13" 14"× 14 " 8-1"	- 12×12"	12"×12" 8-1/4"	12"×12" 1 G=1"	12"×12" 1	4"x [4" ]4"x ] 8-1"50 8-7	4" 12"+ " A-	12" 15*15"	15"+15"
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	l.	UPPORTING LOADS	8-15 8- 188 15	1 30 8- 5 20	09 181	1"59 <u>9-1"3</u> 2 224	sa 4-34 + 146	8-1/83 236	se 8-1"sa 190	8-1"3Q	4-1%3a 4-1%3a 239	8-13a 4-	1"so 4-78" 4 133	4-1/8	3 8-13 50 242	a 8-1"5a 191	8- <u>1</u> " 164	4-174"50 4-176"50 305	4-1/8"59 4-1/4"59 302	8-3" 100	4-1-59	4-1" 50	3-j"	8-1"59	4- 50 4 4- 50	4-1" SQ 2	- 1"sa 2	3-1" 8-1	"so 8-1%	154 2-1" so	4-1/8"	8-7/8	4-1"Sa	6"*16" 16"×1	<u>6" 12 ×</u> 8-	12 161 16 150 4 - 1850	3 8-1/8-58
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		UPPORTING LOADS	4-18'50 8- 4-18'50 4- 286 3	14" <b>3</b> 8- 76" 4- 85 31	2 270	1/8 50 8-1/4 305	"sa 8-1" sa 213	373	e 2-1/8'sa 6-14''sa 280	8-1/4"sa 315	8-14"59 B	1-11/4"sa 8-	1" 8-1"; 3 196	0 4-114 4-118 205	500 50 4 - 1"50	8-14	8-1%:9	8-114"50	8-1/4"59	8-1"sa	2-141-20	B-1/8'sa	8-1%sa	8-14ta	8-1/45a 2-1"59	21 21 11 8-11/4"59 8 8-1"59 8	-1/4"so 2	5×15 8×	18 19 x 19 8"39 8-14 4"59 4-1"	" 19"*19" sa 8-1%"s	18×18 4-1%=50	16"x 18" 8-1% 50	18×18" 7 5-1% sa 4	10720 1677	22 161	16" 19× 21"	18" × 2.3" 12-1%:-
	2	FLOOR VERT BAR	19"×19" 22	×22" 16"	× 24 19×	19" 20"×1	20" 15"× 19"	" 16"+25"	"16"×22"	20" × 20"	21" × 21" 10	6"×22 15"×	15" 16"×14	5" 18"×22	2 14 BH 115	51401115.5	408 107.5	148H 92*	(48H  47 #	14"×16"	301 19"×19"	280 19*19*1	464 14 BH 107.5	313 12°84.72.5	392 1461 92 14	513 ON BH 123.5	GIRDERO	GIRDIE 30-	4 341 14 <sup>#</sup> 148484	ON GIRDER	290	ON GIRDER O	DN GIRDER	236 318 bh65.5* 16**;	23	3 351 13 20"×23"	360 18"×25"
4 	S	UPPORTING LOADS	346 3	92 31	1"50 G-1 B 27	6 311	217	4-1"30 329	285	4- %* 320	364 1 364 1	<b>290</b> 19	5 2.08	a 4-14 310	954		493.	747	••••••••••••••••••••••••••••••••••••••	4-1% sq 188	8-1/45a 4-1" 320	8-1450 298	526	409	875 5	21								<u> </u>	150 8-1	10-1 14 sq	2-1-50
