

Facilities Assessment Report

November 19, 2015





County of Champaign, Illinois

Facilities Assessment Report

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Purpose of the Study

As part of its mission to best serve its residents and consistent with the second initiative of the strategic plan, Champaign County has contracted Bailey Edward to conduct a facilities assessment report for all of their facilities.

The objectives of the study are to:

- Perform a full assessment of the current condition of the buildings.
- Provide an inventory database of current and short term maintenance, repair, and replacement needs.
- Identify the backlog of deferred maintenance needs for existing buildings.
- Determine a Facilities Condition Index (FCI) to quickly identify the relative condition of each building as compared to a national benchmark.
- Provide a basis of decision making regarding routine maintenance, capital renewal, and functional improvements for existing facilities.
- Determine the overall estimated annual cost needed to keep buildings maintained.

Using the information gathered in this study to develop a proactive response toward maintenance needs, will protect and extend the useful life of buildings, reduce disruptions to employees and constituents for emergency maintenance and repair, and facilitate efficient, effective services for the residents of Champaign County.



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Key Concepts

Below are definitions and explanations of the key terms and values used throughout this report.

Current Replacement Value (CRV)

The Association of Physical Plant Administrators (APPA) has defined the CRV as "the total expenditure in current dollars required to replace a facility...to meet current acceptable standards of construction and comply with regulatory requirements." Older facilities that do not meet current codes should be valued with replacement buildings that are compliant to current codes.

Deferred Maintenance Backlog (DMB)

The DMB is a dollar amount totaling all the maintenance, repairs, upgrades, and component replacement deemed necessary from the facilities assessment. This value does not include projected facility improvements, additions, or new construction.

The DMB value is calculated for a set period of time. This report focuses on the 1-year (0-1 year) and 5-year (0-5 year) deferred maintenance needs. The 0-1 year DMB are the rough estimated cost of work that needs to be done within the next year. The 5-Year DMB includes all maintenance, repair, and replacement costs expected or recommended for the next 5 years.

Deferred Maintenance Backlog Excess (DMB Excess)

The DMB Excess represents the amount that the DMB exceeds the 5% FCI threshold recommended by the APPA for buildings in "Good" condition (see explanation under "FCI" below). For buildings with an FCI below 5%, the DMB Excess is \$0.

For example, consider a building with a CRV of \$1,000,000. If the DMB is found to be \$75,000, the FCI is calculated to be 7.5% ($75,000/1,000,000$). The DMB value at 5% FCI would be \$50,000. The DMB Excess would then be any expense over a 5% FCI, which in this case would be \$25,000 ($75,000-50,000$). This additional \$25,000 is the added expense to bring the building back to "Good" condition.

Annual Cost to Maintain DMB

This is the dollar amount that must be invested each year into the facility in order for the FCI and DMB to stay level. This amount of expense will not do anything to improve the facilities condition index or reduce the deferred maintenance backlog, but is the minimum expense recommended to keep the building from declining.

This value is based on the industry standard of 2% of the CRV, based on straight line depreciation for a 50 year lifespan (2% per year for 50 years = 100% of CRV). However, many building components do not last 50 years before needing replacement, so this value is meant only as a quick rule of thumb.



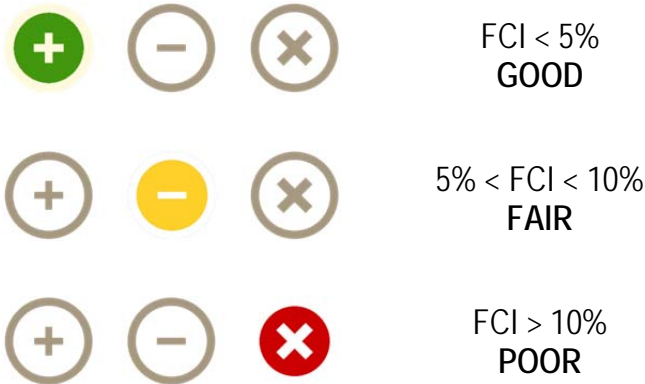
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Facilities Condition Index (FCI)

The FCI is a systematic method of evaluating the current condition of buildings over a given time period. It is calculated as the deferred maintenance backlog divided by the current replacement value (DMB/CRV=FCI).

The APPA has recommended the following guidelines for overall building condition:



- Buildings in “Good” condition are typically newer facilities with few deficiencies and require little more than routine maintenance and system checks.
- Buildings in “Fair” condition are typically slightly older buildings that require more substantial maintenance and replacement of aging components.
- Buildings in “Poor” condition have either *more significant* deficiencies that require replacement or repair, or a *larger quantity* of components needing to be upgraded or repaired.

Priority Issues vs. 0-5 Year Issues

The FCI can be calculated for different periods of time. This report highlights Priority Issues (0-1 Year Issues) and 0-5 Year Issues and calculates the DMB and FCI for each time period.

Priority Issues are typically life safety, code compliance, or failed systems or components that need immediate attention for the building to be safe and used for its intended purpose.

In addition to the priority issues, 0-5 Year Issues include less critical maintenance, replacement of aging building systems or components, and upgrades to finishes and fixtures. This value is often a better indicator of the building's *overall* condition and maintenance need than the 1-Year value.



County of Champaign, Illinois

Facilities Assessment Report

Methodology

In order to best understand the existing condition of the county facilities, several steps were taken. Bailey Edward and our consultant team conducted site survey building assessments by walking through each building with maintenance personnel. In addition, they reviewed all existing construction drawings, renovation drawings, and maintenance records available from the County.

The information gathered through these processes was organized and categorized using nationally accepted techniques as recommended by the APPA. For the purposes of assessment, the buildings were separated into a series of building components. Each component was assigned a percentage of the CRV, such that the sum of the components equaled the full replacement value. The components and the rule-of-thumb percentage values are shown below. Due to the difference in configurations, the typical CRV percentages are different for larger buildings (over 15,000 SF) and smaller buildings (under 15,000 SF). The percent of CRV values varied slightly among the buildings as needed to more accurately represent each unique case.

Building Use Types

The Current Replacement Value for each building was determined using per square foot values obtained from Whitestone and RS Means. These are regionally weighed and are listed below.

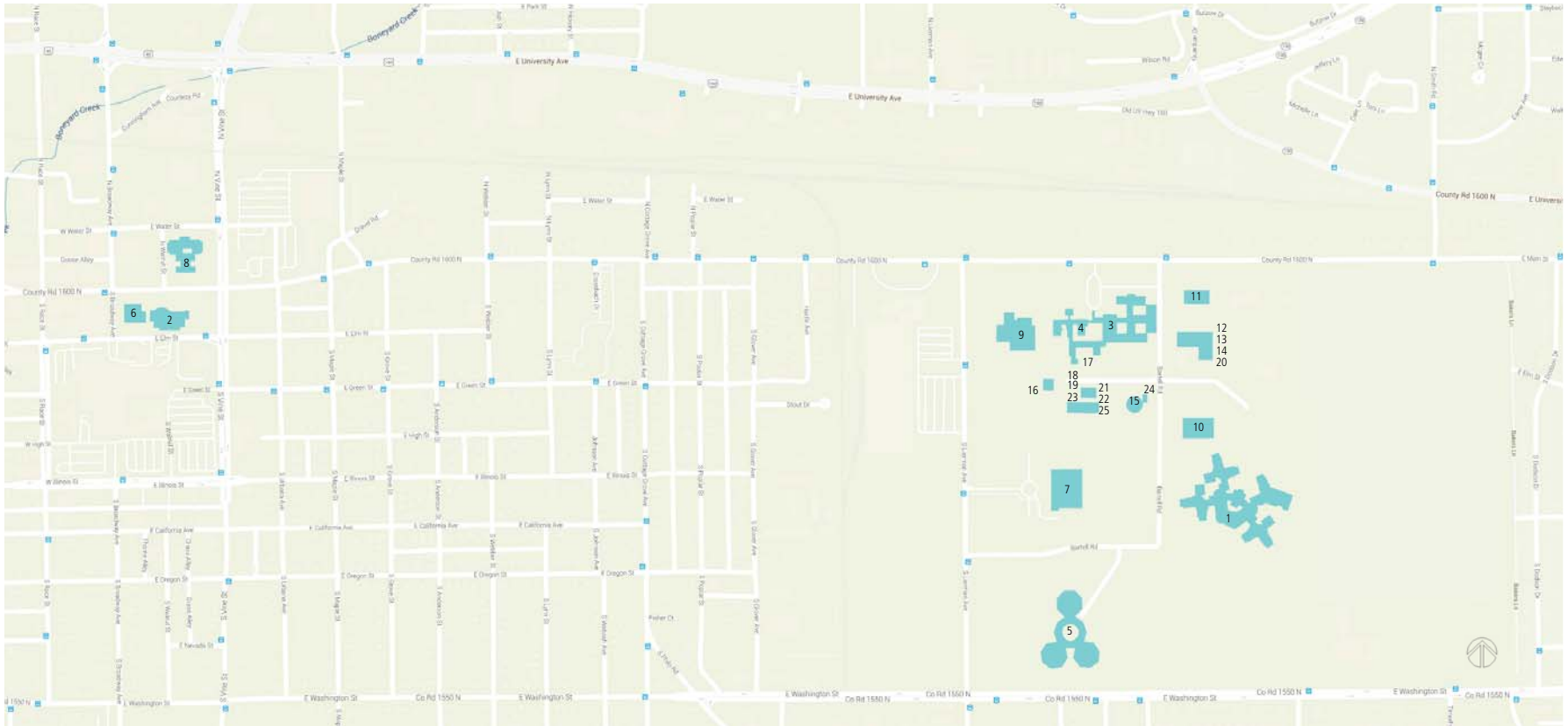
Component Name	Cost / SF
Central Plant, Boiler	\$676
County Jail	\$214
Courthouse	\$290
Election Supply	\$167
Maintenance Shop	\$230
Mortuary	\$252
Nursing Home	\$222
Office Building	\$211
Operation Center	\$211
Service Garage	\$285
Tactics Training	\$222
Salt Dome	\$85
Pre-Engineered Metal Building	\$115
Animal Control	\$115
Garages	\$50

County Map The following page is a county map highlighting the buildings surveyed for this report.



County of Champaign, Illinois

County Map



LEGEND

- | | | | |
|----------------------------------|---------------------------------|--------------------------|---------------------|
| 1 Nursing Home | 8 Sheriff / Correctional Center | 15 Highway Salt Dome | 22 ILEAS Garage 2 |
| 2 Courthouse Addition | 9 Highway Fleet Maintenance | 16 Animal Control | 23 ILEAS Garage 3 |
| 3 ILEAS Original Building | 10 Juvenile Detention Center | 17 ILEAS Boiler House | 24 Salt Dome Garage |
| 4 ILEAS Training Center | 11 Emergency Operation Center | 18 Sheriff Garage | 25 ILEAS Garage 1 |
| 5 Brookens Administrative Center | 12 Coroner's Office | 19 County Highway Garage | |
| 6 Courthouse | 13 Physical Plant Shop | 20 Nursing Home Storage | |
| 7 Adult Detention Facility | 14 Election Supply | 21 EMA Garage | |



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Facilities Assessment Report

Summary of Results

This report focuses on twenty-five county owned buildings. Included below is a list of facilities reviewed and the square footage as given by the county:

	Facility	SF
1	Nursing Home	133,192
2	Courthouse Addition	99,500
3	ILEAS Original Building	105,000
4	ILEAS Training Center	95,436
5	Brookens Administrative Center	93,060
6	Courthouse	46,839
7	Adult Detention Facility	57,000
8	Sheriff / Correctional Center	55,000
9	Highway Fleet Maintenance	43,975
10	Juvenile Detention Center	31,000
11	Emergency Operation Center (METCAD)	19,600
12	Coroner's Office	5,750
13	Physical Plant Shop	11,956
14	Sheriff Garage	7,800
15	Election Supply	5,895
16	Highway Salt Dome	7,854
17	Animal Control	4,500
18	County Highway Garage	4,320
19	ILEAS Boiler House	1,200
20	EMA Garage	2,880
21	ILEAS Garage 2	2,880
22	ILEAS Garage 3	2,880
23	Nursing Home Storage	1,444
24	ILEAS Garage 1	1,440
25	Salt Dome Garage	1,400

This represents a total of 841,801 square feet reviewed for this facility condition assessment.

According to APPA standards, the 1-year condition of the 25 buildings overall is "Fair". This is due primarily to the condition of HVAC systems past their useful life, critical issues, various minor code deficiencies, and the inclusion of the ILEAS Original Building (previous poor farm).

The 5-year outlook, however, requires more attention. A substantial amount of deferred maintenance has accumulated and the 5 year FCI value is considered "Poor", with a FCI at 11.8%. The following are common and key findings leading to this result:

- Some roofs are past their useful life and require either repair or full replacement. This includes primarily shingle roofs or EPDM roof systems.
- Some older facilities still have original window systems, which are single pane and do not have thermal breaks in the frames. Full replacement of these windows with energy efficient windows is recommended.
- Many buildings are in need of isolated exterior brick repair or significant repointing of mortar that has deteriorated, including some lintel restoration. Efflorescence at some of the buildings could be a sign of a larger water infiltration issue and should be investigated.
- Room finishes such as flooring, wall coverings, and ceilings are in need of replacement throughout many facilities.
- Many areas of broken or damaged sidewalk were observed.
- ILEAS Original Building (previous poor farm and Nursing Home) is currently unoccupied and uninhabitable in its current condition. Significant repairs, ADA modifications and mold removal/

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County of Champaign, Illinois

Facilities Assessment Report

environmental abatement are needed to make this building safe and habitable.

- Light fixtures in several assessed facilities are outdated or inefficient. An upgrade to high efficiency fixtures is recommended.
- Many mechanical units are beyond their useful life and should be replaced. This includes air handling units, boilers, chillers, and other types of units. In addition, many facilities do not have any outside air intake which needs to be installed to meet code.
- Water supply systems do not have localized shutoff valves which create difficulties when working on components.
- Most facilities providing 24 hour services currently have generators however, there are still some facilities in need of generators.

Individual Facility Assessments

See below for an overview of all assessed buildings, followed by individual county buildings.



County of Champaign, Illinois

All Assessed Facilities Overview

Building Name	CRV	0-5 Year DMB	5-Year FCI
Nursing Home	\$29,647,207	\$1,787,400	6.0%
Courthouse Addition	\$28,860,970	\$1,002,200	3.5%
ILEAS Original Building	\$23,415,000	\$10,138,000	43.3%
ILEAS Training Center	\$21,243,099	\$1,093,000	5.1%
Brookens Admin Center	\$19,600,297	\$1,841,000	9.4%
Courthouse	\$13,586,120	\$548,300	4.0%
Adult Detention Facility	\$12,194,010	\$1,695,000	13.9%
Sheriff / Correctional Center	\$11,766,150	\$2,033,800	17.3%
Highway Fleet Maintenance	\$8,890,666	\$67,300	0.8%
Juvenile Detention Center	\$6,631,830	\$379,300	5.7%
Emergency Operation Center	\$4,128,152	\$336,000	8.1%
Coroner's Office	\$1,449,000	\$140,500	9.7%
Physical Plant Shop	\$1,374,342	\$32,000	2.3%
Election Supply	\$677,630	\$16,700	2.5%
Highway Salt Dome	\$667,590	\$166,050	24.9%
Animal Control	\$517,275	\$186,900	36.1%
ILEAS Boiler House	\$480,000	\$255,000	53.1%
Sheriff Garage	\$390,000	\$91,400	23.4%
County Highway Garage	\$216,000	\$14,000	6.5%
Nursing Home Storage	\$165,988	\$600	0.4%
EMA Garage	\$144,000	\$50,500	35.1%
ILEAS Garage 2	\$144,000	\$8,500	5.9%
ILEAS Garage 3	\$144,000	\$11,000	7.6%

Overall CRV

\$186,524,327

Annual Cost to Maintain DMB

\$5,595,730

Vital Statistics

Number of Buildings	25
Oldest Building	1901
Newest Building	2010
Average Year Built	1999
Average Cost / SF	\$223

0-5 Year Issues

FCI

11.8%

DMB

\$21,952,450

DMB Excess

\$12,626,234

FCI

11.8%

Rating

POOR





County of Champaign, Illinois

All Assessed Facilities Overview

Building Name	CRV	0-5 Year DMB	5-Year FCI
Salt Dome Garage	\$119,000	\$53,000	44.5%
ILEAS Garage 1	\$72,000	\$5,000	6.9%
Total	\$186,524,327	\$21,952,450	11.8%

Overall CRV

\$186,524,327

Annual Cost to Maintain DMB

\$5,595,730

Vital Statistics

Number of Buildings	25
Oldest Building	1901
Newest Building	2010
Average Year Built	1999
Average Cost / SF	\$223

0-5 Year Issues

FCI

11.8%

DMB

\$21,952,450

DMB Excess

\$12,626,234

FCI

11.8%

Rating

POOR





Observation Highlights:

- This building has a back-up generator.
- Brick masonry requires cleaning, minor re-pointing.
- Metal materials on and around exterior deteriorating and staining concrete.
- Exterior soffit panels missing, exposing non-weather resistant materials.
- Cosmetic scratches and damage to interior doors and frames.
- Interior flooring in good condition, minor staining and wear from normal use.
- Wall finishes in generally good condition, some impact damage and scratches.
- Tile floor and base in kitchen damaged and cracked. Some missing grout.
- Ceiling tiles in generally good condition, some water stains and damaged tiles.
- Existing nurse’s call system has reliability issues and should be replaced.
- The return air system has several operational and control issues.

CRV
\$29,647,207







Annual Cost to Maintain DMB
\$889,416

Vital Statistics

Use Type
Nursing Home

Floors	Built	Area
2	2005	133,192 SF

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
0.9%	6.0%
<i>DMB</i>	<i>DMB</i>
\$256,400	\$1,787,400
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$305,040

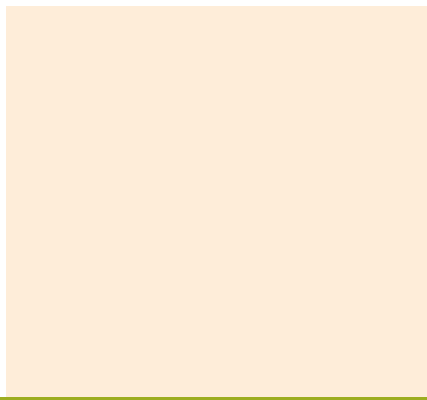
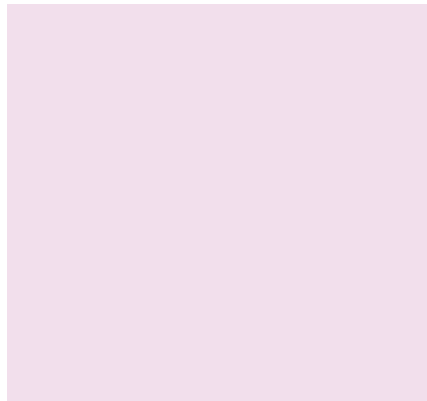
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	FAIR
  	  

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County of Champaign, Illinois

Nursing Home





County of Champaign, Illinois

Courthouse Addition



Observation Highlights:

- This building has a back-up generator.
- Interior walls and surfaces in good condition, minor drywall damage.
- Wall covering in courtrooms damaged and torn in various locations.
- Courtroom carpet tiles worn.
- Epoxy coating heavily worn and masonry crack in holding cells.
- Gutters and flashing dented in places.
- Standing water, moss and plants growing in roof ballast.
- Some masonry efflorescence and joint deterioration on facade.
- Scratches and some damage to interior wood doors.
- Steel mansard supporting structure needs to be painted.
- HVAC provided by air handling units, boilers, and chillers. Shared with original building.