	[1	FLOOR VERT. BARS	40×21 20	×265 205 16'sa 12-	1. 8-		4 <u>5</u> 19"×19½ 'sa 8-1"sa	2 20/2×25 8-1/8"54	222×24 8-1"5a	24 <u>2</u> ×26 : 8-1"	25 <u>1</u> ×27 20  2-1" 8	-1" G-	*19 <u>5</u> 20 <u>%</u> *2 1" 8-1"	2 18 × 29 8- 1/4"	" 14BH 220" sa	4 BH 115.5	148H220.\$*	14 BH 179.5	14BH 147	16 * 72%	21×27" 8-1%se	20"+27"	481135	1481100* 1	4BH2205	GIRDER,		14 BH 8	14 14 BH 92	<b>b</b>			12	84 1098 BH 79 <sup>#</sup> 18"xg	1/2 21/2"	24 24 242 27	20*×29±
¢	5	UPPORTING IN THOUSAND LOS UPPER SIZE	CIROER			1			285 721×27"	320	364 2 253"*27 20	290 20	2 211 *195" 20%*2	2"	954	ON GIRDER	938 148H2203	767 1484174-5		····														<u> </u>	8 8-	1,3912:17434	12-1/450
nu gi ¥, v ₹	В	ASEMENT VERT-BARS							8-1"59	8-1"	12-1" 8:	-1" 6-	# 8-1"																				12	<u>," BH79</u>	·		
	D	OWELS,	6-1" 6	-1" G	-1" GT	1" 6-1"	6-1"	6-1	6-1"	G-1 <sup>µ</sup>	6-1" 0	a-1" 4-		••	36"×36×5	·	36 <sup>*</sup> ×36 <sup>*</sup> ×5	30 × 3044	30×30×44			<u> </u>	30130132 2	24"+24;3	36×36×5" ·			22:*22	* 24 + 24 +	3 ——			22	*12*2*			<u>з р. Л</u>
· 1	'	CAPS SIZE	2'- 11"50 2'-	10 30 2-8	3"50 2-8	"sq 2-8"	"sa 2-6"sa	a 2-10'sa	2-6"59	2-10 50	3-0'50 2	-6'50 2-0	"sq 2-6	59 2'-6" sid	¢ 6'-8"sa		G-B'sa	640"sa	5-7 sa	2-4 50	2-9-50	218"50	5-0-sa		6'-6"50								,	2-6		59 340"sa	General.
	=	SIZE	8'-0"sq 8'-4	"sq 7-6	5° 50 7-0	"sa 7-6"s	12 a G-4"sa	12 A 7:9".	7-0"sq	7:6"59 8	12" 1 3-0"59 7-	3"59 6-0	"SQ 613"S	a 7-0" sa	1-10" 12-9"SQ		1- 10" 12-8"59	1-9" 17-0×11-0"	1-6"	12" 5-9"59	12" 7-6"50	12"	1'-3 9'-6"59	8-6-59 1	1-9"									<u> </u>	12	" 12"	
- 199 - 199	10	DUTINGS THICKNESS	1-10" 1-16 36-1" 36	5/ 1-8	B" 1-7	1°8"	[-5	1-8"	1-8"	1-8"	1-10" 1	-8 1-1	f" L'-5"	1-8"	1-11		1-11*	1-1a"	1-8"	1-4"	1'- 8"	(-6°	[ <b>*G</b> *	2'- 6"	1-11*			&-O 2'-G	59 9-0×7-0	· ·			<u> </u>	2-6 1-10	ja 6-8"	"sa 8-9"5a 7" 2-0"	
					2 54 50	230 51 2	sq 40 2 50	52 2 30		52- <u>2</u> 50 ;	26- 1/15C 22	2-2 SQ 26	250 28-25	a 30- <u>ż</u> so	36-%		56-34"	31-58" 45 Ror	52-%	26-159	32-2:59	32- 12 50	42-%	36-5/ 4	18-34"		<u>.</u>	- 42-2	50 22 5 50 LON 17 2 50 SHO	4. et.		<u></u>	10 15	2 50 LONG 36-1"	'sa 30-	± "sa 36-5%"	Sas Col
		JUL. NUMDERS	40 4	47	2 - 43	> 44	45	46	47	48	49 5	50 5	52	53	54	55	56	57	58	59	60	61 62	63	ې د	TRUCT		STEF	I. NOT	F¢.		2.	TOUOT		Couche	inen St.	n se su su Se su Se su	
•	J	ROOF VERT BADS	12" × 12" 12" ×	12" 12"x	12" 12**1	2" 12*12	12.12"	12:12"	12*12	12"+12" 1	2"+12" 12"	*12" 12"×	75 2* 12'×12	· 12:12"	28  2"×  2"	38 12"×12"	37	31 12"×12"	38 12"×12"	31. 12×12"			3	Sho	p rivets	12000#p	ui li er sain	shear	LJ.		ل " All bor	s shown	UNAL' on these	· CUNCKE	TE. NC	))[]° rups and col	lamn
and and a second se	SI	IPPORTING IN THOUSAND LBS	84 6	63 63	3 91	GO GO 0* 10-10	96 10 <sup>14</sup> 2 34	G2	71 71	<u>4-2</u> 30 A 97	73 G	<u>5 50 4-5</u> 59 92	<sup>-</sup> 50 4- <u>1</u> 50 3 95	a 4-2°sa 71	4- <u>1</u> "50 79	4- <u>1</u> "59 79	4- <u>1</u> "sa 81	4-1:50 69	4-1/2"sa 4 97	4-±*sq. 72				fiel	d rivets	24000* 10 000* 20 000*	60 <sub>317</sub> 46 46 35 6 47 46 36	bearing shear bearing			ties are z = .196 sa	to be defo inc. \$".307	ormed ba	its and to h .442 sain, %	ave the coisa	following at	reas a in.
	9	FLOOR VERT. BAR	4- ± sq 4-±	50 4-12	50 4-3/	$\frac{2}{12 \times 12}$	G-34" ^	12×12 4-12"sq	12×12 4-1- sa	6-34	27 2° 12 4-12" 59 4-	×12° 12× ±"5a 8-3	12" 12×12"	2×12" 4- <u>1</u> _"so	12"x 12" 4- <u>1</u> 2".sa	12"×12" 4-12"50	12"× 12"   4-12" SQ	12"×12" 4-12"50	12"×12" 1 6-34" 4	2"×12" 4-12"sq			·····	7/81	livets for	all plates	* thick GIRD	ER.S.		-	2 5Q25 5	z bars are gin, i'so :	e marked = 1 sq in. 1	sa, they are 1/8 sa = 1.265 s	ito have sain, L	z the following 4"sa = 4563	sain.
• ••	JL 8	JPPORTING IN THOUSAND LOS	13" 13" 12"	12" 12"×	+ 13G	5 91 5" 12"*12"	156 " 14"×14"	94 12"×12"	10 <b>6</b> 12"¥12"	[47 [4"×14"	107 10 12"×12" 12	0 <b>Z</b> 138 2"*12" 13"*	<b>  39</b>  3"   13** 3	102 12×12*	114	114 12*12*	117 12×12"	100 12*×12."	13G	101				F Sh	ange stre ear on gre	ss 18000	# per sa 12000# pe	in a= sq. in,			Column	ties and s	stirrups t	o be plain	round	bars.	
••	51	PPORTING LOADS	8- /8 4-3 155 117	4 4-	<b>18</b> 4-1 <sup>n</sup> 4 181	122	8- 7/8" 176	4%	4-1" sa 141	8-1" ( 196	8-% 4 141 13	-1'sa 7-1 34- 17	* sa 4 - 1" sa 1 182	4-1"sa 134	8-1" 148	8-1" [48	8-1".	4-1" . 131	G-1"	4-1"				All	to have	stiffenei LUMN	S. CAPS	BASES	1	7	Tempere	ture steel	o‴ N∓ti ⊈ka"dia a	5 about setor	alaant i	- for of all s	slobs.