CRV

\$28,860,970

Annual Cost to Maintain DMB

\$865,829

Vital Statistics

Use Type
Courthouse

Floors	Built	Area
4	2002	99,500 SF

<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i>	<i>FCI</i>
0.2%	3.5%
<i>DMB</i>	<i>DMB</i>
\$52,600	\$1,002,200
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$0

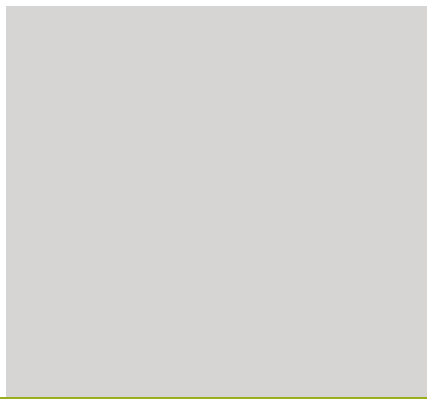
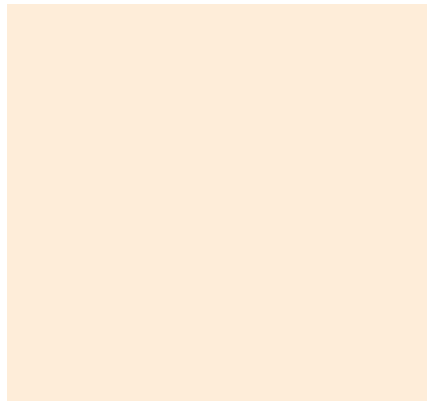
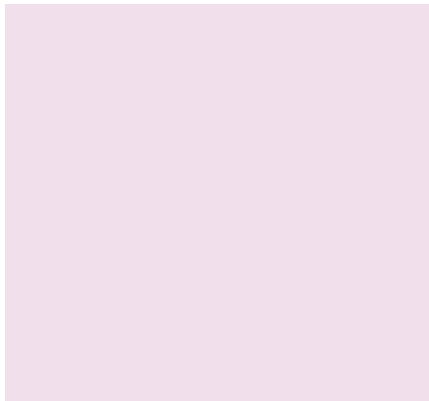
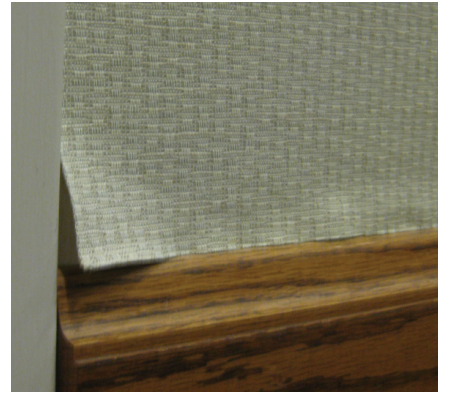
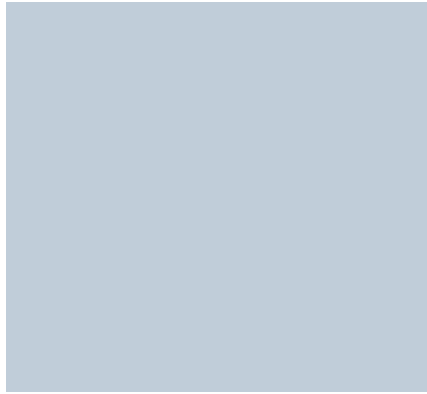
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	GOOD

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County of Champaign, Illinois

Courthouse Addition





County of Champaign, Illinois

ILEAS Original Building



Observation Highlights:

- The building is in various states of disrepair as a result of limited use/abandonment.
- Most of the flooring is damaged or missing; Interior wall finishes are worn and peeling.
- Ceilings tiles and gypsum board ceilings are heavily damaged and deteriorated.
- Fire doors in basement do not meet code requirements.
- There is mold present at areas of failing roof.
- Landscaping is overgrown and encroaching on the building; organic material in gutters.
- Water infiltration and efflorescence on exterior brick.
- Asphalt roofing requires total replacement.
- Roof structure needs to be replaced in several areas.
- All MEP infrastructure requires replacement.
- Spaces served by 4 pipe fan coil units that are nearing end of useful life.

CRV
\$23,415,000

Annual Cost to Maintain DMB
\$702,450

Vital Statistics

Use Type
Tactics Training

Floors	Built	Area
3	1916, 1920 1936	105,000 SF

<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i>	<i>FCI</i>
33.5%	43.3%
<i>DMB</i>	<i>DMB</i>
\$7,815,000	\$10,138,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$6,680,250	\$8,967,250

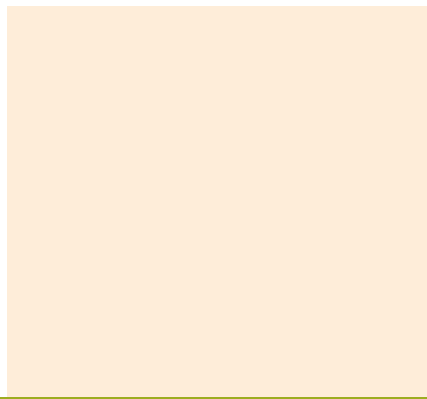
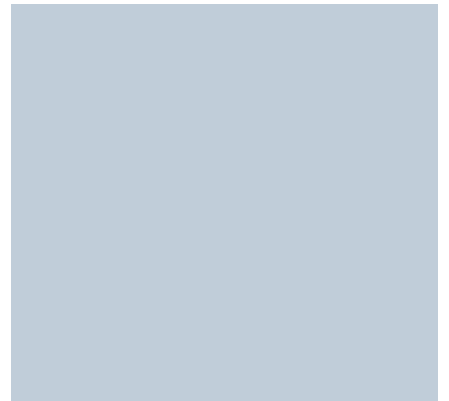
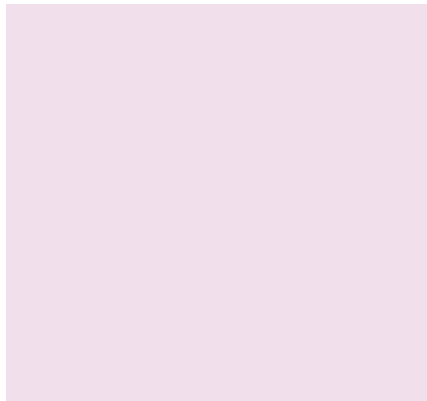
<i>1 Year Rating</i>	<i>5 Year Rating</i>
POOR	POOR

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County of Champaign, Illinois

ILEAS Original Building



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bailey edward



Observation Highlights:

- This building has a back-up generator.
- Exterior brick planters are cracked.
- Some exterior walkways are cracked and pose tripping hazards.
- Two wings require interior finish upgrade.
- Grout in tile flooring is stained, some tile broken on walls.
- galvanized piping nearing the end of its useful life.
- VCT is stained and damaged at tactical areas.
- Exterior stone sealant is deteriorated, signs of water penetration.
- Exterior window storefront panels, mullion end caps missing and glass is cracked.
- Organic material found inside facility.
- Spaces served by 4 pipe fan coil units that are nearing end of useful life.

CRV

\$21,243,099

Annual Cost to Maintain DMB

\$637,293

Vital Statistics

Use Type

Tactics Training/Offices

Floors	Built	Area
2	1971	95,436 SF
	Renovated	
	2008	

Priority Issues

FCI

1.6%

DMB

\$332,000

DMB Excess

\$0

0-5 Year Issues

FCI

5.1%

DMB

\$1,093,000

DMB Excess

\$30,845

1 Year Rating

GOOD



5 Year Rating

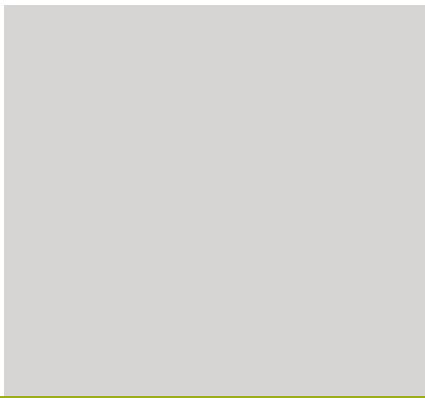
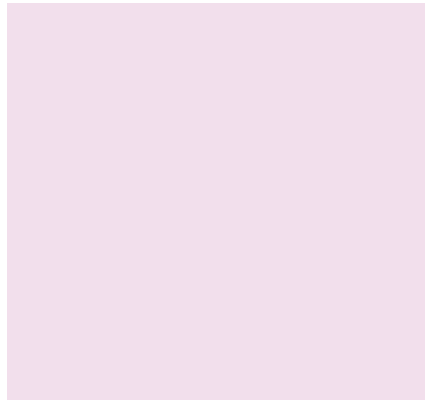
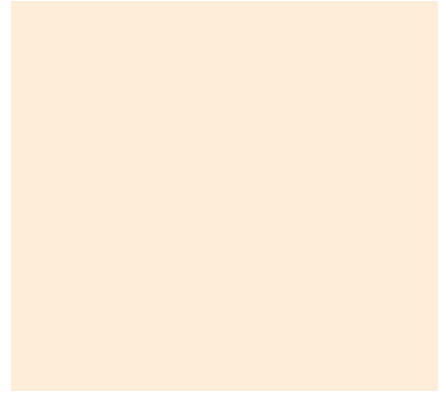
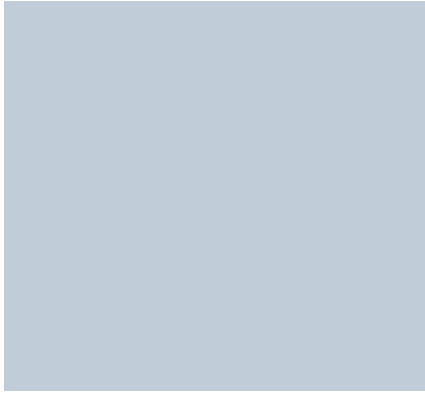
FAIR





County of Champaign, Illinois

ILEAS Training Center





County of Champaign, Illinois

Brookens Administrative Center



Observation Highlights:

- This building has a back-up generator.
- Roof and soffit replacement needed at portion of facility.
- Downspouts are in need of repair, many are dented or loose.
- Parking lot recently resurfaced and is in good condition.
- Minor brick repair and sealant replacement required.
- Sidewalks cracked and damaged in places.
- Interior wall finishes in generally good condition.
- Exterior insulation is heavily damaged or missing.
- Roofing membrane in fair condition, Pod 100 and 200 need to be replaced.
- Served by small DX cool, gas heat RTUs nearing end of useful life.

CRV

\$19,600,297

Annual Cost to Maintain DMB

\$588,009

Vital Statistics

Use Type

Office Building/Recreation

Floors	Built	Area
2	1970	93,060 SF
	Renovated	
	1999	

Priority Issues

FCI

3.6%

DMB

\$713,000

DMB Excess

\$0

0-5 Year Issues

FCI

9.4%

DMB

\$1,841,000

DMB Excess

\$860,985

1 Year Rating

GOOD



5 Year Rating

FAIR



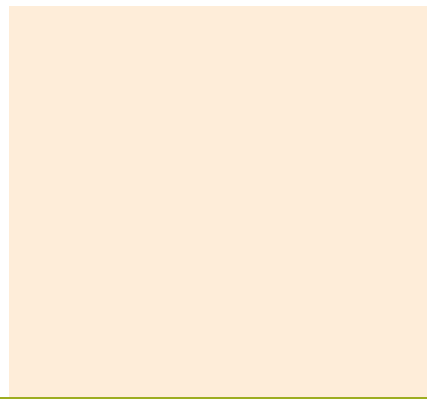
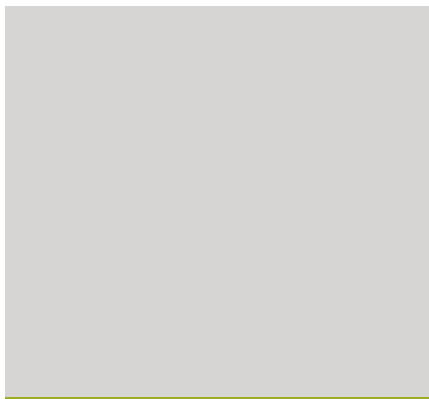
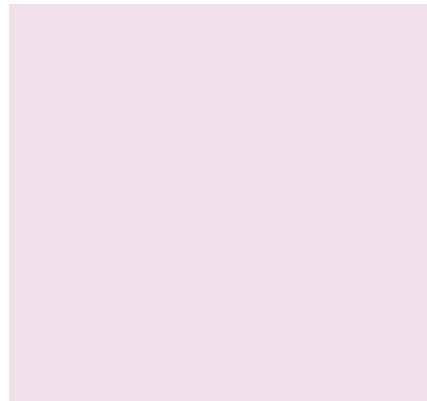
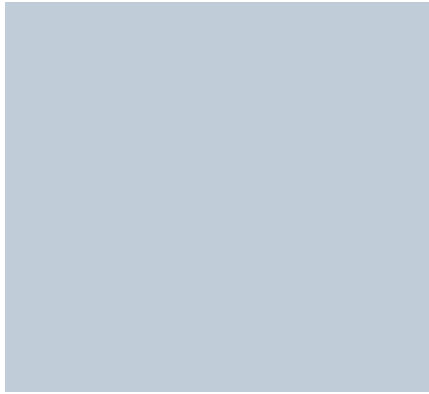
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County of Champaign, Illinois

Brookens Administrative Center



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Observation Highlights:

- This building has a back-up generator.
- Stair treads worn and damaged.
- Carpet in generally good condition, stained and worn in select locations.
- Decorative marble chair rail stained and shows signs of deteriorated grout.
- Drywall finishes in good condition, some damage at corners and window jambs.
- Asphalt shingles in good condition.
- Wood steps and platform on roof heavily deteriorated and need to be replaced.
- Roof ballast missing and uneven in locations.
- Exterior brick and stone in generally good condition, some cracks and damaged stone.
- EPDM roof requires replacement.
- HVAC provided by air handling units, boilers, and chillers. Shared with addition.

CRV
\$13,586,120







Annual Cost to Maintain DMB
\$407,584

Vital Statistics

Use Type
Courthouse

Floors	Built	Area
4	1901	46,839 SF
	Renovated	
	2002	

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
0.7%	4.0%
<i>DMB</i>	<i>DMB</i>
\$99,300	\$548,300
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$0

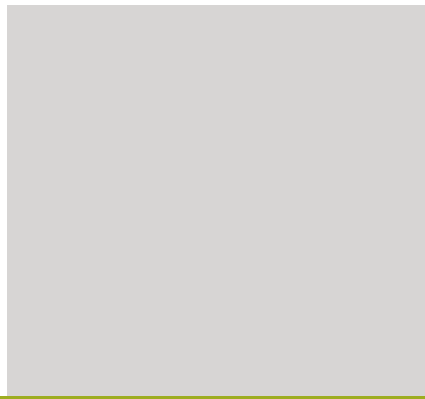
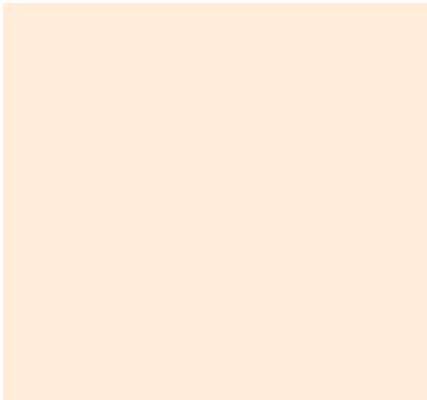
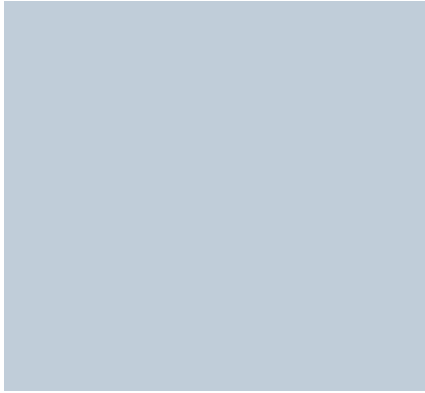
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	GOOD
  	  

responsive a|e|c



County of Champaign, Illinois

Courthouse





County of Champaign, Illinois

Adult Detention Facility



Observation Highlights:

- This building has a back-up generator.
- Overall the building is in fair condition.
- Interior sealed concrete is heavily worn with some large cracks.
- Metal doors are scratched and dented.
- Cell doors show signs of deterioration and impact damage.
- Floor drains are heavily rusted and filled with debris.
- Sally port doors are oversized and prone to failure.
- Security system is outdated and needs to be replaced.
- Paint finishes are worn and deteriorating.
- Carpeting and millwork is heavily worn with some staining.
- Served by four mechanical units installed in two rooftop penthouses.

CRV

\$12,194,010

Annual Cost to Maintain DMB

\$365,820

Vital Statistics

Use Type
County Jail

Floors	Built	Area
2	1996	57,000 SF

<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i>	<i>FCI</i>
2.5%	13.9%
<i>DMB</i>	<i>DMB</i>
\$304,000	\$1,695,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$1,085,300

1 Year Rating

GOOD

+
-
×

5 Year Rating

POOR

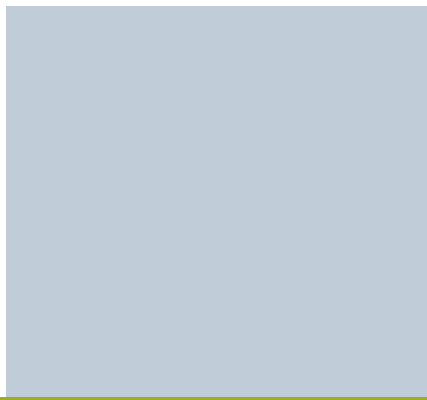
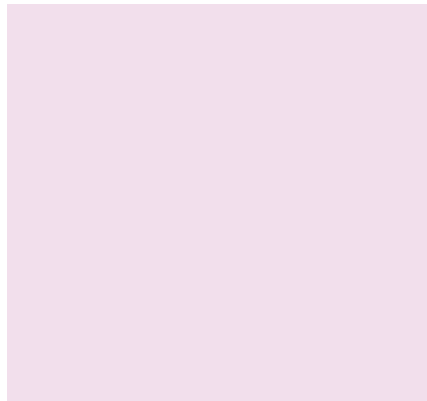
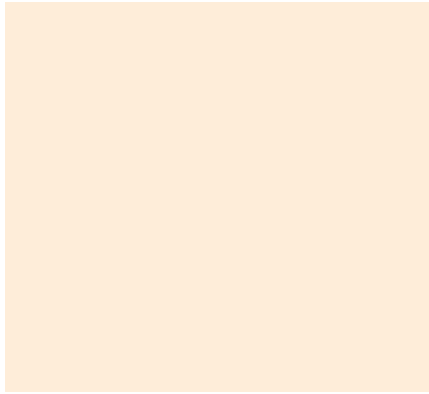
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County of Champaign, Illinois

Adult Detention Facility





Observation Highlights:

- This building has a back-up generator.
- Original mechanical equipment requires replacement.
- Masonry joint deterioration, minor cracking, and plant growth.
- Major brick efflorescence on walls around building and screen walls.
- Stone parapet stained, possible moisture penetration.
- Exterior metal doors have deteriorated.
- Sun screen at ceiling enclosure in recreation area is heavily damaged.
- VCT adhesive failed and tiles are missing.
- Interior CMU cracked in multiple locations.
- Served by two boilers and a chiller original to building.
- Cooling tower leaks and is not used.