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	71	FLOOR VERT BARS	14"×14" 12"× 8-1"sa 6-1	12° 13×1 "sq 8-7	13 15×1. 18 4-1" 4-1%	5" 13"×13 59 8-78"	8-1"52	15× 13" 4- 1/8"	13"×13"   8-1" sq 1	16"×16" 14	4"x 14" 13" 4- <i>%</i> " 8-	×13" 15×1 -1" 8-1	5" 15×15"	14"×14"	12" \$ 17" 8-1"	12"*17" 8-1"	14"×14" 4=1"	13"× 13"	15"×15" 1	13"× 13." 8-1"	·····			For ste	Col # 15-18- Col Cap 24	-19-24-2 ** 24**	<b>3-24-5</b> 2./2	-59-58 pr	avide		that are r	einforced	d in one	direction.	HOCKS IN	n i-t	
₹. 64 €. 64	SU	PPORTING LOADS	190 143 16"×16" 14"×1	155 4" 14*1	22:  4"  7"×1"	7 153 7" 14*×16"	216 17×17"	158 14 × 14"	176 15*15"	246	176 10	35 21 × 14° 17°× 1	6 225 7" 17"x 17"	164	182	182	188	162	214 1	159				For	Col 17 -2	3-32-5	-53-59	rovide Stee	el Caps 20%2	$10^{\circ} \times 2\frac{1}{2}$ $10^{\circ} \times 2\frac{1}{2}$ $10^{\circ} \times 2\frac{1}{2}$ $10^{\circ} \times 2\frac{1}{2}$	Concre ports appri	te mix fo oved gray	or slabs, t vel.	loors and gi	rders I	-2-4 or 1	-41 A
4 		PLUUK VERT BARS	8-1"sa 4-1 227 170	5a 4" 8-1" 185	Sa 4-19 4-11	8-76 +3 8-76	4-1% 50	8-1"50	8-1" SQ	8-1/650 1	8-1" SQ 4- 4-	1":50 4-1" 1/8"50 4-1	sa 8-1%s	4-1" SQ	8-1'59	8-1°50	2-1" 6-1"sa	8-1"5a	4-1" SQ E 4-1850 E	8-1" 30		2		- Br 15-1	ofform of 1 7-19-23-	steel ba	ses for 29A- <b>30</b> -1	Col. Nos.	54		Column basement All other c	n mix for walls to olymns to	be 1-2-4 be 1-2-4	nt columns + or 1-42 po	that an arts app	re attached roved grav approved d	to. el.
	51	TLOOR VERT BARS	17"×17" 15"×1	5"  6"×1	IG 18"×12	8" 15"× 18 "59 8-7%"	18-18	16+16	16×16	18 × 20" 10	6×16"  6"	*16" 18"+	8" 18"×18"	195	21G 12*×24*	216 12"×24 1	224 17'x 17"	193 16"x 16"	252 1 18×18" 10	188 G"×16"				55- Col	56-58-5 - 18	95 ELLVA	Tion 88-1 88-1	0" or 14" belo	ni adjacen	it floor.	Footin each way	g steel p	placed in andles Co	two layer	5 ½ nu	m ber of bo	irs in
	SU	IPPORTING IN THOUSAND LOS	264 197	210	6 318	208	297	222	4-1/4501 246	346	244 2	27 29	4-59 8-1/4's 8 312	226	251	4-1%** 251	0-1/0 50 259	8-1°50 224	G-1/430 E	3-1"5a. 218				Co For	- 35A . Col. 15-	z JG provi	67-1 DE STEE	L CAPS 18	*24"x 2 %"	" (	of footing before po	; all placed	d on blac ncrete	ks and win	ed toge	ether comple	eta 👘
х	44	FLOOR VERT BARS	G-1/01-4-1 4-1/01-4-1	8 34 - 1	/850 10-1%	15 × 20	8-1/4-59	8-1/8:0	10.×18 8-1/8"sa	10 × 24 10 4-1% 59 2-1 50 8	6 × 20 17"	×17 20"×	20 19×19 4 50 8-14	17"× 17"	14"×24" 4=1%59	14"x24" 1 8-1%39	18"+18"   8=1/4"sa	16" n 18" 8-11/8" so "	18"×20" 17	7" × 17"		2		For Fo	c Col 24- R Col 25-	26-51-52	4 34 16 (1	··· 18 ·· 22	× 20 × 2 1/2" * 22* × 2 1/2"		All sg	uare bar	rs are ma	rked sa a	al other	bars are re	ound .
	5U 3≞	PPORTING IN THOUSAND LOS	500. 22. 18** 22 17*	4 24 17" 18"*	7 364 8 20x	+ 238 23" 15"× <b>2</b> 2	337 2 21 × 21	2.54 16°×20"	281 18"× 20"	396 2 8"× 28" 1	279 20 6122 181	GA 34 *18" 21*	6 359 21" 2("×21"	264 18"+18"	290 18*×24"	290 18"×24"	300	263 8"x 16"	331 2	252				Fo	R Col 50	)	11, 11, 11, 11,		*********	-	Bars	of all rei	inforced	concrete	column	ns bearing	g on
v	Ju	PPORTING IN THOUSAND LES	8-1 <b>49</b> 8-1 338 25	2 275	81- 8-18 9 412	270	381 381	8-1/4"sa 288	317	449	315 30	02 39	$4^{1}_{50} = 8 - 1/4^{3}_{50}$ $4 - 1/8^{3}_{50}$ $4 - 1/8^{3}_{50}$	a 8-1% sa a 4-1 3 3 285	4 - 14 50 8 - 14 50 343	4-1/45 8-1/414 445	8-11/4" sa 1	8- 14 st	12-1/8 50 4 639		·····						*			1 1	op of st o the st	cel colum eel bear	nns.or s ings	teel girder	s to h	nave barsw	e det
· · ·	2	NOFLOOR SIZE	18 × 24 18 × 1 8-1/4 3× 4-1/ 4-1 30 4-1	8° 19° = 11 4″.5a 8- 11/ 4″.5a	9" 20"+2 4"sq 16-1%	26 15"× 24	4 22*×22* sa 8 = 1/4"sa a 4 - 1/4"sa	10"×23" 8-14'so 4-3/4	18×22 1 8-1/4"50 1	8×30 1 2-1/4"508	6-24 18"	*21: 7 12612 1/4" so 8-14	3. 14 BHI15	3 148H 100#	148H 107.5	14"BH 1075" M	2 BH 79* 1	28185.5*	BH163* 12	206 2"BH 65.5						į			· •	i	extr n lower c Cowill	a dowels columns a MN Roos	5. 4' o" lor are less f	is at column than column	ns whe is about	e column a	of bars
en e	JU	IPPORTING LOADS.	394 279 23×202 28	314 222 20 ×	- 464 23½ 22×2	302.	389 22'*29	322	322	457 2	57 3·	45 44 BH 79 14 BH	9 925	ON GIRDER	980	G51	835	374 1	180	979				х. -							Ī			25@8"o.c.	for bes	-s Solor less	5.5/16