CRV
\$11,766,150
Annual Cost to Maintain DMB
\$352,985

Vital Statistics

Use Type
County Jail

Floors	Built	Area
2	1980	55,000 SF

<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i>	<i>FCI</i>
7.8%	17.3%
<i>DMB</i>	<i>DMB</i>
\$919,000	\$2,033,800
<i>DMB Excess</i>	<i>DMB Excess</i>
\$330,693	\$1,445,493

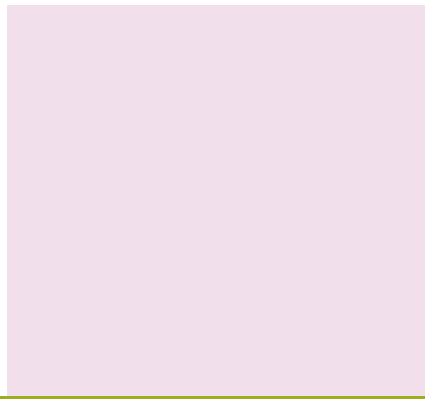
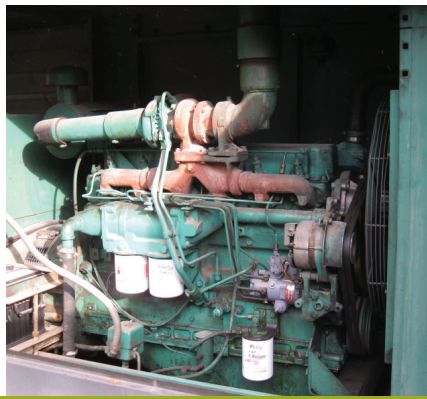
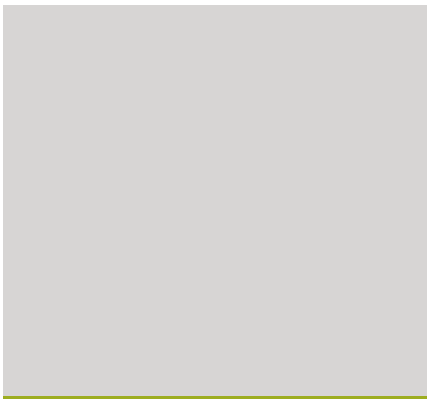
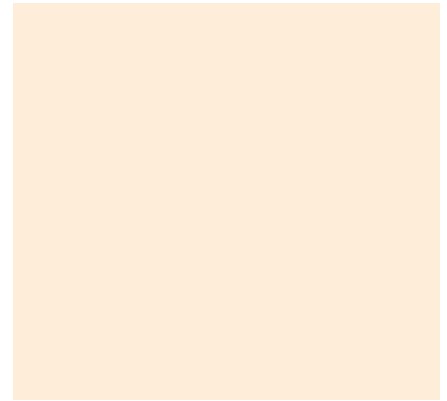
<i>1 Year Rating</i>	<i>5 Year Rating</i>
FAIR	POOR
  	  

responsive a|e|c



County of Champaign, Illinois

Sheriff / Correctional Center





County of Champaign, Illinois

Highway Fleet Maintenance



Observation Highlights:

- This building has a back-up generator.
- Overall, building is in very good condition.
- Minor cracking and efflorescence at exterior precast panels.
- Water infiltration at roof parapet walls due to exposed steel and cracked panels.
- Metal roof in good condition. Sealant replacement recommended.
- Mechanical systems in good condition with minor repairs needed.
- Power and data sufficient for current needs.
- Most interior finishes still in good condition. Minor updating and repairs recommended.
- Parking lot recently resealed. Concrete pathways in good condition.
- No deficiencies noted in structural system.
- Offices served by small blower coil units, maintenance exhausted by gas fired MAU's

CRV

\$8,890,666

Annual Cost to Maintain DMB

\$266,720

Vital Statistics

Use Type
Service Garage

Floors	Built	Area
2	2007	43,975 SF

Priority Issues

FCI

0.1%

DMB

\$10,200

DMB Excess

\$0

0-5 Year Issues

FCI

0.8%

DMB

\$67,300

DMB Excess

\$0

1 Year Rating

GOOD



5 Year Rating

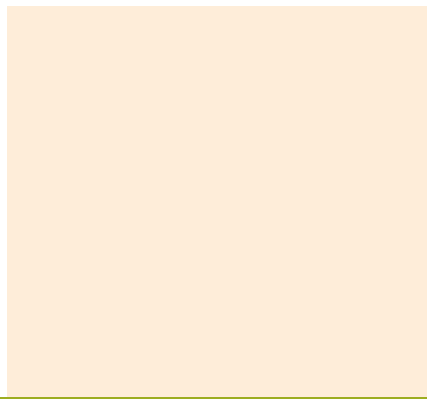
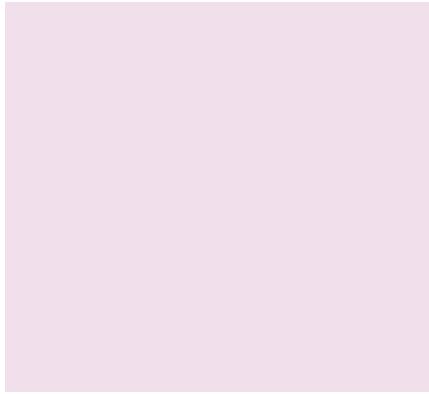
GOOD





County of Champaign, Illinois

Highway Fleet Maintenance



responsive a|e|c

bailey edward



County of Champaign, Illinois

Juvenile Detention Facility



Observation Highlights:

- This building has a back-up generator.
- Interior carpet in generally good condition, minor wear and stains from normal use.
- Paint peeling and flaking off interior window sills and jambs.
- Ceiling tiles stained around HVAC vents.
- Heavy wear and staining to VCT in bathrooms.
- Interior metal doors show signs of wear and rust. Trim and frame paint peeling in areas.
- Sealed concrete flooring stained in some places, mostly along walls.
- Vinyl wall base heavily damaged and worn.
- Main entrance threshold worn, VCT chipped.
- Exterior is in generally good condition, some water stains and minor cracks.
- Served by several small rooftop units and are in good condition.

CRV

\$6,631,830

Annual Cost to Maintain DMB

\$198,955

Vital Statistics

Use Type
County Jail

Floors	Built	Area
2	2000	31,000 SF

Priority Issues

FCI

3.3%

DMB

\$220,300

DMB Excess

\$0

0-5 Year Issues

FCI

5.7%

DMB

\$379,300

DMB Excess

\$47,709

1 Year Rating

GOOD



5 Year Rating

FAIR



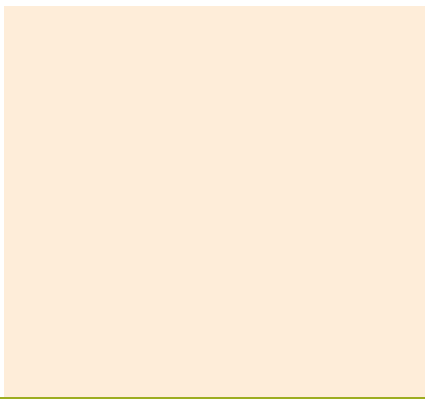
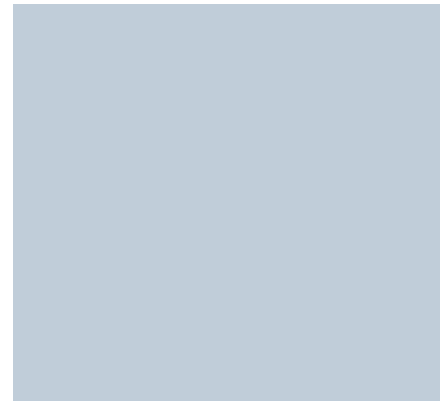
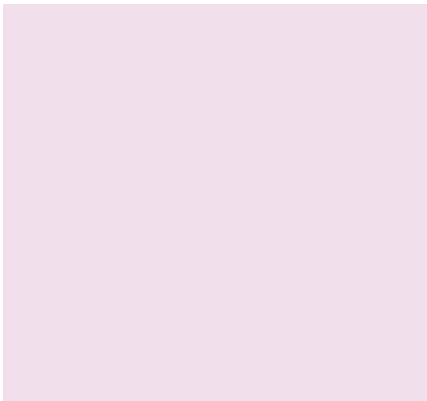
responsive a|e|c

bailey edward



County of Champaign, Illinois

Juvenile Detention Facility





County of Champaign, Illinois

Emergency Operation Center (METCAD)



Observation Highlights:

- This building has a back-up generator.
- AHU near the end of its useful life.
- Overall, the building is in good condition.
- The interior wall finishes are in generally good condition, normal use wear.
- Carpet and VCT surfaces are in good condition.
- Exterior brick is worn, some sealant damage at windows.
- Railings along accessible ramp are deteriorating.
- Minor cracks on ramp and walk.
- Gutters in good condition, some paint peeling.
- Roof will need replacement.
- Served by AHU's and condensing units, AHU's nearing end of useful life.

CRV

\$4,128,152

Annual Cost to Maintain DMB

\$123,845

Vital Statistics

Use Type
Operation Center

Floors	Built	Area
2	1960	19,600 SF
	Renovated	
	2008	

Priority Issues

FCI

0.1%

DMB

\$3,000

DMB Excess

\$0

0-5 Year Issues

FCI

8.1%

DMB

\$336,000

DMB Excess

\$129,592

1 Year Rating

GOOD



5 Year Rating

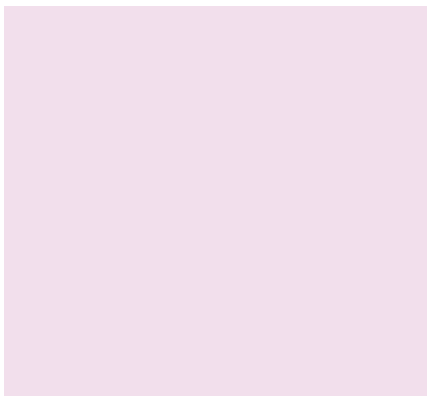
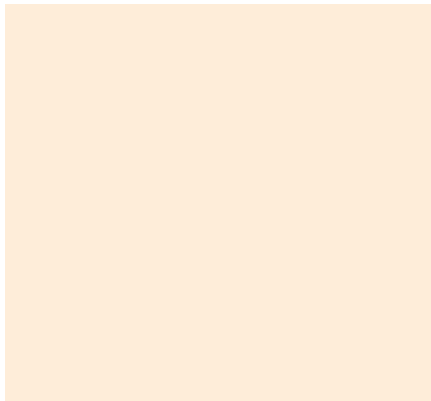
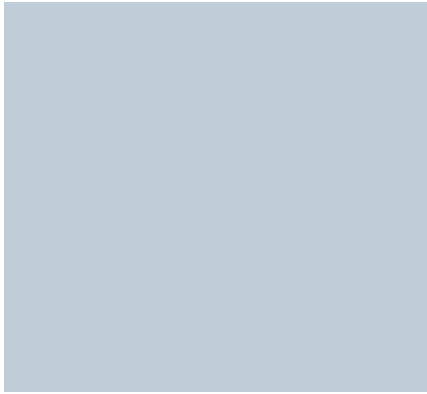
FAIR





County of Champaign, Illinois

Emergency Operation Center (METCAD)





County of Champaign, Illinois

Coroner's Office



Observation Highlights:

- This building has no back-up generator.
- The building is in generally good condition.
- Ceiling tiles show signs of minor water damage.
- VCT flooring is worn and scratched in places of heavy use. Some joints are separated.
- Drywall is in good condition, minor scratches and cosmetic damage.
- Interior doors show signs of wear and some damage to finishes.
- Exterior wall panels have minor surface damage.
- Insulation along foundation is damaged, missing in places.
- Windows are in good condition.
- Served by packaged AHU at grade. AHU is in good condition.

CRV
\$1,449,000

Annual Cost to Maintain DMB
\$43,470

Vital Statistics

Use Type
Mortuary

Floors 1	Built 2010	Area 5,750 SF
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<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i> 8.3%	<i>FCI</i> 9.7%
<i>DMB</i> \$120,000	<i>DMB</i> \$140,500
<i>DMB Excess</i> \$47,550	<i>DMB Excess</i> \$68,050

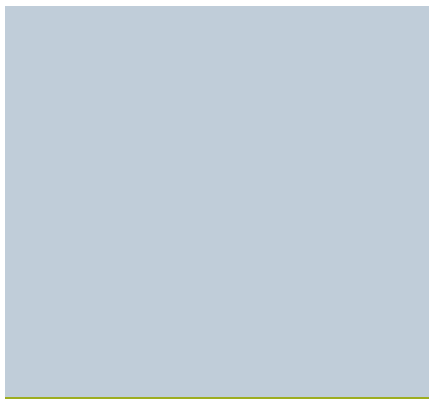
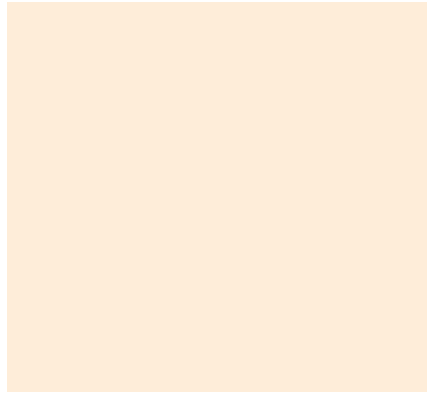
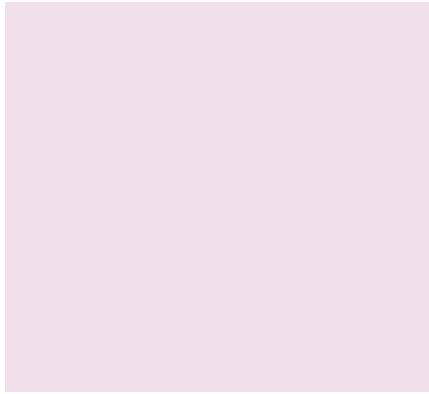
<i>1 Year Rating</i>	<i>5 Year Rating</i>
FAIR	FAIR

responsive a|e|c



County of Champaign, Illinois

Coroner's Office





Observation Highlights:







- Building is overall in good condition.
- Metal wall panels on exterior in generally good condition, minor damage.
- Interior sealed concrete flooring stained and worn.
- VCT flooring heavily scratched and worn, stained in some areas.
- Minor drywall damage, some impact damage and scratches.
- Insulation behind exposed structure stained in places on ceiling and walls.
- Insulation along foundation damaged and missing in places.
- Heavy water damage to landscaping at downspouts.
- Sealant failure along edge between metal panels and concrete.
- Ventilation provided by roof mounted exhaust fan in good condition.
- Heating provided by three gas fired unit heaters in good condition.

CRV
 \$1,374,342
Annual Cost to Maintain DMB
 \$41,230

Vital Statistics
 Use Type
Maintenance Shop

Floors	Built	Area
1	2010	11,956 SF

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
0.4%	2.3%
<i>DMB</i>	<i>DMB</i>
\$5,000	\$32,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$0

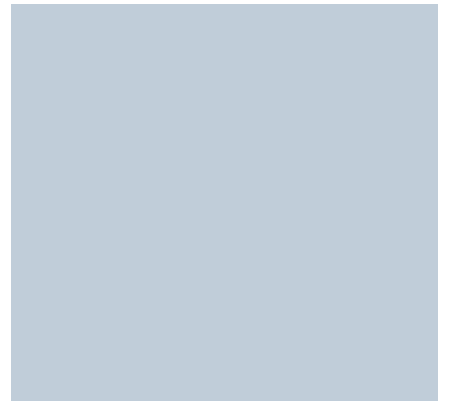
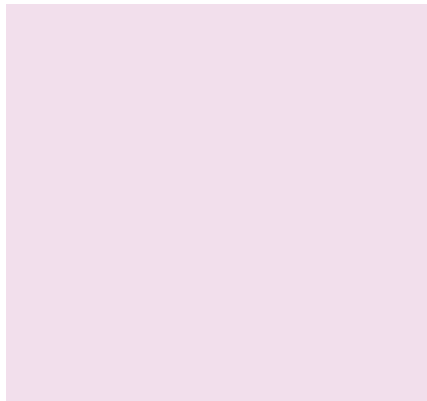
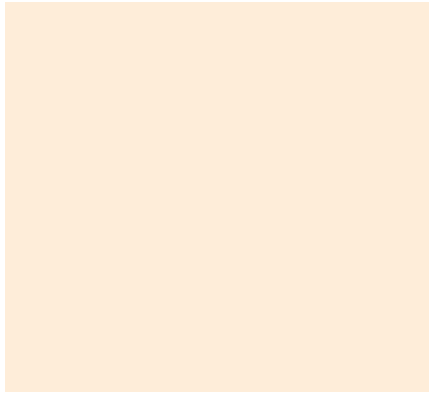
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	GOOD
  	  

responsive a|e|c



County of Champaign, Illinois

Physical Plant Shop





County of Champaign, Illinois

Election Supply



Observation Highlights:

- This building is in good condition.
- Minor dents and cosmetic damage to exterior metal panels.
- Windows are in good condition.
- Foundation insulation is damaged and missing in places.
- Interior sealed concrete flooring is stained and worn.
- Ceiling tiles are in good condition, few missing or stained.
- Rubber wall base missing in places.
- VCT in bathroom worn and stained.
- Carpet tiles in good condition.
- Interior drywall and finishes in good condition.
- HVAC provided by unit mounted on grade

CRV
\$677,630

Annual Cost to Maintain DMB
\$20,329

Vital Statistics

Use Type
Election Supply

Floors 1	Built 2010	Area 5,895 SF
-------------	---------------	------------------

<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i> 0.0%	<i>FCI</i> 2.5%
<i>DMB</i> \$0	<i>DMB</i> \$16,700
<i>DMB Excess</i> \$0	<i>DMB Excess</i> \$0

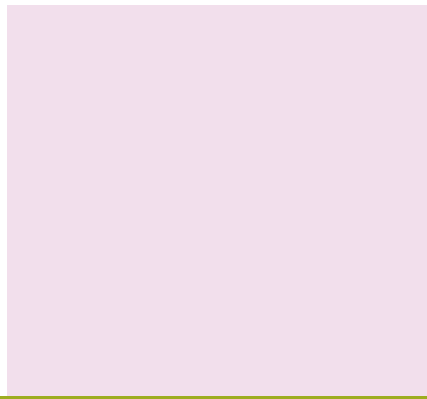
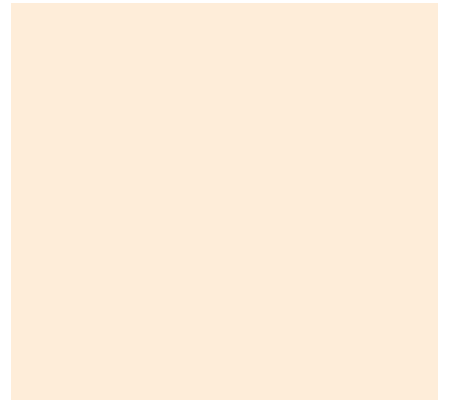
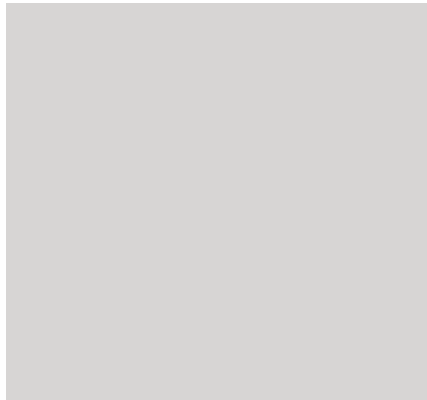
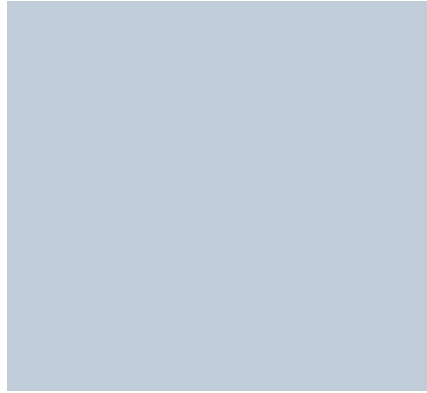
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	GOOD

responsive a|e|c



County of Champaign, Illinois

Election Supply





Observation Highlights:

- Overall the building is in fair condition.
- All metal in the building is deteriorated, some has completely deteriorated.
- Rusty metal is staining surrounding concrete surfaces.
- Most concrete surfaces, mainly by the entrance, are pitted and have exposed aggregate.
- Exposed wood at entrance is deteriorated.
- Asphalt shingles are in generally good condition.
- Interior wood dome structure is in good condition.
- Concrete seals around exterior are worn and deteriorated.
- Standing water around foundations.

CRV
\$667,590







Annual Cost to Maintain DMB
\$20,028

Vital Statistics

Use Type
Salt Dome

Floors	Built	Area
1	2005	7,854 SF

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
3.0%	24.9%
<i>DMB</i>	<i>DMB</i>
\$20,000	\$166,050
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$132,671

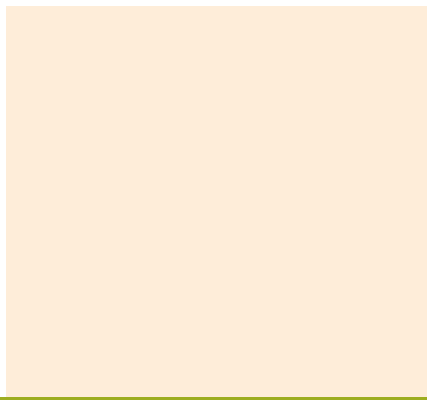
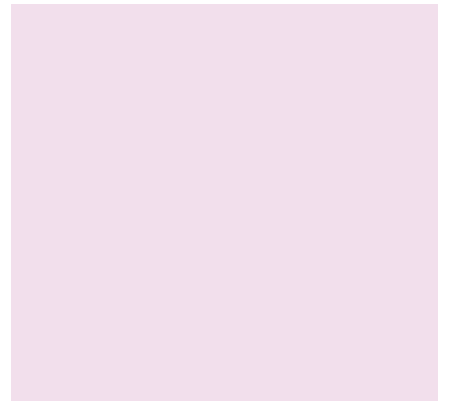
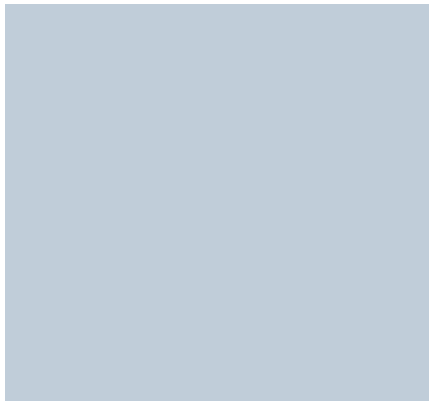
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	POOR
  	  

responsive a|e|c



County of Champaign, Illinois

Highway Salt Dome





Observation Highlights:

- This building has no back-up generator.
- Exterior metal wall panels have impact damage in multiple locations.
- Downspouts are in good condition, minor damage.
- Exterior wood door trim is deteriorated, paint peeling.
- Threshold sealants are failed.
- Metal doors are scratched and worn.
- Ceiling tiles are in fair condition, some large stains in places.
- Sealed concrete flooring is stained and worn.
- Overhead doors have impact damage on the exterior.
- Windows are in fair condition, some deterioration around edges of window frames.
- HVAC provided by two packaged AHU's on grade and are in good condition.