		I LOUN VERT BARS	8-1/2:0 8-1/	4'50 8-1%	4"39 12-14 4 - 1"	"sa 8- 1% =	5a 12-1 1/4"so	8-1%"se 4-1"se	8-1/850	G-14508- 4-1-50 2	- 54			- · · · · · · · · · · · · · · · · · · ·	14BK 123.3*			UNGIROEP 14	rom· 4.19.5  4		s H 34♥	8 H 34 H	8"H,34 <sup>¥</sup>		1			÷					Addi bars	tional 12 oc 1 1/8" Sa or	@ 24*0 over	diagonal	Tar 1
	BA	SEMENT VEDT RADE		·····		······			22×26		4 :  4B	H 100 148H1	2. 79.5											ş				Cji			, (				• (		
- 11 - 14 - 14	Ro	LLED STEEL SLABS		-		······································			2-3/4*		<u> </u>	24"¥ 3" 30"×30	Ma 36×36*	5	36*36*5	307307443	6*36*5" -	4	10"×40×53 3	36"+ 36%5"								è		£ -	2	۰۰ مرد می	Let .	1			
्यम तु	100	DWELS SIZE	6-1" 0 8-1/ 7-3" " 2-7	4"sa 12-1	" 16-1 B"so 2-10	" 8-14	1 12-14 30	12-1"50 2:2"50	2-10"50	7:000	2-1/8:50 -		~			<b>P 1</b>			3											and the second sec	ſ		All	exposed col have cham	lumns i ferei	in garage,	
	C	APS THICKNESS	3-4 12	12	* 12*	12*	12*	12.	12"	12"	12"	5-1	3" 1-10"	· · · · · · · · · · · · · · · · · · ·	1-10	2-1 1-6	6-3 1'-7"		7-6 0 2+1"	2-0"	1					٨		¢		• · ·			. <del>.</del>		1		
F.	FOI	OTINGS THICKNESS	15-0" = 7-4 1-10" = 1-6	59 7-8	59 912": )" 213"	59 7-3"si 1-8	0 8-0 50 1-10	7-678-6	7-6*8-8 4 2'0"	9-6-30 8 2-3 1	3-2"50 8-	9'50 11-3	sa 12-8's		13'-0"sq	10-9'se	2-0-50	<u> </u>	4'-6'39 13	373 50	5-6-59	5-0"50	1-0-50	3 (	*				*	* 5.**	Ę	- 24	Fire-Fire	e proofing	REVI	SED 2-	1-28
0 .E.		BARS	15-58 - 19 8 12-58 5HU 32-	"sa 32-	<u>1</u> "50 36-5	6 30- <u>1</u> 's	036- <u>1</u> "sa	10- 10-50 Land	18-5% LONG	34-34" 3	6-2 50 34	-5% 60-	5/8 60-34		60-34	56-5%	64-5/B		Z-X 6	x-0" 6-3/1" 2	1-7 24-2"sq 2	1ª 7 24-2"sa	1-7 30-1="50	1	1.	, .		* *	1 K.		2010 - 4 10 - 4 10 - 4		2		REVI	SED 1-1	A-2.8
			t 1			4				*44. : ,	· ·		, <u></u>	·Co	LUMI	N•	SCHE	Dul	E			· · ·	:	<u>ر</u> ۱		<del>titelan ja</del> (	×		ter state in the state of the s	*		4				JOB 3	7 SHEED
9 9 1				<b>S</b>			 				e de este	18. 18.				SCALE	+ 1:0			Í.					3	<i>#</i>	۰ ۲۹	* - -			2					Ne S	AIBT

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![](_page_171_Figure_0.jpeg)

![](_page_172_Figure_0.jpeg)

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![](_page_173_Figure_8.jpeg)

![](_page_173_Figure_13.jpeg)

![](_page_173_Figure_17.jpeg)

![](_page_174_Figure_0.jpeg)

![](_page_175_Figure_0.jpeg)

![](_page_176_Figure_0.jpeg)

![](_page_177_Figure_0.jpeg)

OGRAD.  $\mathfrak{O}$ RAD ğ minent Ø Ð⊖ Ô Ø Seutore door-NOTE:-DOORS ON THIS FLOOR TO BE SAME AS DOORS ON TYPICAL FLOOR PLAN. EXCEPT WHERE OTHERWISE SHOWN.

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![](_page_178_Picture_5.jpeg)

![](_page_179_Figure_0.jpeg)




· UPPER - BASEMENT · MECHANICAL · FLOOR - PLAN · SCALE % - 1-0'

FOR CONTINUATION OF THESE LINES, SEE GARAGE PLAN. \* *د.* د م REVISED 3/5/28, Nov 18 1927 JOB GSHEET SHEET 2-M N♀ 4-364



FIRST FLOOR MECHANICAL PLAN

× 1



LIV. RM. BED RM BED.RM.

	9 Hb. H	LOOR.		£
	RAD.	No REGO	AMOUNT	TYPE ;
	A	4	45 30	17 - 5 - 20"
ì	B	4	533	20-5-20
	C	3	32	12-5-20
	0	4	263	10-5-20
	E	2	40	15-5-20
'ts	4	3	48	18 - 5 - 20
	G	5	293	11 - 5 - 20
45	Н	2	51	17-6-20
f .	J	2	45	15 - 6 - 20
	K	1	57	19-6-20
	<u> </u>	1	66	22-6-20
	M	Z	39	13-6-20
	AA	5	21\$	7 - 3 -32"

· ·			
AA	5	214	7 - 3 -32"
88	3	18	6-3-32
CC	Ζ :	7	1 Sect. 78 Wall
00	2	49	14-3-38
EE	Z		
			· · · · · · · · · · · · · · · · · · ·

TOTAL RADIATION THIS FLO. NOTE ! 12-5-20" INDICATES 12 SECTI

HOTES: 3/5/28 For position of Elec. outlets see Archits Detail 11º 131. For Bath Rooms and Kilchens. see Archits Revised Details 11º 126 and 103.

· · TYPICAL FLOOR MECHANICAL - PLAN -SCALE 1/8-1-0"

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REMARKS	Type	AMOUNT	No REQU	RAD.	REMARKS
	15 - 5 - 20"	40\$	4	A	
	17-5-20	453	4	B	
	11 - 5 - 20	293	3	C ·	
	9-5-20	24	4	0	•
	13-5-20	34 3	2	E	
	15-5-20	40	3	F	
·.	10-5-20	26 3	5	G	
USE 13-6-20 390 2nd Flonly	16-6-20	48	2	H	
USE-12-6-20": 369 2nd. Fl. only	14 - 6 - 20	42	2	<u>v</u>	
<u>,</u>	18-6-20	54	1.	K	
	20-6-20	60	1	۷	
USE + 10-6-20 = 30; 2nd # 3rd Hoors	12-6-20	36	2	M	
an a	6-3-32"	18	5	AA	
	5-3-32	15	3	BB	
	1 Sect. 78 Wall	7	г	66	
	7 - 3 - 38"	24 2	2	00	
See Riser Diagram		· · · · · · · · · · · · · · · · · · ·	2	EE	liser Diagram
0RS = 9830 \$	THESE FLOO	ATION	, RADI	TOTAL	= 1632 \$.
3/5/28. Nov 18	REVISED.	104.	RADIAT	O"HIGH	IS 5 TUBE 2