CRV

\$517,275

Annual Cost to Maintain DMB

\$15,518

Vital Statistics

Use Type
Animal Control

Floors	Built	Area
1	2005	4,500 SF

Priority Issues

FCI

0.5%

DMB

\$2,400

DMB Excess

\$0

0-5 Year Issues

FCI

36.1%

DMB

\$186,900

DMB Excess

\$161,036

1 Year Rating

GOOD



5 Year Rating

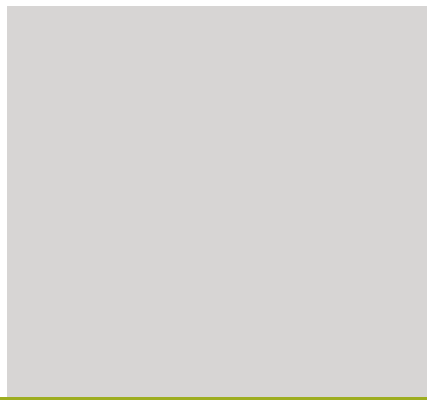
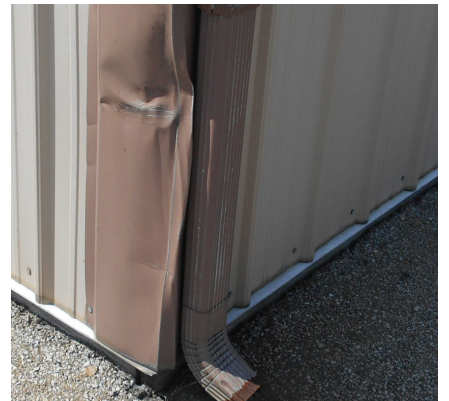
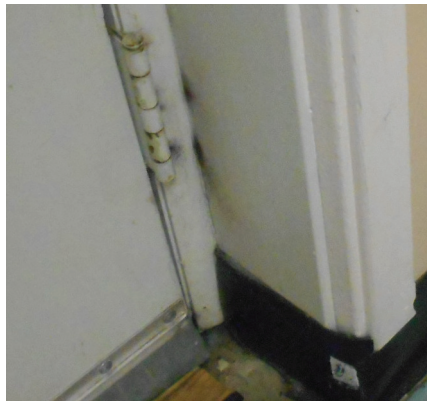
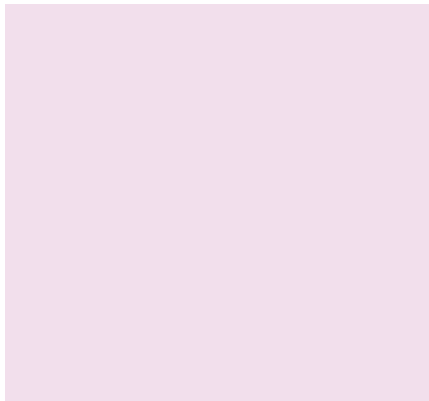
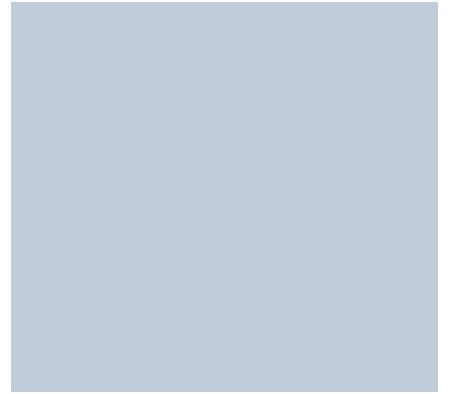
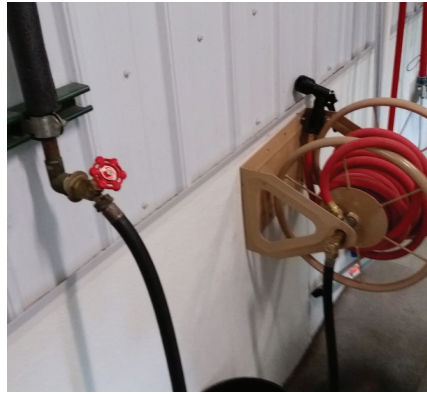
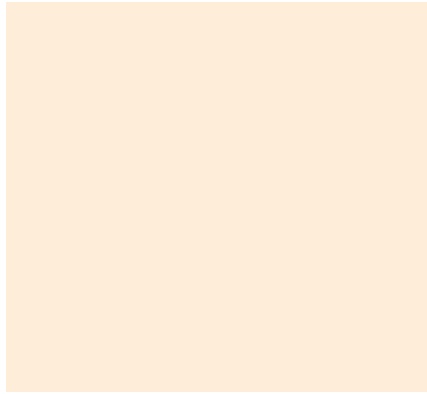
POOR





County of Champaign, Illinois

Animal Control





County of Champaign, Illinois

ILEAS Boiler House



Observation Highlights:

- The building envelope is severely deteriorated and requires reconstruction.
- Landscaping is overgrown and encroaching on the building.
- There is water infiltration and efflorescence on exterior brick.
- Gutters contain organic material.
- With the exception of one boiler, the mechanical systems should be completely replaced.
- Adjacent concrete and paving is cracked and deteriorated.
- Brick joints are deteriorated or missing; bricks are loose in places.
- Wood trim is heavily damaged and deteriorated.
- Asphalt shingles are damaged and missing.
- Roofing and roof structure require replacement.

CRV

\$480,000

Annual Cost to Maintain DMB







\$14,400

Vital Statistics

Use Type
Central Plant

Floors	Built	Area
1	1920s	1,200 SF

<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i>	<i>FCI</i>
38.5%	53.1%
<i>DMB</i>	<i>DMB</i>
\$185,000	\$255,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$161,000	\$231,000

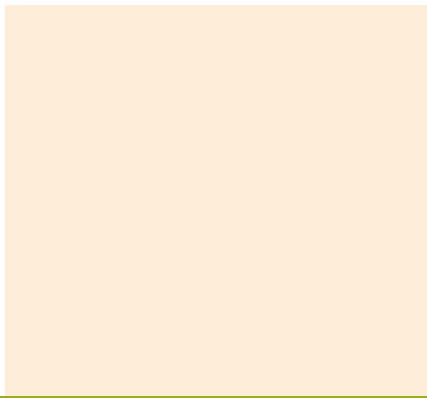
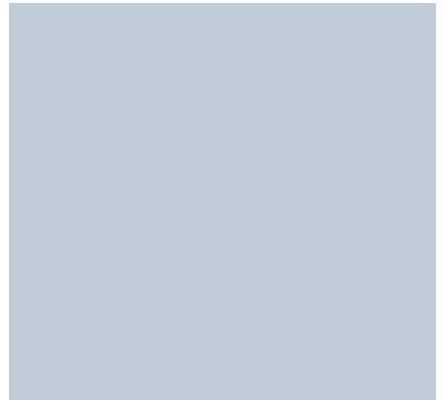
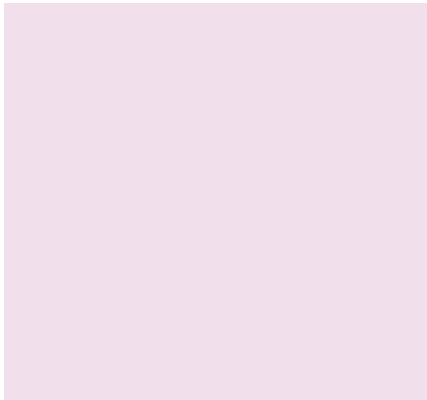
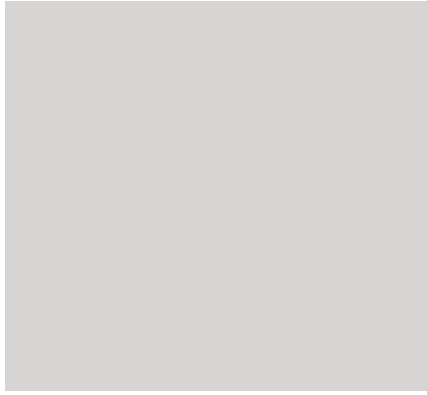
<i>1 Year Rating</i>	<i>5 Year Rating</i>
POOR	POOR
  	  

responsive a|e|c



County of Champaign, Illinois

ILEAS Boiler House



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bailey edward



Observation Highlights:

- Exterior door finishes deteriorated at base of doors.
- Exterior wall panels in fair condition, minor damage and deterioration.
- Downspouts damaged, finish worn and integrity compromised.
- Soffits and gutters rusted, paint deteriorated.
- Perimeter sealant/patch at concrete joints failed.
- Weatherstripping at overhead doors failed. Trim broken and missing.
- Windows are in good condition.
- Gaps in metal panels at penetration locations, require sealant.
- Interior insulation panels worn, some impact damage.
- Concrete flooring heavily worn and pitted.

CRV
\$390,000



Annual Cost to Maintain DMB
\$11,700

Vital Statistics

Use Type
Storage

Floors <i>1</i>	Built <i>2007</i>	Area <i>7,800 SF</i>
--------------------	----------------------	-------------------------

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
12.8%	23.4%
<i>DMB</i>	<i>DMB</i>
\$49,800	\$91,400
<i>DMB Excess</i>	<i>DMB Excess</i>
\$30,300	\$71,900

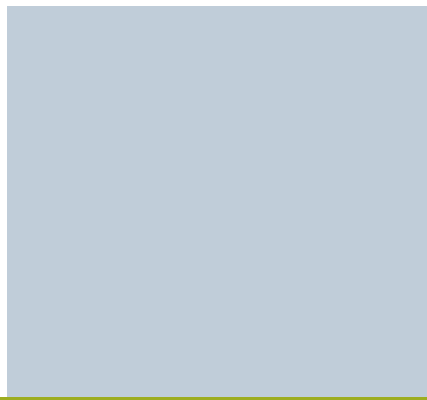
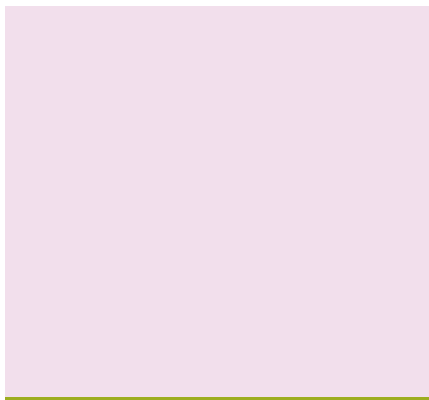
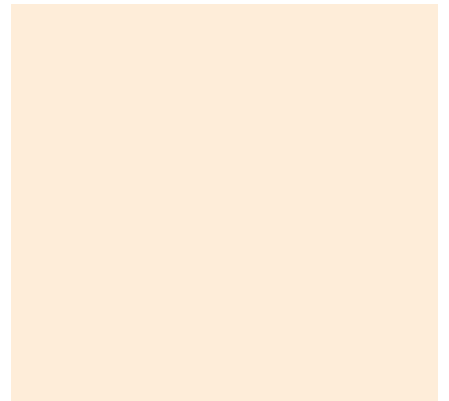
<i>1 Year Rating</i>	<i>5 Year Rating</i>
POOR	POOR
	

responsive a|e|c



County of Champaign, Illinois

Sheriff Garage





Observation Highlights:

- The garage overall is in fair condition.
- Concrete flooring stained and worn, minor cracks.
- Exterior door finishes and frames are deteriorated and rusted at base.
- Fiberglass overhead doors are damaged, panels cracked and kicked-in at base of frame.
- Overhead door jambs are dented and warped.
- Moisture damage and rust at base of metal wall panels.
- Metal wall panel seams dented and peeling apart.
- Several large tears in metal wall panels.
- Sealant at base of metal wall panels along concrete deteriorated.
- Bollards damaged from impact.
- No ventilation or heating present. No oil interceptor at trench drains.







CRV
 \$216,000
Annual Cost to Maintain DMB
\$6,480

Vital Statistics

Use Type
Storage

Floors	Built	Area
1	2007	4,320 SF

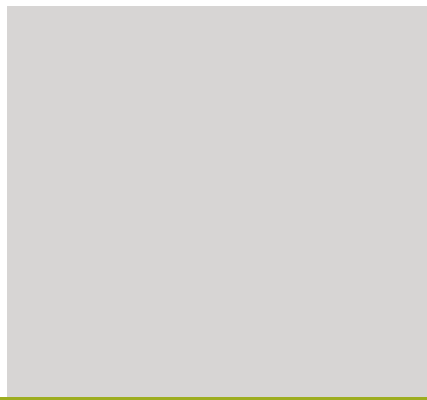
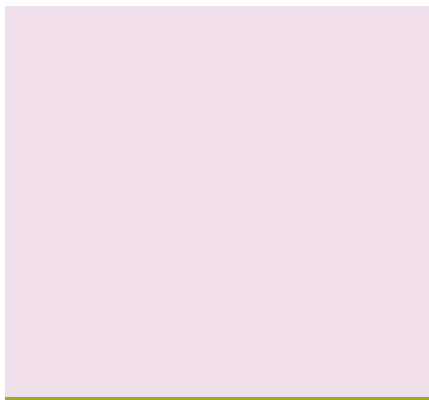
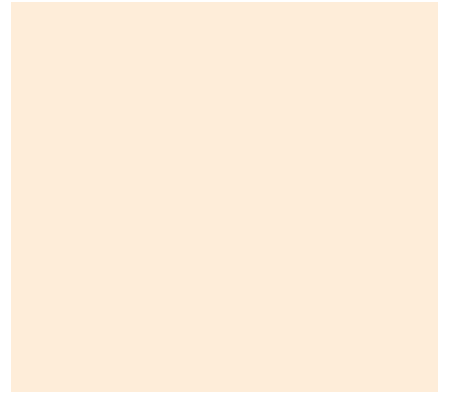
Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
0.0%	6.5%
<i>DMB</i>	<i>DMB</i>
\$0	\$14,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$3,200

<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	FAIR
  	  



County of Champaign, Illinois

County Highway Garage



responsive a|e|c

bailey edward



County of Champaign, Illinois

Nursing Home Storage



Observation Highlights:

- Building is in overall good condition.
- Sealant failure at base of metal wall panels along concrete.
- Insulation along foundation broken, damaged and missing in places.
- Metal panels dented at corner.
- Interior drywall in fair condition, minor scratches; one puncture found.
- Sealed concrete flooring in good condition, minor wear.
- Interior cage in good condition.
- No rubber base at bottom of drywall.
- Exterior door in good condition.
- Exposed structure and insulation in good condition.
- No ventilation. Heat provided by ceiling mounted gas fired unit heater.

CRV
\$165,988

Annual Cost to Maintain DMB
\$4,980

Vital Statistics

Use Type
Warehouse

Floors 1	Built 2010	Area 1,444 SF
-------------	---------------	------------------

<u>Priority Issues</u>	<u>0-5 Year Issues</u>
<i>FCI</i> 0.0%	<i>FCI</i> 0.4%
<i>DMB</i> \$0	<i>DMB</i> \$600
<i>DMB Excess</i> \$0	<i>DMB Excess</i> \$0

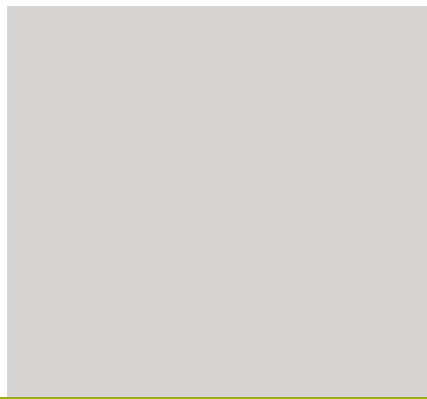
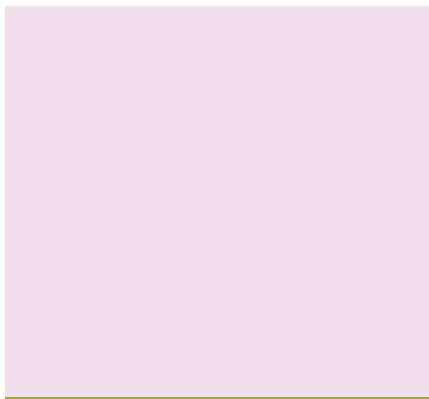
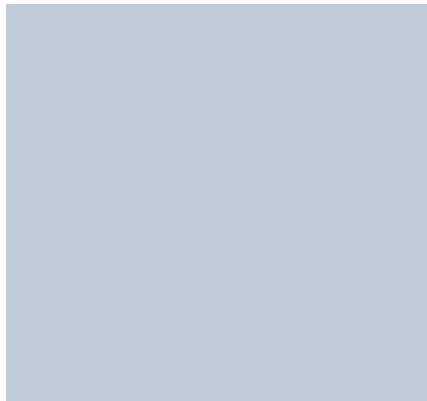
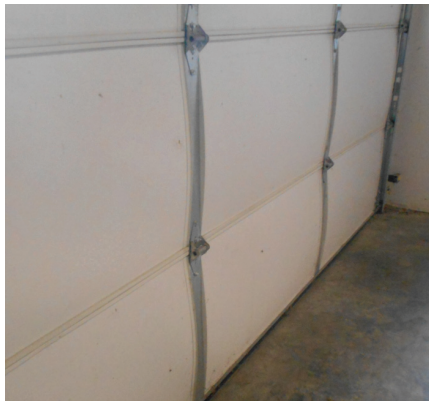
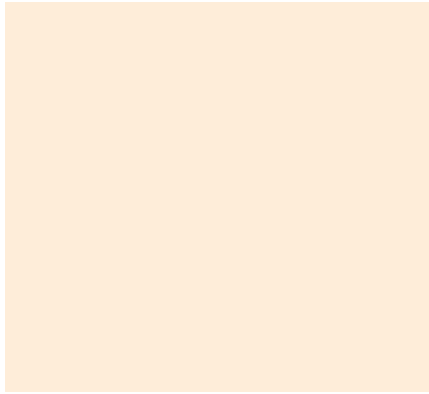
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	GOOD

responsive a|e|c



County of Champaign, Illinois

Nursing Home Storage





Observation Highlights:

- Concrete flooring is in fair condition, some stains and wear from use.
- A few large cracks in concrete flooring.
- Interior and exterior deterioration on metal panel.
- Metal downspouts deteriorated, leaks found at joints.
- Exterior trim bent and damaged at door openings.
- Exterior doors deteriorated and damaged at base.
- Interior steel structure worn and deteriorated.
- Punctures, bent and damaged metal panels along base of exterior.
- Oil interceptor at trench drains and exhaust fan installed.
- No ventilation. Ceiling mounted gas fired unit heater nearing end of useful life

CRV
\$144,000



Annual Cost to Maintain DMB
\$4,320

Vital Statistics

Use Type
Storage

Floors	Built	Area
1	2009	2,880 SF

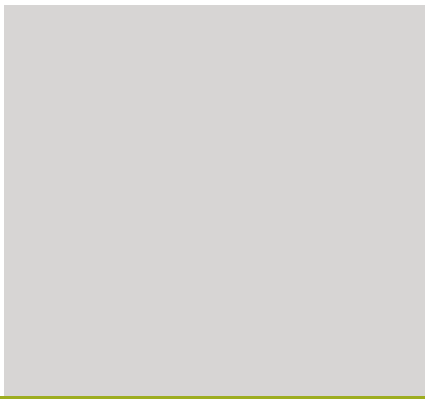
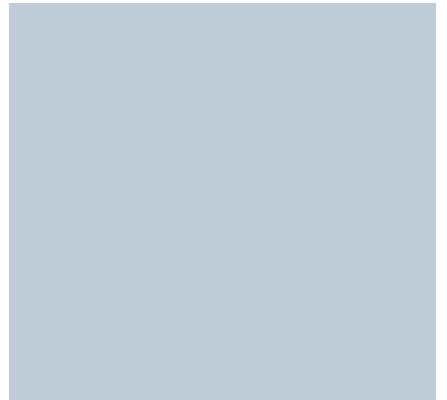
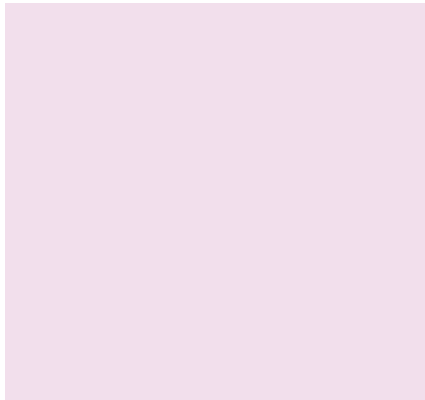
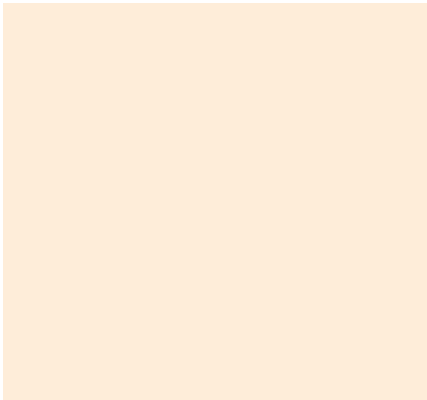
Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
17.4%	35.1%
<i>DMB</i>	<i>DMB</i>
\$25,000	\$50,500
<i>DMB Excess</i>	<i>DMB Excess</i>
\$17,800	\$43,300

<i>1 Year Rating</i>	<i>5 Year Rating</i>
POOR	POOR
	



County of Champaign, Illinois

EMA Garage





County of Champaign, Illinois

ILEAS Garage 2



Observation Highlights:

- ILEAS Garage 2 is connected to Sheriff's Garage.
- The building is in overall fair condition.
- Sealed concrete flooring is scratched and worn in places.
- Doors are worn with some deterioration.
- Finish on interior exposed structure is worn and deteriorated.
- Metal wall panels are in fair condition.
- Gutters and downspouts are deteriorated.
- Roof overhang is deteriorated and has impact damage.
- Organic plant growth in cracks along exterior concrete and base of building.
- Sealant deterioration in places along concrete.
- No ventilation. Heat provided by ceiling mounted gas fired unit heater.