NOTE ALL MAIN TRUNK LINE BEANCH DUCTS

-8" Steam Header. -Breeching. - Angle Supply Valve 3 Hand Controlled Valve on 1st Stack 2 Return from Vacuum Pumps Direct Connected Motor Direct Connected Motor -4 Yeato Steam Supply -By Pass Damper. (•) ٢ - Blow off Yolve. STRAMER A Main -12 Float Trap for absolutely not each Stack. Jone trap. ["Planking] 3" Gork ["Planking] Foundation ▶ 浄 <u>幸</u> → → → → → → → Roise Boilers for Row FIREMAN Stoker lostallation Bolt to Concrete Floor thru T STRANGING J"PLANKING. T REAKING. Floor -Zz Reform Header DETAIL OF HEATING BOILERS DETAIL OF VENTO HEATING STACK DETAIL OF APT. KITCHEN & BATH DETAIL OF GARAGE SUPPLY No Scale. EXHAUST LINIT. No Scale. & EXHAUST LINITS. D.C. COUNTER CLOCKWISE T.V. DISCHARGE. SINGLE W. SINGLE J. D.C. COUNTER CLOCKWISE T.H. DISCHARGE. DOUBLE W. DOUBLE I. No Scale. No Scale. Pent House Roof \*1-ELEY Ghanged to 20H.P TR-ELEV. 6 2-#6 Pent House . Lind ¥. -2-#3 Roof 24/12 24/12 18/9 24/12 24/7 S KITCHEN & BATH ROOM 22-22-22-22-2- 2-2- 22- 22- 22- 12-22-2-12-AHIC zź 22 22-2-2-2- 2-HA HA HA H 26 83 ¢ 53 13 ¢ 1 2634 1.00 0.00 A. 9. 8. A. A. 1 295 295 295 296 214 214 161 2000 10.14 2 64 5.8 A B C જે જે 5 L..... 9th Fl. H HA HA HA 2- 22- 22- 2- 22- 12- 12- 12-2 2-122-1 H 2-2-1 1z-2-2-22-22 2-2-3.40 × 2 455 293 22 5.3 26 44 24 10 CIR 12 CIR 10 CIR "A" "B" "C" 18/2 18/2 18/9 H HA HA HA I чU 1817 4 -£..... 18/12 815 F.(. 22 22-H 12 12-· 2'J' 22 12 14-2-2-2-12-2--22-2-<u>∖</u>2≁ 2-22-2-2-2-2 à ATT BTE сцр \_ **k**\_\_\_[ ┕╢┷╬┙ 7 th, Fl. 22 12- 12-25% Η H H4 H4 H4 2-2-1 2-1 14-2- 12- 12-2-1ź-22-22-2-1 2 2-2**z**-2-H Z-2-2-1 2 2-10 CIR 12CIR 10 CIR 3-=1/0-3-#2/0 2-1 18/12 18/12 18/19 18/12 18/17 ېساد ز loth Fl. 18/0 12- 12-2--5% 12-2"-2°--2-HI HI HI HI thz 2- 2-2.+ Z. 8-10 CIR 12 CIR 10 CIR. 7" 8" (C" ЧU 79 IB/IZ 12.9 ب تسعل 12/7 5 th.Fl. 12 HI HI 2<sup>-</sup>-Fy Fy 1ª 12- 12 olzi 2-2-2-14-83-12 1a-7 2-2-12 20 8-12/12 12/7 12/0 12/2 12/2 12/9 4.15.Fl. 1.00 ESO E.30 1----Ň 8/6T.R. 12 HH 3rd. Fl. [2]g" 12/19 12/9 12/2 12/9 B/6 T.P. E-100 8/6 T.R. E.100 8/6 T.R. E.100 22-8/6T.R. 8/6T.R. E-100 E-100 ×2 9/67.8 9/67.8 6.100 6.100 8/6 T.R. 152 12/9 12/9 12/9 13/9 12/7 2nd Fl. 8/0 T.R V.9 16 ¥.4 ¥.5 ¥7 15-15 8×2--14-12-*[*₽ + ] 12-1 12-12-14 -14-12-12- 24-13- 13-12-/2-11 Garage Entrance Heater ¥.2 -¥3 1 2 2 1 2 2 1 2 2 1 2 2 12-#1/0 RH-1 H-2 6-500000 CM. IN 2-3" CONP. H.W. RECIR. NORA TEAPICE Toge 7-INP. REFEIG. UNITS TE T H-19 H-20 H-21 H-22 H-23 H-18 1000 To Loundry z\*8 sime <u>\_\_\_</u> "" ASH HOIST Garage Fl. STORE ON 2#8 STEAM RISER DIAGRAM. G.I. VENT RISER DIAGRAM. ELECTRIC WIRING DIAGRAM No Scale. KITCHEN & TOILET EX. No Scale. NO SCALE REVISED 3/5/2. · MECHANICAL · DETAILS · AND · RISER · DIAGRAMS · No SCALE