CRV

\$144,000

Annual Cost to Maintain DMB

\$4,320

Vital Statistics

Use Type
Parking Garage

Floors	Built	Area
1	2007	2,880 SF

Priority Issues

FCI

0.0%

DMB

\$0

DMB Excess

\$0

0-5 Year Issues

FCI

5.9%

DMB

\$8,500

DMB Excess

\$1,300

1 Year Rating

GOOD



5 Year Rating

FAIR



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bailey edward



County of Champaign, Illinois

ILEAS Garage 2





Observation Highlights:







- ILEAS Garage 3 is connected to County Highway Garage.
- The building is in overall fair condition.
- Sealed concrete flooring is scratched and worn in places.
- Finish on interior exposed structure is worn and deteriorated.
- Metal wall panels are in fair condition.
- Doors have some deterioration and are in fair condition.
- Interior structure is in good condition, some deterioration.
- Overhead door is in fair condition, minor impact damage.
- Organic plant growth in cracks along exterior concrete.
- Sealant deterioration in places along concrete.
- No ventilation. Heat provided by ceiling mounted gas fired unit heater.

CRV
 \$144,000
Annual Cost to Maintain DMB
\$4,320

Vital Statistics
 Use Type
Parking Garage

Floors	Built	Area
1	2007	2,880 SF

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
2.8%	7.6%
<i>DMB</i>	<i>DMB</i>
\$4,000	\$11,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$3,800

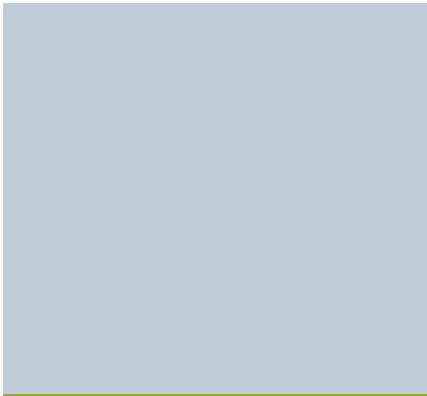
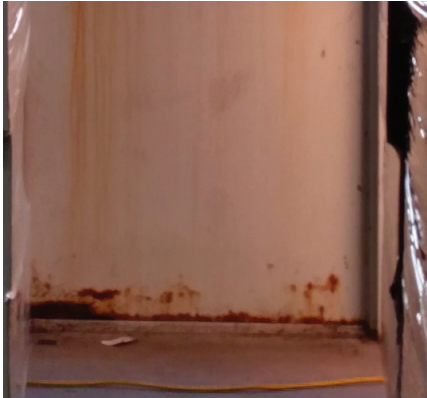
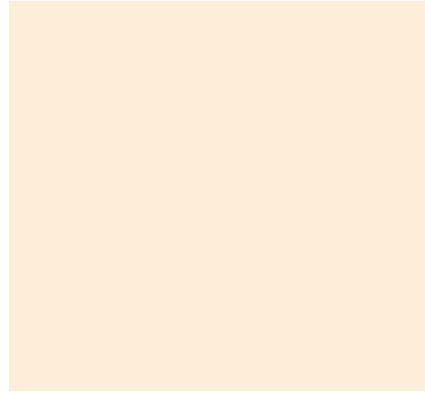
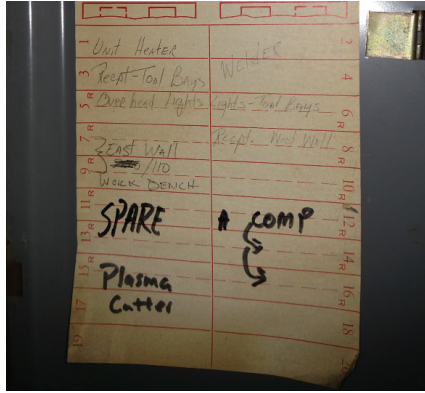
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	FAIR
  	  

responsive a|e|c



County of Champaign, Illinois

ILEAS Garage 3





Observation Highlights:

- The building overall is in fair condition.
- Soffits are not protected, raw wood exposed to elements.
- Asphalt shingles are in fair condition.
- Worn and deteriorated paint at roof edge trim.
- Paint overall is in fair condition.
- Overhead door is in good condition, minor impact damage.
- Some cracks in concrete surfaces.
- Interior concrete flooring is heavily worn.
- No ventilation. Heat provided by ceiling mounted gas fired unit heater in good condition.

CRV
\$119,000

Annual Cost to Maintain DMB
\$3,570

Vital Statistics

Use Type
Warehouse

Floors	Built	Area
1	1992	1,400 SF

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
0.8%	44.5%
<i>DMB</i>	<i>DMB</i>
\$1,000	\$53,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$47,050

1 Year Rating

GOOD

+ - ×

5 Year Rating

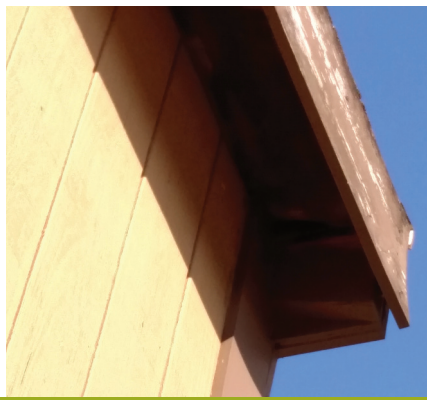
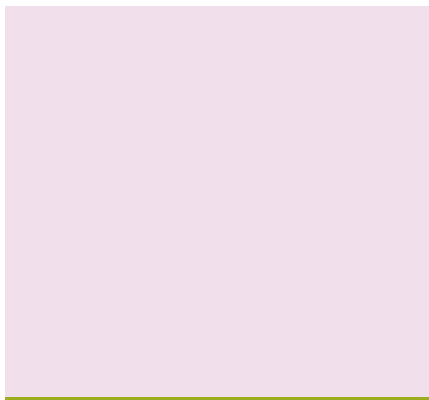
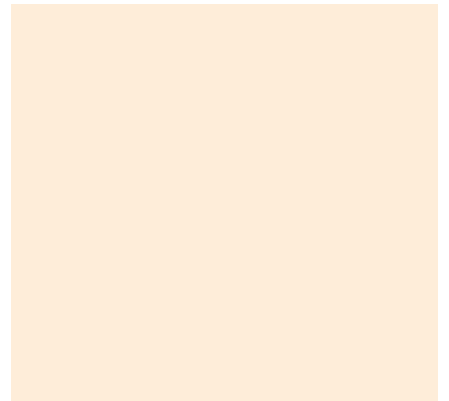
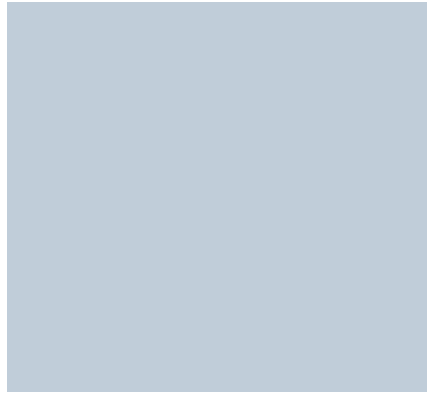
POOR

+ - ×



County of Champaign, Illinois

Salt Dome Garage





Observation Highlights:







- ILEAS Garage 1 is connected to EMA Garage.
- The building is in overall good condition.
- Sealed concrete flooring is scratched and worn in places.
- Finish on interior exposed structure is worn and deteriorated.
- Overhead door and frame is in fair condition.
- Metal wall panels are in good condition.
- Roof system is in good condition.
- Gutters and downspouts are in good condition.
- Some plant growth in cracks along exterior concrete and pavement.
- Sealant deterioration in places along concrete.
- No ventilation. Heat provided by ceiling mounted gas fired unit heater.

CRV
 \$72,000
Annual Cost to Maintain DMB
 \$2,160

Vital Statistics
 Use Type
Parking Garage

Floors	Built	Area
1	2007	1,440 SF

Priority Issues	0-5 Year Issues
<i>FCI</i>	<i>FCI</i>
2.8%	6.9%
<i>DMB</i>	<i>DMB</i>
\$2,000	\$5,000
<i>DMB Excess</i>	<i>DMB Excess</i>
\$0	\$1,400

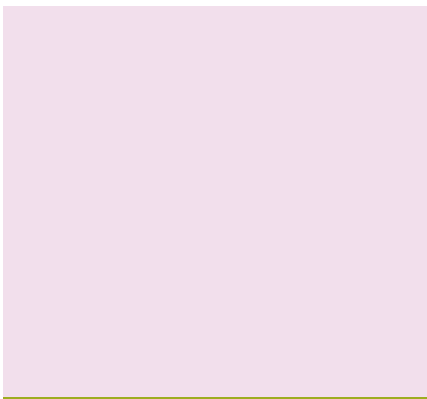
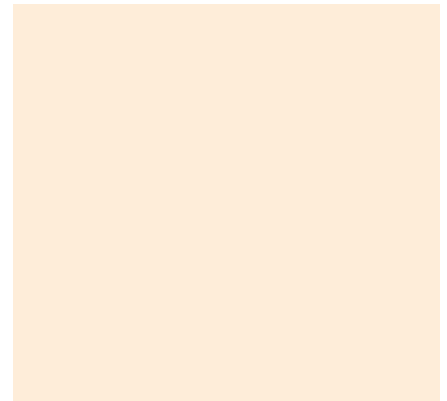
<i>1 Year Rating</i>	<i>5 Year Rating</i>
GOOD	FAIR
  	  

responsive a|e|c



County of Champaign, Illinois

ILEAS Garage 1

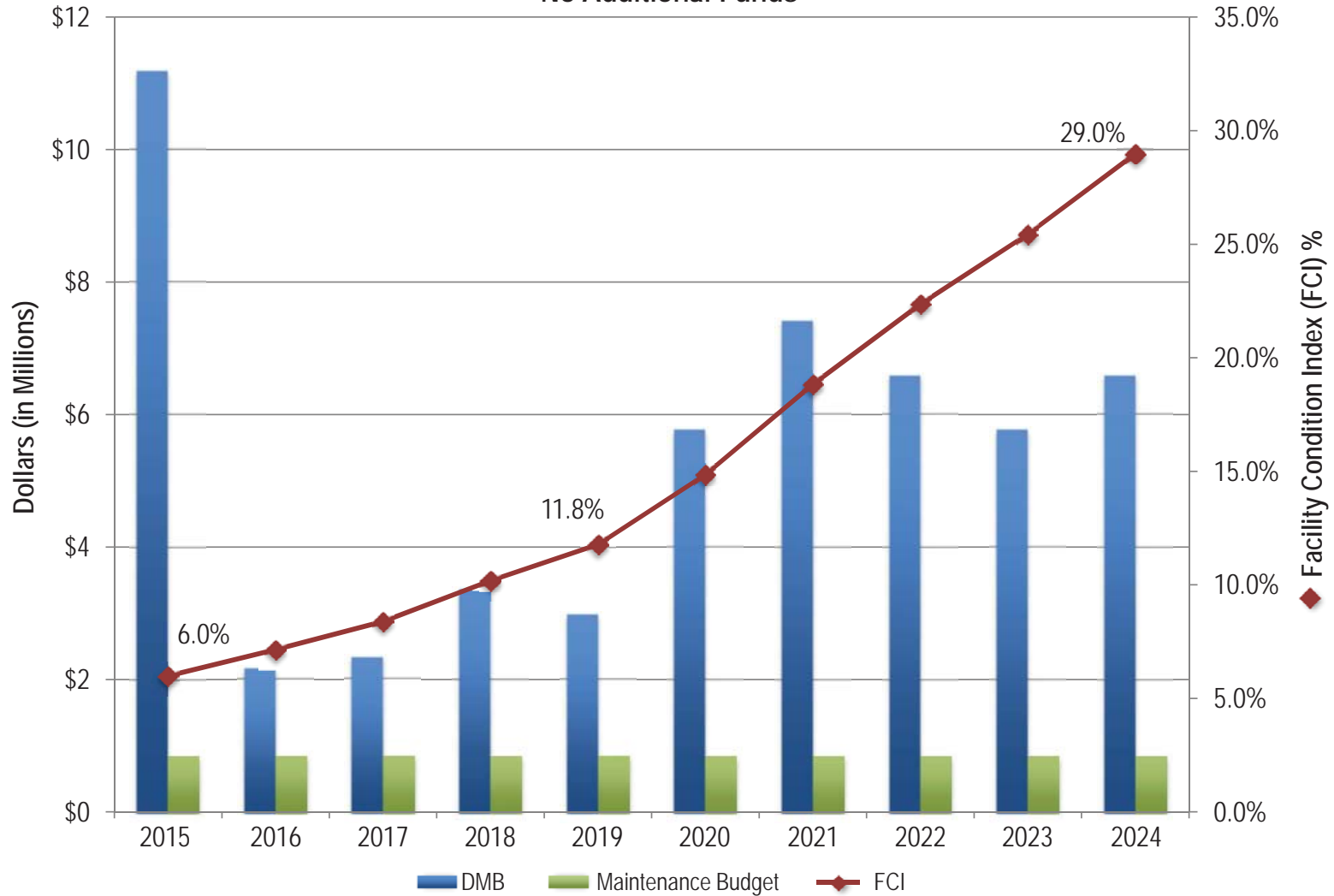




County of Champaign, Illinois

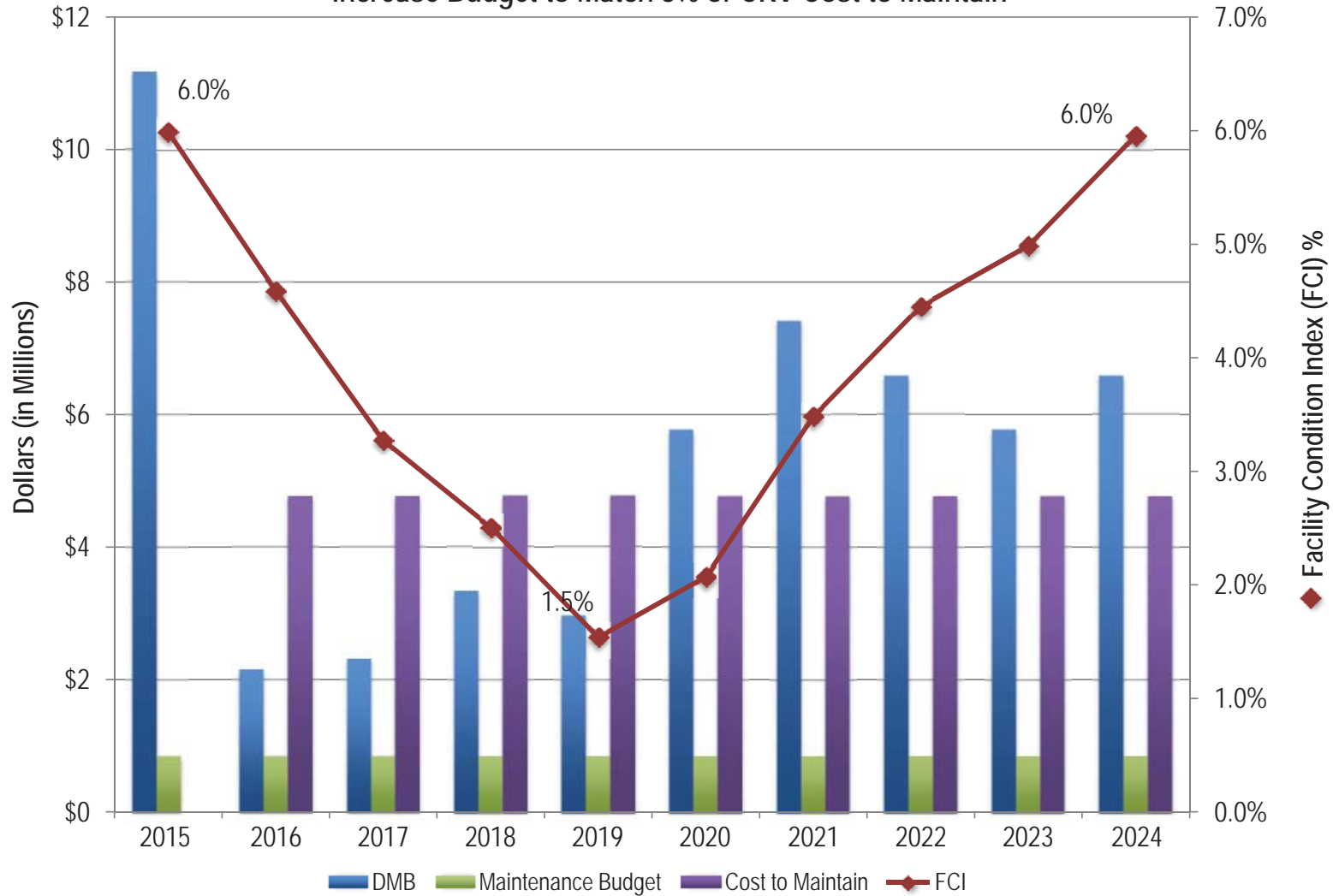
Data Analysis - Charts

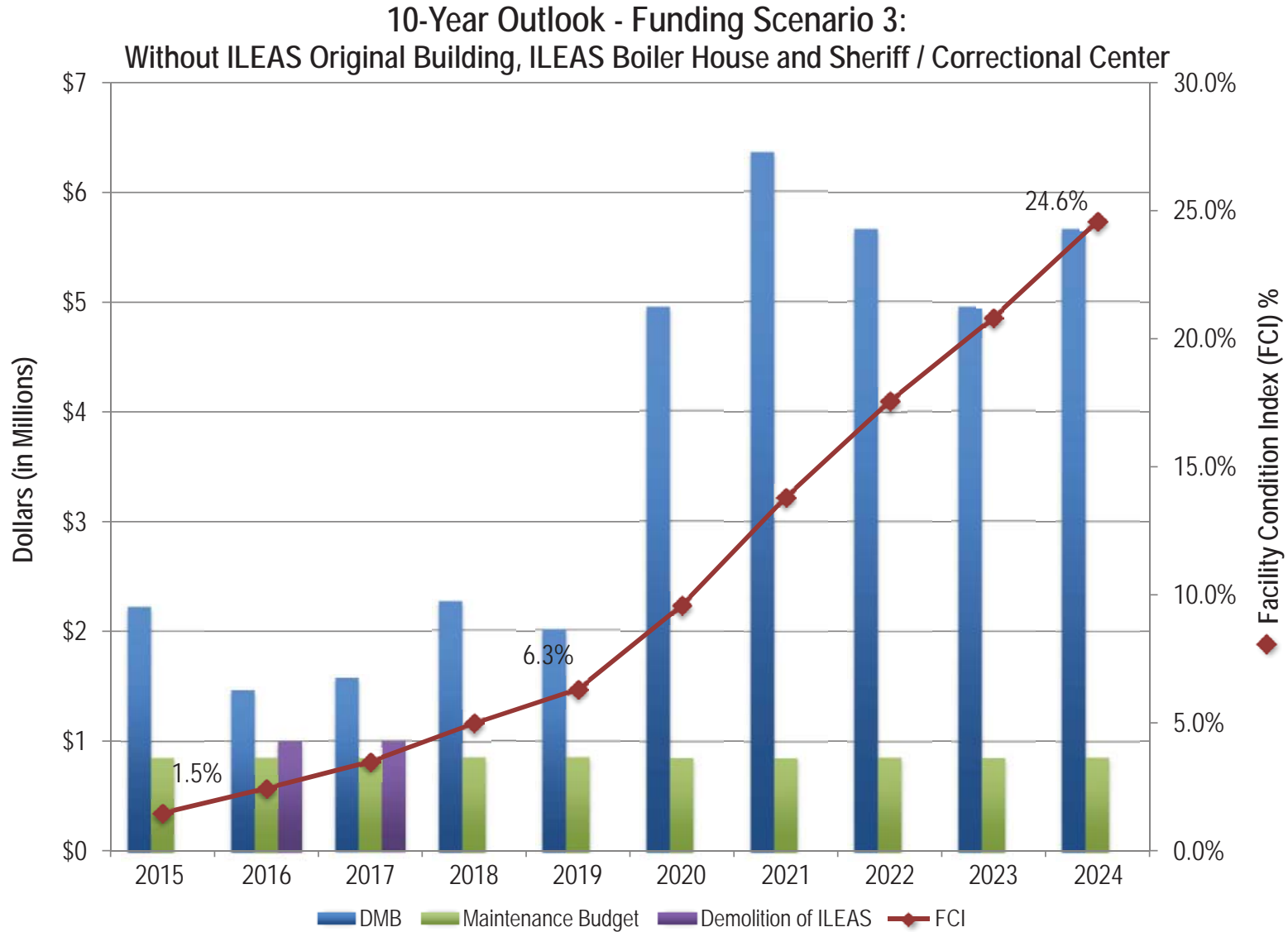
10-Year Outlook - Funding Scenario 1: No Additional Funds





10-Year Outlook - Funding Scenario 2: Increase Budget to Match 3% of CRV Cost to Maintain





 **County of Champaign, Illinois**
Data Analysis - Adjusted Facilities Overview

Building Name	CRV	0-5 Year DMB	5-Year FCI
Nursing Home	\$29,647,207	\$1,787,400	6.0%
Courthouse Addition	\$28,860,970	\$1,002,200	3.5%
ILEAS Original Building	\$0	\$0	0%
ILEAS Training Center	\$21,243,099	\$1,093,000	5.1%
Brookens Admin Center	\$19,600,297	\$1,841,000	9.4%
Courthouse	\$13,586,120	\$548,300	4.0%
Adult Detention Facility	\$12,194,010	\$1,695,000	13.9%
Sheriff / Correctional Center	\$0	\$0	0%
Highway Fleet Maintenance	\$8,890,666	\$67,300	0.8%
Juvenile Detention Center	\$6,631,830	\$379,300	5.7%
Emergency Operation Center	\$4,128,152	\$336,000	8.1%
Coroner's Office	\$1,449,000	\$140,500	9.7%
Physical Plant Shop	\$1,374,342	\$32,000	2.3%
Election Supply	\$677,630	\$16,700	2.5%
Highway Salt Dome	\$667,590	\$166,050	24.9%
Animal Control	\$517,275	\$186,900	36.1%
ILEAS Boiler House	\$0	\$0	0%
Sheriff Garage	\$390,000	\$91,400	23.4%
County Highway Garage	\$216,000	\$14,000	6.5%
Nursing Home Storage	\$165,988	\$600	0.4%
EMA Garage	\$144,000	\$50,500	35.1%
ILEAS Garage 2	\$144,000	\$8,500	5.9%
ILEAS Garage 3	\$144,000	\$11,000	7.6%

Overall CRV

\$150,863,177

Annual Cost to Maintain DMB

\$4,525,895

Vital Statistics

Number of Buildings	22
Oldest Building	1901
Newest Building	2010
Average Year Built	1988
Average Cost / SF	\$223

0-5 Year Issues

FCI

6.3%

DMB

\$9,525,650

DMB Excess

\$1,982,491

FCI

6.3%

Rating




FAIR





County of Champaign, Illinois

Data Analysis - Adjusted Facilities Overview

Building Name	CRV	0-5 Year DMB	5-Year FCI
Salt Dome Garage	\$119,000	\$53,000	44.5% 
ILEAS Garage 1	\$72,000	\$5,000	6.9% 
Total	\$150,863,177	\$9,525,650	6.3% 

Overall CRV

\$150,863,177

Annual Cost to Maintain DMB

\$4,525,895

Vital Statistics

Number of Buildings	22
Oldest Building	1901
Newest Building	2010
Average Year Built	1988
Average Cost / SF	\$223

0-5 Year Issues

FCI

6.3%

DMB

\$9,525,650

DMB Excess

\$1,982,491

FCI

6.3%

Rating

FAIR



Building Report

Building	7	Nursing Home	Year Built	2005	CRV			
Address	500 Art Bartell Road		Grade	C	\$29,647,207	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$256,400	0.86%
Construction Type	Wood		Total SqFt	133,192	0-5 Year	\$1,787,400	6.03%	
			Annual Maintenance Cost	\$889,416	5-25 Year	\$27,859,807	93.97%	

System	A.6	Architectural - Exterior Soffits/Canopies	% of CRV	1%	CRV Amt	\$296,472.06		
Sub System	A.6.1	Soffit	Grade		Priority		ERL	
Description	Aluminum							
Memo	Aluminum soffit panels.							

Component	A.6.1.2	Other	Grade	B	Priority	4	ERL	15
Description	Aluminum		Photo ID					
Memo	Missing soffit panels, damaged soffit flashing and panels.		Cost Range	\$3,000 to \$4,000				

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$3,557,664.76		
Sub System	B.2.1	Masonry Wall	Grade		Priority		ERL	
Description	Stone							
Memo	Cast stone above windows.							

Component	B.2.1.5	Efflorescence/Staining	Grade	B	Priority	2	ERL	15
Description	Stone		Photo ID					
Memo	Deposits at masonry above windows - need cleaning.		Cost Range	\$4,000 to \$5,000				

Building Report

Component	B.2.1.9	Other	Grade	C	Priority	3	ERL	05
Description	Brick		Photo ID					
Memo	Columns are lacking weep vents. Rope is laying on ground and not effective.		Cost Range	\$240,000 to \$260,000				
Sub System	B.2.2	Concrete Wall	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Concrete foundation wall.							
Component	B.2.2.8	Other	Grade	B	Priority	3	ERL	10
Description	Poured Concrete		Photo ID					
Memo	Loose landscaping membrane around foundation wall.		Cost Range	\$2,000 to \$3,000				
Sub System	B.2.3	Wood	Grade		Priority		ERL	
Description	Wood Construction							
Memo	Wood fence between sections of the building.							
Component	B.2.3.6	Deterioration Due to Moisture	Grade	F	Priority	4	ERL	00
Description	Metal		Photo ID					
Memo	Gate hardware and fasteners rusting, gate is too big for hardware - rebuild gate and install new hardware.		Cost Range	\$4,000 to \$5,000				
Component	B.2.3.8	Other	Grade	C	Priority	3	ERL	05
Description	Wood Construction		Photo ID					
Memo	Deteriorated exterior wood fence.		Cost Range	\$25,000 to \$30,000				
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Metal							
Memo	Metal bollard.							

Building Report

Component	B.2.4.5	Other	Grade	C	Priority	3	ERL	05
Description	Metal		Photo ID					
Memo	Corrosion and rust at steel bollards, staining concrete walk at main entrance.		Cost Range	\$1,000 to \$5,000				
Sub System	B.2.8	Door and Frame	Grade		Priority		ERL	
Description	Steel Door							
Memo	Hollow metal exterior door.							
Component	B.2.8.7	Other	Grade	C	Priority	3	ERL	02
Description	Steel Door - Entry Locations		Photo ID					
Memo	Damaged metal doors and frames to be sanded, repaired and painted.		Cost Range	\$50,000 to \$75,000				
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$4,447,081.23		
Sub System	B.4.1	Flooring	Grade		Priority		ERL	
Description	Vinyl Composition Tile							
Memo	VCT floor tiles.							
Component	B.4.1.2	Stains/ Discoloration	Grade	C	Priority	3	ERL	03
Description	Vinyl Composition Tile		Photo ID					
Memo	Stained and worn floor tiles.		Cost Range	\$3,000 to \$4,000				
Component	B.4.1.4	Loose or Broken Tiles	Grade	D	Priority	4	ERL	00
Description	Clay Tile		Photo ID					
Memo	Broken and damaged quarry tile and grout failure at kitchen.		Cost Range	\$7,000 to \$8,000				

Building Report

Component	B.4.1.7 Cracks	Grade	D	Priority	4	ERL	00
Description	Vinyl Composition Tile	Photo ID					
Memo	Cracked VCT to be replaced in restrooms and other locations.	Cost Range	\$3,000 to \$4,000				

Sub System	B.4.2 Base	Grade		Priority		ERL	
Description	Vinyl / Rubber						
Memo	Rubber base.						

Component	B.4.2.10 Other	Grade	D	Priority	4	ERL	00
Description	Vinyl / Rubber	Photo ID					
Memo	Missing rubber base.	Cost Range	\$2,000 to \$3,000				

Component	B.4.2.4 Loose or Broken Tiles	Grade	D	Priority	4	ERL	00
Description	Clay Tile	Photo ID					
Memo	Damaged and broken ceramic tile base.	Cost Range	\$4,000 to \$5,000				

Component	B.4.2.6 Lifting / Cupping / Warpage	Grade	C	Priority	3	ERL	00
Description	Vinyl / Rubber	Photo ID					
Memo	Delaminating rubber base.	Cost Range	\$3,000 to \$4,000				

Sub System	B.4.3 Interior Walls	Grade		Priority		ERL	
Description	Gypsum Board						
Memo	Interior drywall.						

Component	B.4.4.3 Rips / Tears	Grade	C	Priority	3	ERL	05
Description	Gypsum Board	Photo ID					
Memo	Scratched, chipped and dented drywall.	Cost Range	\$5,000 to \$6,000				

Building Report

Component	B.4.4.8	Other	Grade	C	Priority	3	ERL	00
Description	Gypsum Board		Photo ID					
Memo	Holes in drywall.		Cost Range	\$3,000 to \$4,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Paint							
Memo	Interior paint finishes.							
Component	B.4.3.1	Stains / Discoloration	Grade	C	Priority	3	ERL	03
Description	Paint		Photo ID					
Memo	Marked drywall finish to be painted.		Cost Range	\$4,000 to \$5,000				
Component	B.4.4.4	Loose Material	Grade	C	Priority	2	ERL	00
Description	Wallpaper		Photo ID					
Memo	Poor installation of wallpaper.		Cost Range	\$4,000 to \$5,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	24x24 acoustical tile ceiling with exposed grid.							
Component	B.4.5.1	Stains / Discoloration	Grade	C	Priority	3	ERL	00
Description	Acoustical Tile		Photo ID					
Memo	Stained ceiling tiles.		Cost Range	\$4,000 to \$5,000				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Steel Frame							
Memo	Hollow metal frame.							

Building Report

Component	B.4.6.1	Deteriorated Finish	Grade	C	Priority	3	ERL	05
Description	Steel Frame		Photo ID					
Memo	Scratched and dented hollow metal door frames - repair.		Cost Range	\$5,000 to \$6,000				
Component	B.4.6.2	Loose Veneer	Grade	C	Priority	3	ERL	05
Description	Wood Door		Photo ID					
Memo	Damage to door veneer.		Cost Range	\$5,000 to \$6,000				
Component	B.4.6.8	Other	Grade	B	Priority	3	ERL	00
Description	Vinyl		Photo ID					
Memo	Ripped and missing vinyl swinging partition at kitchen.		Cost Range	\$1,000 to \$2,000				
Sub System	B.4.7	Casework	Grade		Priority		ERL	
Description	Laminate							
Memo	Built-in wood laminate reception and informational desks.							
Component	B.4.7.1	Deteriorated Finish	Grade	B	Priority	3	ERL	05
Description	Laminate		Photo ID					
Memo	Desk veneer scratches and dents; missing decorative wood components.		Cost Range	\$2,000 to \$3,000				
System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$2,371,776.51		
Sub System	B.6.3	Water Supply Equipment System	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	B.6.3.10	Other Component	Grade	D	Priority	4	ERL	03
Description	Missing		Photo ID					
Memo	No water softener to dishwasher. Dishwasher vendor typically requires soft water to warrant equipment. Frequent lime deposits on booster heater. Cost listed is cost to install water softener to dishwasher (per GHR report dated October 16, 2014)		Cost Range	\$8,000 to \$9,000				
Component	B.6.3.2	Domestic Water Heater	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Domestic Hot Water Heater: One in every wing, all brand new. AO Smith model BTH300A200. 300 MBH input, 349 GPH recovery. Natural gas fired.		Cost Range	Not Applicable				
Sub System	B.6.5	Sanitary Waste System	Grade		Priority		ERL	
Description								
Memo								
Component	B.6.5.2.1	Floor Drain	Grade	F	Priority	4	ERL	01
Description	No Access		Photo ID					
Memo	Floor drain with basket strainer in kitchen is inaccessible. Plugged floor drains can result in waste backup in kitchen. (per GHR report dated October 16, 2014).		Cost Range	\$4,000 to \$5,000				
Component	B.6.5.3.1	Pump	Grade	B	Priority	2	ERL	01
Description	Part(s) Missing		Photo ID					
Memo	Sewage Ejector pump high water alarm is local, but cannot be heard unless mechanical room is staffed. Cost is to connect high water alarm to BAS (per GHR report dated October 16, 2014)		Cost Range	\$1,000 to \$2,000				
System	B.7	Mechanical - Fire Protection System	% of CRV	4%		CRV Amt	\$1,185,888.25	

Building Report

Sub System	B.7.1	Wet Pipe Fire Sprinkler System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.7.1.3	Sprinkler Head	Grade	F	Priority	4	ERL	01
Description	No Flow		Photo ID					
Memo	The dryers in laundry have internal sprinkler heads to extinguish fire in drum. Sprinkler heads are not connected (per GHR report dated October 16, 2014).		Cost Range	\$2,000 to \$3,000				
Component	B.7.1.5	Other Component 1	Grade	F	Priority	5	ERL	01
Description	Lacking Maintenance		Photo ID					
Memo	Annual sprinkler system testing is required by IDPH in addition to quarterly testing. Cost of annual test: \$800 (per GHR report dated October 16, 2014)		Cost Range	\$800 to \$900				
Component	B.7.1.6	Other Component 2	Grade	C	Priority	4	ERL	03
Description	End of Life		Photo ID					
Memo	EST-2 fire alarm control panel to be replaced. Cost discussed with Alex Petrovic (per GHR report dated October 16, 2014)		Cost Range	\$10,000 to \$15,000				
System	B.8	Mechanical - HVAC System	% of CRV	12%		CRV Amt	\$3,557,664.76	
Sub System	B.8.1	Boiler	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Building Report

Component	<input type="text" value="B.8.1.1"/> Steam / Hot Water Boiler	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="3"/>	ERL	<input type="text" value="05"/>
Description	<input type="text" value="No Deficiency"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Fulton Gas-Fired pulse combustion boiler, Model PHW2000. S/N 97734, 2000 MBH input/1800 MBH output."/>	Cost Range	<input type="text" value="\$70,000 to \$100,000"/>				

Sub System	<input type="text" value="B.8.4"/> Cooling System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.8.4.1.2"/> Water Chiller - Centrifugal	Grade	<input type="text" value="D"/>	Priority	<input type="text" value="4"/>	ERL	<input type="text" value="03"/>
Description	<input type="text" value="Non Functional"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="East Chiller: York Model YCAS0230EC46XGASDT, S/N RDPM011080. 2 compressors, 10 condenser fans, R-22 refrigerant. One compressor has failed and will need replaced (per GHR report dated October 16, 2014)"/>	Cost Range	<input type="text" value="\$50,000 to \$70,000"/>				

Component	<input type="text" value="B.8.4.3"/> Liquid Cooler	Grade	<input type="text" value="A"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="15"/>
Description	<input type="text" value="No Deficiency"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Cooler 1: Bohn Model BSB010M6C, S/N T05E04501. R-404a Refrigerant."/>	Cost Range	<input type="text"/>				

Component	<input type="text" value="B.8.4.8.2"/> DX - Refrigerant Condenser	Grade	<input type="text" value="A"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="15"/>
Description	<input type="text" value="No Deficiency"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Condensing Unit 1: Bohn Model BSB020L6C, S/N T05E04499. R-404a Refrigerant."/>	Cost Range	<input type="text"/>				

Sub System	<input type="text" value="B.8.5"/> HVAC Distribution System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Building Report

Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	14 Air Handling Units: Magic Aire Model 90/120-BMW/MBX Blower Section Chilled/Hot water air handling unit. 480V/3Ø, 5 HP supply fan. Constant volume AHUs, with reheats in every room.		Cost Range	<input type="text"/>				
Component	B.8.5.4.6	Hydronic Distribution - Pump	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	CWP-1A: Taco model F15011E2JAJIL80. 850 GPM, 65' head. 9.2" impeller, 20 HP, 1750 RPM.		Cost Range	<input type="text"/>				
Sub System	B.8.7	HVAC Control and Instrumentation	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							
Component	B.8.7.1.1	HVAC - Direct Digital Control System	Grade	F	Priority	3	ERL	01
Description	Missing		Photo ID	<input type="text"/>				
Memo	Install ozone detection in laundry and connect to BAS with alarm. Ozone exposure is regulated by OSHA (per GHR report dated October 16, 2014).		Cost Range	\$4,000 to \$5,000				
Component	B.8.7.1.6	HVAC - Thermostat	Grade	F	Priority	3	ERL	01
Description	End of Life		Photo ID	<input type="text"/>				
Memo	Thermostats in shower rooms frequently fail in high humidity environments. Thermostats should be relocated to a drier area with a remote bulb sensor in humid shower room (per GHR report dated October 16, 2014)		Cost Range	\$10,000 to \$25,000				
System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$3,557,664.76		

Building Report

Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	B	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Critical ATS: ASCO Automatic Transfer Switch 7000 series critical branch.		Cost Range	\$20,000 to \$25,000				

Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	B	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	General Electric Spectra series switchboard, 2500 Amp, 277/480V, 3 phase, 4 wire.		Cost Range	\$50,000 to \$70,000				

Component	B.9.1.3.1	Interior Electrical Distribution - Transformer	Grade	B	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Dry type transformers, K factor General Electric, 150°C rise.		Cost Range	\$50,000 to \$75,000				

Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	B	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Distribution Panels Spectra Series, General Electric		Cost Range	\$50,000 to \$70,000				

Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	B	Priority	1	ERL	30
Description			Photo ID					
Memo	Branch Panels General Electric A-Series II		Cost Range	\$50,000 to \$70,000				

Building Report

Component	B.9.1.6.2	Motor Control - Motor Control Center	Grade	B	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Motor Control Center, General Electric E900 480V, 3 Phase.		Cost Range	\$45,000 to \$50,000				
Component	B.9.1.6.4	Motor Control - VFD	Grade	D	Priority	3	ERL	03
Description	End of Life		Photo ID					
Memo	AHU-3, RF-3 VFD automatic controls are not functioning. Automatic controls are needed to balance RF-3 operation with SF-3 operation (per GHR report dated October 16, 2014).		Cost Range	\$3,000 to \$4,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	B	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Down Lighting throughout building, Compact Fluorescent Lamps		Cost Range	\$20,000 to \$25,000				
Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	B	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Metal Halide lamps outside building		Cost Range	\$15,000 to \$20,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	B	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Exit and Egress Lighting throughout building.		Cost Range	\$15,000 to \$20,000				
Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	C	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	Fire Alarm Control Panel, Edwards EST 2		Cost Range	\$40,000 to \$50,000				
Component	B.9.3.3.2	Voice and Data System - Paging System	Grade	C	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	Nurse's Call System, Rauland Responder 4000 System, has had failures.		Cost Range	\$75,000 to \$100,000				
System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$1,482,360.37		
Sub System	C.1.1	Drives / Roads / Curbs	Grade	B	Priority	2	ERL	20
Description	Asphalt Paving							
Memo								
Component	C.1.1.1.2	Cracking - Fire Lane	Grade	B	Priority	2	ERL	20
Description	Asphalt Paving		Photo ID					
Memo	Centerline crack with weeds growing; cracks needs to be sealed		Cost Range	\$15,000 to \$20,000				
Sub System	C.1.2	Parking Lots	Grade	B	Priority	2	ERL	10
Description	Asphalt Paving							
Memo								
Component	C.1.2.1.2	Cracking - Front of Building	Grade	B	Priority	2	ERL	10
Description	Asphalt Paving		Photo ID					
Memo	Cracks and joints need to be sealed		Cost Range	\$45,000 to \$50,000				
Sub System	C.1.3	Side Walks	Grade	B	Priority	2	ERL	10
Description	Concrete Paving							
Memo								

Building Report

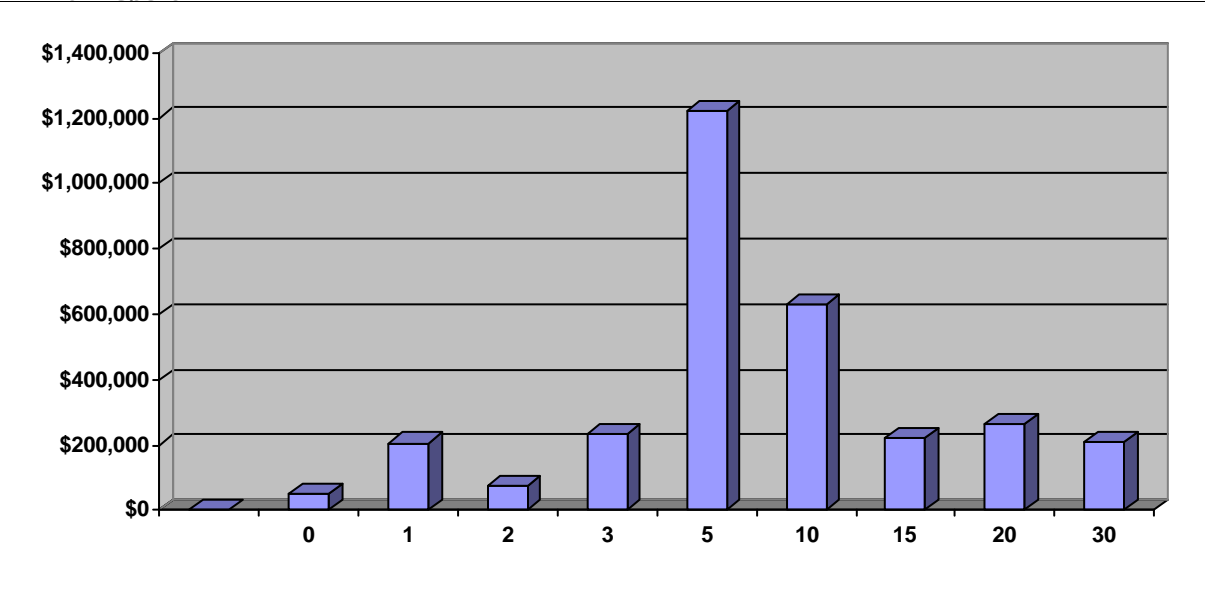
Component	C.1.3.1.1	Surface Deterioration - Front of Building	Grade	B	Priority	2	ERL	10
Description	Concrete Paving		Photo ID					
Memo	Surface cracking; need to seal cracks		Cost Range	\$1,000 to \$5,000				

Sub System	C.1.9	Site Drainage / Erosion	Grade	C	Priority	2	ERL	10
Description	Natural							
Memo								

Component	C.1.9.1.4	Other	Grade	F	Priority	2	ERL	10
Description	Natural		Photo ID					
Memo	Existing grade slopes toward building at multiple locations. Sidewalks will need to be removed and area regraded. Sidewalks poured back and sod installed or install drainage basins and connect to storm sewer, regrade.		Cost Range	\$240,000 to \$260,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	4	Courthouse - 2002 Addition	Year Built	2002	CRV			
Address	101 E Main		Grade	B	\$28,860,970	DMB	FCI	
	Urbana	IL	61802	Priority	2	0-1 Year	\$52,600	0.18%
Construction Type	Steel		Total SqFt	99,500	0-5 Year	\$1,002,200	3.47%	
			Annual Maintenance Cost	\$865,829	5-25 Year	\$27,858,770	96.53%	

System	A.6	Architectural - Exterior Soffits/Canopies	% of CRV	1%	CRV Amt	\$288,609.69
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Sub System	A.6.2	Cornice	Grade		Priority		ERL	
Description	Terracotta							
Memo	Terracotta cornice on building.							

Component	A.6.2.1	Wear	Grade	B	Priority	1	ERL	05
Description	Terracotta		Photo ID					
Memo	Chips and missing glazing on terracotta.		Cost Range	\$2,000 to \$3,000				

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$3,463,316.32
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Sub System	B.2.1	Masonry Wall	Grade		Priority		ERL	
Description	Stone							
Memo	Stone CMU around ramp openings.							

Component	B.2.1.1	Settlement / Cracks	Grade	B	Priority	3	ERL	05
Description	Stone		Photo ID					
Memo	Masonry cracks at stone - one location.		Cost Range	\$500 to \$600				

Building Report

Component	B.2.1.4	Sealant Joint Deterioration	Grade	B	Priority	3	ERL	05
Description	Brick		Photo ID					
Memo	Sealant at joints deteriorating in a few areas.		Cost Range	\$4,000 to \$5,000				
Component	B.2.1.5	Efflorescence/Staining	Grade	C	Priority	1	ERL	00
Description	Brick		Photo ID					
Memo	Masonry efflorescence requires cleaning.		Cost Range	\$10,000 to \$15,000				
Component	B.2.1.9	Other	Grade	C	Priority	1	ERL	00
Description	Stone		Photo ID					
Memo	Masonry cleaning required.		Cost Range	\$5,000 to \$6,000				
Sub System	B.2.2	Concrete Wall	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Concrete steps and paths.							
Component	B.2.2.8	Other	Grade	B	Priority	4	ERL	01
Description	Poured Concrete		Photo ID					
Memo	Chips and spalls at concrete stairs.		Cost Range	\$2,000 to \$3,000				
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Metal							
Memo	Metal handrail at loading dock.							
Component	B.2.4.3	Surface Coating Failure	Grade	B	Priority	3	ERL	01
Description	Metal		Photo ID					
Memo	Paint peeling, scratched, chipped on handrail - loading dock..		Cost Range	\$1,000 to \$2,000				

Building Report

Component	B.2.4.5	Other	Grade	C	Priority	4	ERL	01
Description	Metal		Photo ID					
Memo	Non-compliant handrail at loading dock stairs has code deficiencies.		Cost Range	\$5,000 to \$6,000				
System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$1,443,048.52		
Sub System	B.3.1	Built-Up Roof	Grade		Priority		ERL	
Description	Ballasted							
Memo	Ballasted EPDM roof system.							
Component	B.3.1.4	Missing Or Inconsistent Ballast	Grade	C	Priority	3	ERL	05
Description	Ballasted		Photo ID					
Memo	Roof installed 2002. Areas of exposed ballast on entrance roof; reset ballast.		Cost Range	\$850,000 to \$900,000				
Sub System	B.3.10	Parapet	Grade		Priority		ERL	
Description	Stone							
Memo	Stone paver curb and parapet on roof.							
Component	B.3.10.1	Other	Grade	C	Priority	3	ERL	05
Description	Stone		Photo ID					
Memo	Uneven paver curb at parapet.		Cost Range	\$4,000 to \$5,000				
Sub System	B.3.3	Shingles	Grade		Priority		ERL	
Description	Asphalt							
Memo	Asphalt shingle roofing system.							

Building Report

Component	B.3.3.7	Other	Grade	C	Priority	3	ERL	05
Description	Steel		Photo ID					
Memo	Rusting, crack and peeling of paint at steel perimeter asphalt shingle roofing structure.		Cost Range	\$5,000 to \$10,000				
Sub System	B.3.5	Flashing, Gravel Stops & Expansion Joints	Grade		Priority		ERL	
Description	Flashing							
Memo	Flashing around roof systems.							
Component	B.3.5.3	Impact Damage	Grade	B	Priority	3	ERL	05
Description	Flashing		Photo ID					
Memo	Impact damage, puncture holes and scrapes - locations at loading dock.		Cost Range	\$4,000 to \$5,000				
Component	B.3.5.8	Other	Grade	C	Priority	3	ERL	05
Description	Flashing		Photo ID					
Memo	Surface rusting caused by runoff from adjacent vent stacks.		Cost Range	\$1,000 to \$2,000				
Sub System	B.3.7	Gutter & Downspouts	Grade		Priority		ERL	
Description	Aluminum							
Memo	Aluminum gutters and downspouts.							
Component	B.3.7.3	Impact Damage	Grade	B	Priority	4	ERL	02
Description	Aluminum		Photo ID					
Memo	Damaged aluminum down spout outlet.		Cost Range	\$100 to \$200				
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%		CRV Amt	\$4,329,145.67	

Building Report

Sub System	B.4.1	Flooring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Epoxy							
Memo	Epoxy floor covering in holding cells.							

Component	B.4.1.1	Wear	Grade	C	Priority	3	ERL	02
Description	Epoxy		Photo ID					
Memo	Wear of epoxy coating at finished floor.		Cost Range	\$3,000 to \$4,000				

Component	B.4.1.2	Stains/ Discoloration	Grade	B	Priority	3	ERL	05
Description	Carpet		Photo ID					
Memo	Stained and damaged carpet.		Cost Range	\$1,000 to \$2,000				

Component	B.4.1.8	Deteriorating Finish	Grade	B	Priority	4	ERL	05
Description	Carpet Tile		Photo ID					
Memo	Damaged carpet tiles.		Cost Range	\$2,000 to \$3,000				

Sub System	B.4.3	Interior Walls	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Gypsum Board							
Memo	Interior gypsum board walls.							

Component	B.4.3.2	Cracks / Open Joints	Grade	B	Priority	4	ERL	02
Description	Gypsum Board		Photo ID					
Memo	Crack in gypsum board wall; drywall tape failure.		Cost Range	\$3,000 to \$4,000				

Component	B.4.3.4	Impact Damage	Grade	B	Priority	4	ERL	02
Description	Gypsum Board		Photo ID					
Memo	Impact damage at drywall and wall covering at a few locations.		Cost Range	\$500 to \$1,000				

Building Report

Sub System	B.4.4	Finishes & Wall Coverings	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Vinyl / Fabric Wall Cover							
Memo	Vinyl / Fabric wall cover in courtrooms.							

Component	B.4.4.1	Stains / Discoloration	Grade	B	Priority	3	ERL	01
Description	Vinyl / Fabric Wall Cover		Photo ID	<input type="text"/>				
Memo	Marks and scratches on wall covering; torn and missing wall covering in courtrooms.		Cost Range	\$2,000 to \$3,000				

Component	B.4.4.2	Peeling / Flaking	Grade	B	Priority	3	ERL	01
Description	Paint		Photo ID	<input type="text"/>				
Memo	Paint failure at holding cell.		Cost Range	\$3,000 to \$4,000				

Component	B.4.4.6	Missing Elements	Grade	B	Priority	4	ERL	02
Description	Wood Trim / Molding		Photo ID	<input type="text"/>				
Memo	Missing wood trim profile at partial wall cap.		Cost Range	\$2,000 to \$3,000				

Component	B.4.4.8	Other	Grade	B	Priority	3	ERL	10
Description	Wood Trim / Molding		Photo ID	<input type="text"/>				
Memo	Normal wear for project age for wood material in lobby.		Cost Range	\$9,000 to \$10,000				

Sub System	B.4.5	Ceilings	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Acoustical Tile							
Memo	24x24 acoustical tile ceiling.							

Component	B.4.5.1	Stains / Discoloration	Grade	B	Priority	3	ERL	02
Description	Acoustical Tile		Photo ID	<input type="text"/>				
Memo	Stained acoustical tile.		Cost Range	\$900 to \$1,000				

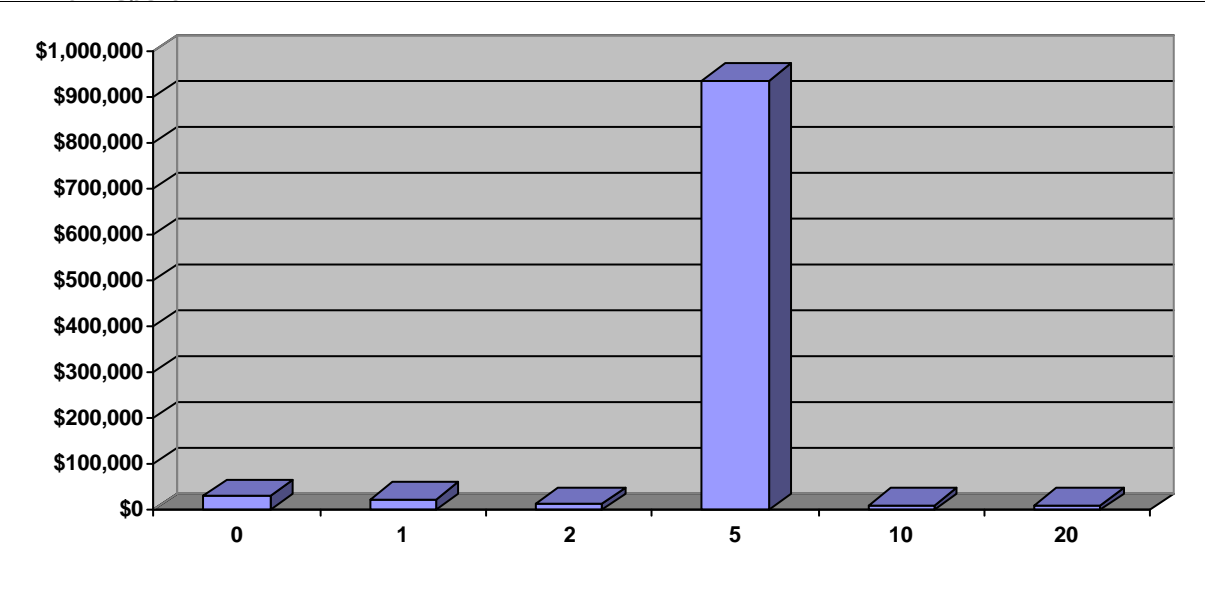
Building Report

Component	B.4.5.9	Other	Grade	B	Priority	4	ERL	01
Description	Gypsum Board		Photo ID					
Memo	Poor patch repairs at GWB, paint and corner bead delamination at taped joint.		Cost Range	\$1,000 to \$2,000				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Steel Door							
Memo	Holding cell doors and metal interior doors.							
Component	B.4.6.1	Deteriorated Finish	Grade	B	Priority	2	ERL	01
Description	Steel Door		Photo ID					
Memo	Scratch to painted metal door finish.		Cost Range	\$900 to \$1,000				
Sub System	B.4.7	Casework	Grade		Priority		ERL	
Description	Laminate							
Memo	Wood paneling in courtrooms.							
Component	B.4.7.7	Other	Grade	A	Priority	1	ERL	15
Description	Laminate		Photo ID					
Memo	Wear, normal for project age for wood material in courtroom.		Cost Range					
System	B.5	Architectural - Conveying System	% of CRV	3%	CRV Amt	\$865,829.08		
Sub System	B.5.7	Other Systems	Grade		Priority		ERL	
Description	Passenger							
Memo	Interior stair.							
Component	B.5.7.6	Other	Grade	B	Priority	3	ERL	00
Description	Passenger		Photo ID					
Memo	Non compliant handrail to guardrail transition per ADA 2010		Cost Range	\$5,000 to \$6,000				

Building Report

System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$1,443,048.52
Sub System	C.1.2	Parking Lots	Grade	B	Priority	1 ERL 20
Description	Concrete Paving					
Memo						
Component	C.1.2.1.2	Parking Lot - East of Building	Grade	B	Priority	1 ERL 20
Description	Concrete Paving		Photo ID			
Memo	Joints and cracks need to be sealed		Cost Range	\$9,000 to \$10,000		
Sub System	C.1.3	Side Walks	Grade	B	Priority	2 ERL 20
Description	Concrete Paving					
Memo						
Component	C.1.3.1.2	Handicap Ramp - South of Building	Grade	B	Priority	2 ERL 20
Description	Concrete Paving		Photo ID			
Memo	Cracks where joints should be; weeds growing through cracks; need to seal cracks		Cost Range	\$100 to \$500		
Sub System	C.1.9	Site Drainage / Erosion	Grade	C	Priority	2 ERL 20
Description	Concrete Construction					
Memo						
Component	C.1.9.1.4	Storm Inlet - Southwest Corner of Parking Lot	Grade	C	Priority	2 ERL 20
Description	Precast Concrete		Photo ID			
Memo	Inlet covered with debris; needs to be cleaned and maintained		Cost Range	\$400 to \$500		

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	6	ILEAS Original Building	Year Built	1920	CRV		
Address	1701 E Main		Grade	D	\$23,415,000	DMB	FCI
	Urbana	IL	61802	Priority	4	0-1 Year	\$7,851,000 33.53%
Construction Type	Block		Total SqFt	105,000	0-5 Year	\$10,138,000	43.30%
			Annual Maintenance Cost	\$702,450	5-25 Year	\$13,277,000	56.70%

System	A.6	Architectural - Exterior Soffits/Canopies	% of CRV	1%	CRV Amt	\$234,149.99
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Sub System	A.6.1	Soffit	Grade		Priority		ERL	
Description	Aluminum							
Memo	Metal soffits.							

Component	A.6.1.2	Other	Grade	C	Priority	4	ERL	02
Description	Aluminum		Photo ID					
Memo	Generally in good condition from observation on ground.		Cost Range					

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$2,809,799.94
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Sub System	B.2.1	Masonry Wall	Grade		Priority		ERL	
Description	Brick							
Memo	Exterior brick masonry wall façade.							

Component	B.2.1.1	Settlement / Cracks	Grade	D	Priority	3	ERL	00
Description	Brick		Photo ID					
Memo	Exterior brick missing and damaged at openings; terracotta chipped and in need of patching at multiple locations.		Cost Range	\$240,000 to \$260,000				

Building Report

Component	B.2.1.3	Mortar Joint Deterioration	Grade	F	Priority	3	ERL	00
Description	Brick		Photo ID					
Memo	Exterior brick joints deteriorated or gone. Bricks displaced; contains organic material.		Cost Range	\$550,000 to \$600,000				
Component	B.2.1.5	Efflorescence/Staining	Grade	C	Priority	3	ERL	01
Description	Brick		Photo ID					
Memo	Brick exterior efflorescence on surface, clean and re-point, spot repairs as necessary.		Cost Range	\$180,000 to \$200,000				
Component	B.2.1.9	Other	Grade	F	Priority	5	ERL	00
Description	Brick		Photo ID					
Memo	Masonry foundation exhibits water infiltration and deterioration from moisture exposure.		Cost Range	\$450,000 to \$500,000				
Component	B.2.2.6	Deterioration Due To Moisture	Grade	D	Priority	5	ERL	01
Description	Stone		Photo ID					
Memo	Exterior limestone base cracked, soiled and contains organic growth; some pieces missing.		Cost Range	\$75,000 to \$100,000				
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Metal							
Memo	Exterior metal handrails.							
Component	B.2.4.3	Surface Coating Failure	Grade	C	Priority	2	ERL	01
Description	Metal		Photo ID					
Memo	Exterior metal handrail finish damaged and deteriorated; does not meet ADA.		Cost Range	\$45,000 to \$50,000				

Building Report

Component	B.2.4.5	Other	Grade	D	Priority	4	ERL	01
Description	Metal		Photo ID					
Memo	Metal lintels at window openings have deteriorated and need replacement.		Cost Range	\$240,000 to \$260,000				
Sub System	B.2.6	Window	Grade		Priority		ERL	
Description	Aluminum / Glass							
Memo	Aluminum frame, double pane windows.							
Component	B.2.6.1	Frame / Sash Deterioration	Grade	C	Priority	3	ERL	05
Description	Aluminum / Glass		Photo ID					
Memo	Exterior window finish worn and damaged.		Cost Range	\$240,000 to \$260,000				
Component	B.2.6.6	Sealant Deterioration	Grade	D	Priority	3	ERL	03
Description	Aluminum / Glass		Photo ID					
Memo	Exterior window glazing seals broken.		Cost Range	\$75,000 to \$100,000				
Sub System	B.2.8	Door and Frame	Grade		Priority		ERL	
Description	Steel							
Memo	Exterior metal doors.							
Component	B.2.8.7	Other	Grade	F	Priority	4	ERL	00
Description	Steel Door		Photo ID					
Memo	Exterior metal door finish and hardware in advanced deterioration.		Cost Range	\$450,000 to \$500,000				
System	B.3	Architectural - Roofing System	% of CRV	5%		CRV Amt	\$1,170,750.02	
Sub System	B.3.3	Shingles	Grade		Priority		ERL	
Description	Asphalt							
Memo	Asphalt shingle roofing.							

Building Report

Component	B.3.3.7	Other	Grade	F	Priority	5	ERL	00
Description	Asphalt		Photo ID					
Memo	Roofing worn; at end of lifespan on main building - replace.		Cost Range	\$850,000 to \$900,000				
Sub System	B.3.5	Flashing, Gravel Stops & Expansion Joints	Grade		Priority		ERL	
Description	Flashing							
Memo	Roof flashing and fascia.							
Component	B.3.5.6	Deteriorating Finish	Grade	F	Priority	5	ERL	00
Description	Flashing		Photo ID					
Memo	Exterior metal roof fascia deteriorated, separating at joints, support fasteners failing. Organic material present at most locations.		Cost Range	\$75,000 to \$100,000				
Component	B.3.5.8	Other	Grade	F	Priority	2	ERL	10
Description	Wood		Photo ID					
Memo	Exterior fascias, decorative bracket supports and soffits worn, minor damage.		Cost Range	\$180,000 to \$200,000				
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%		CRV Amt	\$3,512,250.14	
Sub System	B.4.1	Flooring	Grade		Priority		ERL	
Description	Carpet							
Memo	Interior carpet flooring system.							
Component	B.4.1.1	Wear	Grade	F	Priority	5	ERL	00
Description	Carpet		Photo ID					
Memo	Interior carpet worn and water damaged and contains organic growth.		Cost Range	\$240,000 to \$260,000				

Building Report

Component	B.4.1.2	Stains/ Discoloration	Grade	C	Priority	4	ERL	01
Description	Sealed Concrete		Photo ID					
Memo	Basement interior flooring damaged, stained and discolored in multiple locations.		Cost Range	\$9,000 to \$10,000				
Component	B.4.1.4	Loose or Broken Tiles	Grade	F	Priority	1	ERL	02
Description	Ceramic Tile		Photo ID					
Memo	Interior floor tile finishes damaged and broken; at end of life.		Cost Range	\$4,000 to \$5,000				
Sub System	B.4.2	Base	Grade		Priority		ERL	
Description	Vinyl / Rubber							
Memo	Rubber wall base in corridors.							
Component	B.4.2.1	Wear	Grade	F	Priority	2	ERL	00
Description	Vinyl / Rubber		Photo ID					
Memo	Heavy wear and damage to rubber wall base. Base warped and lifting off wall and floor in places.		Cost Range	\$45,000 to \$50,000				
Sub System	B.4.3	Interior Walls	Grade		Priority		ERL	
Description	Gypsum Board							
Memo	Gypsum wall board in rooms and corridors.							
Component	B.4.3.3	Moisture Damage	Grade	F	Priority	5	ERL	02
Description	Gypsum Board		Photo ID					
Memo	Interior drywall and plaster finish damaged, water damage and holes in multiple locations, organic growth at multiple locations.		Cost Range	\$450,000 to \$500,000				

Building Report

Component	B.4.3.4	Impact Damage	Grade	C	Priority	2	ERL	05
Description	Aluminum Frame		Photo ID					
Memo	Paint damage at door.		Cost Range	\$2,000 to \$3,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Wood Trim / Molding							
Memo	Wood trim around passageways.							
Component	B.4.4.2	Peeling / Flaking	Grade	B	Priority	2	ERL	01
Description	Wood Trim / Molding		Photo ID					
Memo	Paint peeling and scratches on frames around passageways.		Cost Range	\$75,000 to \$100,000				
Component	B.4.4.4	Loose Material	Grade	F	Priority	5	ERL	00
Description	Wallpaper		Photo ID					
Memo	Interior wall finishes worn and deteriorated, some with organic growth.		Cost Range	\$140,000 to \$160,000				
Component	B.4.4.5	Moisture Damage	Grade	F	Priority	5	ERL	00
Description	Paint		Photo ID					
Memo	All interior wall finishes damaged and stained. Paint on walls deteriorated.		Cost Range	\$75,000 to \$100,000				
Component	B.4.4.8	Other	Grade	C	Priority	1	ERL	01
Description	Wood Panel		Photo ID					
Memo	Interior wood finish worn, selective damage.		Cost Range	\$4,000 to \$5,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	Acoustical tile ceilings including 2'x2'; 2'x4'; 1'x1'.							

Building Report

Component	B.4.5.1	Stains / Discoloration	Grade	F	Priority	5	ERL	00
Description	Acoustical Tile		Photo ID					
Memo	Interior ceiling tile stained and damaged, many exhibiting moisture damage; some missing.		Cost Range	\$180,000 to \$200,000				
Component	B.4.5.2	Peeling / Flaking	Grade	D	Priority	3	ERL	02
Description	Gypsum Board		Photo ID					
Memo	Basement interior ceiling finishes and ceiling devices affected by deteriorated paint finishes.		Cost Range	\$10,000 to \$25,000				
Component	B.4.5.5	Moisture Damage	Grade	F	Priority	5	ERL	00
Description	Gypsum Board		Photo ID					
Memo	Interior hard ceiling finishes show water damaged in multiple locations, deteriorated paint; organic growth.		Cost Range	\$140,000 to \$160,000				
Component	B.4.5.9	Other	Grade	F	Priority	5	ERL	00
Description	Precast Concrete		Photo ID					
Memo	structural tile broken in multiple locations, concrete beams and exposed rebar are deteriorated.		Cost Range	\$240,000 to \$260,000				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Steel Frame							
Memo	Interior metal door frames.							
Component	B.4.6.3	Rust	Grade	F	Priority	5	ERL	00
Description	Steel Frame		Photo ID					
Memo	Interior metal door frame exhibit impact damage and advanced deterioration.		Cost Range	\$1,000 to \$2,000				

Building Report

Component	B.4.6.8	Other	Grade	F	Priority	5	ERL	00
Description	Wood Door		Photo ID					
Memo	Interior doors damaged and deteriorated or missing. Hardware does not comply with ADA.		Cost Range	\$450,000 to \$500,000				
Sub System	B.4.7	Casework	Grade		Priority		ERL	
Description	Laminate							
Memo	Interior built-in furnishings and millwork.							
Component	B.4.7.7	Other	Grade	F	Priority	5	ERL	02
Description	Laminate		Photo ID					
Memo	Interior furnishings and millwork damaged, missing components at end of life.		Cost Range	\$450,000 to \$500,000				
System	B.5	Architectural - Conveying System	% of CRV	3%	CRV Amt	\$702,449.98		
Sub System	B.5.2	Elevator	Grade		Priority		ERL	
Description	Passenger							
Memo	Public elevator.							
Component	B.5.2.2	Unreliable Operation	Grade	F	Priority	4	ERL	00
Description	Passenger		Photo ID					
Memo	Elevators are failed, two new elevators are required. Will possibly require new hoistways to allow for ADA compliance.		Cost Range	\$450,000 to \$500,000				
Sub System	B.5.7	Other Systems	Grade		Priority		ERL	
Description	Passenger							
Memo	Exterior metal stair and rail.							

Building Report

Component	B.5.7.4	Damaged Finishes	Grade	D	Priority	5	ERL	01
Description	Passenger		Photo ID					
Memo	Exterior metal stair and finish deteriorated.		Cost Range	\$100,000 to \$150,000				
Component	B.5.7.6	Other	Grade	F	Priority	5	ERL	00
Description	Passenger		Photo ID					
Memo	Exterior ADA ramp worn, uneven, surface not level, generally deteriorated. Handrails/guardrails not compliant with ADA.		Cost Range	\$40,000 to \$50,000				
System	B.6	Mechanical - Plumbing System	% of CRV	8%		CRV Amt	\$1,873,199.96	
Sub System	B.6.3	Water Supply Equipment System	Grade		Priority		ERL	
Description								
Memo								
Component	B.6.3.2	Domestic Water Heater	Grade	B	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	State Water Heater, Model SOF100199MEA100, S/N M07M006338. 200 MBH input, 100 gallon capacity, 230 GPH recovery. Installed 12/20/2007.		Cost Range					
System	B.8	Mechanical - HVAC System	% of CRV	12%		CRV Amt	\$2,809,799.94	
Sub System	B.8.1	Boiler	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	<input type="text" value="B.8.1.1"/> Steam / Hot Water Boiler	Grade	<input type="text" value="D"/>	Priority	<input type="text" value="4"/>	ERL	<input type="text" value="01"/>
Description	<input type="text" value="End of Life"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Boiler No. 1: Model CFC-700-750-60HW, S/N MB-1382. 208V, 750 MBH input."/>	Cost Range	<input type="text" value="\$50,000 to \$70,000"/>				

Sub System	<input type="text" value="B.8.4"/> Cooling System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.8.4.1.2"/> Water Chiller - Centrifugal	Grade	<input type="text" value="F"/>	Priority	<input type="text" value="5"/>	ERL	<input type="text" value="00"/>
Description	<input type="text" value="End of Life"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="York model YCAV0227PA46VACBXT. 480V/3Ø, R-134a Refrigerant. Air cooled."/>	Cost Range	<input type="text" value="\$75,000 to \$100,000"/>				

Sub System	<input type="text" value="B.8.5"/> HVAC Distribution System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.8.5.1.1"/> Supply/Return Air Fan - Air Handling Unit	Grade	<input type="text" value="F"/>	Priority	<input type="text" value="4"/>	ERL	<input type="text" value="01"/>
Description	<input type="text" value="End of Life"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="AHU-1 serving new addition: Trane model M-3, S/N K3B224978. Hot water, chilled water."/>	Cost Range	<input type="text" value="\$75,000 to \$100,000"/>				

Sub System	<input type="text" value="B.8.6"/> Packaged HVAC Equipment	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Building Report

Component	B.8.6.2.2	Heat Transfer Equipment - Fan Coil Unit	Grade	D	Priority	3	ERL	05
Description	No Deficiency		Photo ID					
Memo	Patient Room FCU: 2-pipe Fan Coil Unit, 3 position fan switch. Trane Model B22AE03. 500 watt heater, screen air filter, copper coil piping. Pneumatic controls. Typical of all.		Cost Range	\$100,000 to \$150,000				

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$2,809,799.94
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Sub System	B.9.1	Electrical Service and Distribution	Grade		Priority		ERL	
Description								
Memo								

Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Cummins Generator, DGFB-3371143, S/N 45830774, 175kW diesel, 416.4 hours.		Cost Range	\$30,000 to \$40,000				

Component	B.9.1.3.1	Interior Electrical Distribution - Transformer	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Step Down Transformer, dry type. 30kVA, 480V, Delta 208Y/120.		Cost Range	\$15,000 to \$20,000				

Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	A	Priority	1	ERL	10
Description	Corroded		Photo ID					
Memo	Square D/GE Bolt-Loc, General Electric QMR fuse distribution sections. 1600 Amp, 277/480V. Covers are rusting.		Cost Range	\$25,000 to \$30,000				

Component	B.9.1.3.6	Interior Electrical Distribution - Other Component	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Automatic Transfer Switch: ASCO Series 300, 250 Amp.		Cost Range	\$15,000 to \$20,000				

Building Report

Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	General Electric NLAB 120/208V, 3Ø, 4W panelboard.		Cost Range	\$20,000 to \$25,000				

Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								

Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	F	Priority	1	ERL	01
Description	No Deficiency		Photo ID					
Memo	Compact Fluorescent Down lights.		Cost Range	\$450,000 to \$500,000				

Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	C	Priority	1	ERL	01
Description	No Deficiency		Photo ID					
Memo	Metal halide lamps outside building.		Cost Range	\$10,000 to \$15,000				

Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Exit signage; LED.		Cost Range	\$15,000 to \$20,000				

Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								

Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	Fire Alarm: Simplex 4100U Multiplex addressable system.		Cost Range	\$50,000 to \$70,000				

System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$1,170,750.02
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Building Report

Sub System	C.1.1	Drives / Roads / Curbs	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Asphalt Paving							
Memo								

Component	C.1.1.1.2	Cracking - North Side of Boiler House	Grade	C	Priority	2	ERL	01
Description	Concrete Construction		Photo ID					
Memo	Full depth cracking in pad; overgrown with weeds between cracks; need to remove and replace		Cost Range	\$5,000 to \$6,000				

Sub System	C.1.3	Side Walks	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Concrete Paving							
Memo								

Component	C.1.3.1.1	Surface Deterioration - West Side of Boiler House	Grade	C	Priority	2	ERL	01
Description	Asphalt Paving		Photo ID					
Memo	Cracked sidewalk; peeling asphalt layers; need to patch deteriorated areas		Cost Range	\$1,000 to \$5,000				

Component	C.1.3.1.2	Cracking - Main Entrance	Grade	C	Priority	2	ERL	05
Description	Concrete Paving		Photo ID					
Memo	Full depth crack in walkway; piece of surface missing; need to remove and replace around affected area		Cost Range	\$500 to \$1,000				

Component	C.1.3.1.3	Settling or Uplift - Perimeter of Building	Grade	C	Priority	2	ERL	01
Description	Concrete Paving		Photo ID					
Memo	Perimeter walk has uneven panels; broken concrete panels; grass growing between cracks; need to seal cracks and mudjack uneven panels		Cost Range	\$10,000 to \$25,000				

Building Report

Sub System	C.1.9	Site Drainage / Erosion	Grade	B	Priority	2	ERL	05
Description	Precast Concrete							
Memo								

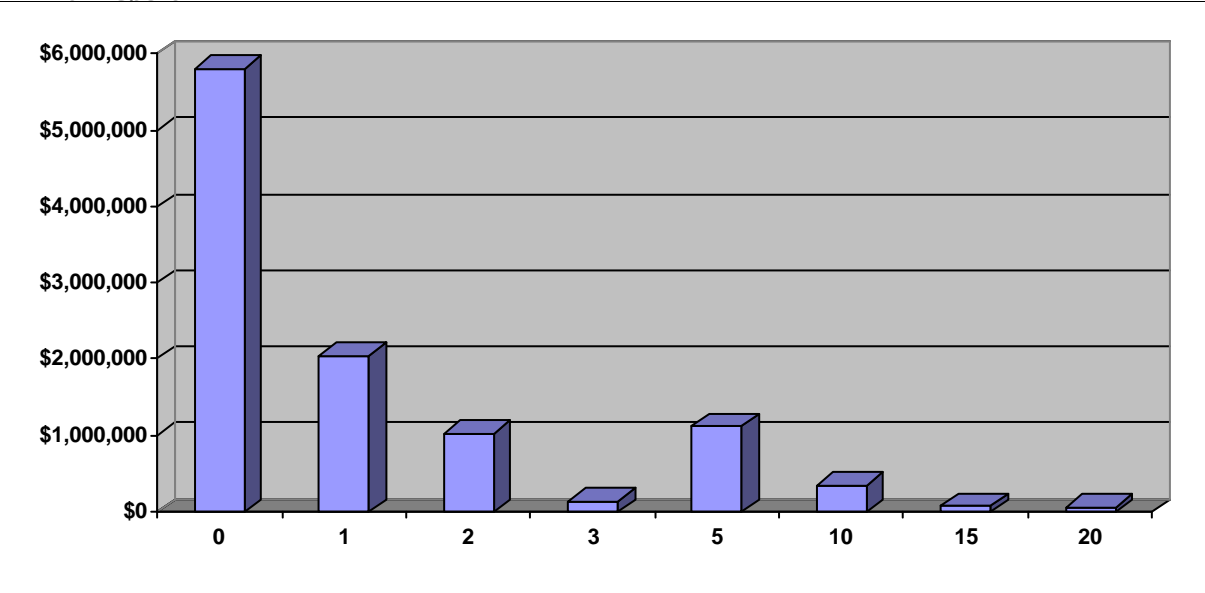
Component	C.1.9.1.1	Erosion - Catch Basin Near Street	Grade	C	Priority	3	ERL	01
Description	Lacking Maintenance		Photo ID					
Memo	Minor erosion around surface of manhole; need to regrade surface and install rip-rap for protection against erosion		Cost Range	\$3,000 to \$4,000				

System	C.3	Civil - Landscape Structures	% of CRV	1%	CRV Amt	\$234,149.99
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Sub System	C.3.2	Freestanding Deck/Patio	Grade		Priority		ERL	
Description	Wood Construction							
Memo								

Component	C.3.2.5	Lacking Maintenance - Deck in Rear of Building	Grade	C	Priority	2	ERL	01
Description	Wood Construction		Photo ID					
Memo	Bent and broken boards on deck; broken lattice work; need to remove and replace		Cost Range	\$5,000 to \$6,000				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	14	ILEAS Training Center	Year Built	1970	CRV		
Address	1701 E Main		Grade	C	\$21,243,099	DMB	FCI
	Urbana	IL	61802	Priority	3	0-1 Year	\$332,000 1.56%
Construction Type			Total SqFt	95,436	0-5 Year	\$1,093,000	5.15%
			Annual Maintenance Cost	\$637,293	5-25 Year	\$20,150,099	94.85%

System	A.6	Architectural - Exterior Soffits/Canopies	% of CRV	1%	CRV Amt	\$212,430.99
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Sub System	A.6.1	Soffit	Grade		Priority		ERL	
Description	Plywood and Aluminum Soffits.							
Memo	Exterior aluminum soffits.							

Component	A.6.1.1	Deterioration Due to Moisture	Grade	C	Priority	3	ERL	01
Description	Plywood		Photo ID					
Memo	Exterior soffit finish worn. Damaged areas, deteriorated paint and fasteners.		Cost Range	\$1,000 to \$2,000				

Component	A.6.1.2	Other	Grade	C	Priority	3	ERL	02
Description	Aluminum		Photo ID					
Memo	Exterior metal soffit stained, missing trim pieces and light covers; pieces damaged and some areas allow exposure of building components.		Cost Range	\$15,000 to \$20,000				

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$2,549,171.82
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Sub System	B.2.1	Masonry Wall	Grade		Priority		ERL	
Description	Brick							
Memo	Exterior brick.							

Building Report

Component	B.2.1.1	Settlement / Cracks	Grade	F	Priority	4	ERL	02
Description	Brick		Photo ID					
Memo	Exterior masonry planters are deteriorated and should be removed or repaired.		Cost Range	\$40,000 to \$50,000				
Component	B.2.1.4	Sealant Joint Deterioration	Grade	D	Priority	3	ERL	01
Description	Brick		Photo ID					
Memo	Exterior brick sealant joints deteriorated or missing.		Cost Range	\$100,000 to \$150,000				
Component	B.2.1.8	Lacking Maintenance	Grade	B	Priority	2	ERL	10
Description	Brick		Photo ID					
Memo	Exterior masonry generally in good condition.		Cost Range					
Component	B.2.1.9	Other	Grade	D	Priority	4	ERL	01
Description	Brick		Photo ID					
Memo	Impact damage at wall, re-bar exposed.		Cost Range	\$4,000 to \$5,000				
Sub System	B.2.2	Concrete Wall	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Exterior concrete walkways.							
Component	B.2.2.1	Settlement / Cracks	Grade	X	Priority	5	ERL	00
Description	Poured Concrete		Photo ID					
Memo	Exterior concrete walk, containing cracking and displaced concrete; joint failure in multiple places. Potential trip hazard to persons.		Cost Range	\$1,000 to \$5,000				
Sub System	B.2.6	Window	Grade		Priority		ERL	
Description	Aluminum / Glass							
Memo	Aluminum / Glass windows and storefront system.							

Building Report

Component	B.2.6.1	Frame / Sash Deterioration	Grade	C	Priority	3	ERL	02
Description	Aluminum / Glass		Photo ID					
Memo	Exterior window mullions cover missing, allows water infiltration, generally system is in fair condition.		Cost Range	\$1,000 to \$2,000				
Component	B.2.6.2	Glass Breakage	Grade	C	Priority	3	ERL	02
Description	Aluminum / Glass		Photo ID					
Memo	Exterior glass pane cracked full width, structural soundness diminished.		Cost Range	\$1,000 to \$2,000				
Component	B.2.6.6	Sealant Deterioration	Grade	D	Priority	5	ERL	01
Description	Aluminum / Glass		Photo ID					
Memo	Exterior windows and storefront joint failure throughout, allowing air and water infiltration. Joint material deteriorated and at end of life.		Cost Range	\$45,000 to \$50,000				
Sub System	B.2.8	Door and Frame	Grade		Priority		ERL	
Description	Steel Frame							
Memo	Exterior metal door frames.							
Component	B.2.8.7	Other	Grade	B	Priority	3	ERL	05
Description	Steel Frame		Photo ID					
Memo	Exterior frames finish minor deterioration.		Cost Range	\$10,000 to \$15,000				
System	B.3	Architectural - Roofing System	% of CRV	5%		CRV Amt	\$1,062,154.97	
Sub System	B.3.3	Shingles	Grade		Priority		ERL	
Description	Asphalt							
Memo	Asphalt roofing shingles.							

Building Report

Component Grade Priority ERL
 Description Photo ID
 Memo Cost Range

Sub System Grade Priority ERL
 Description
 Memo

Component Grade Priority ERL
 Description Photo ID
 Memo Cost Range

System % of CRV CRV Amt

Sub System Grade Priority ERL
 Description
 Memo

Component Grade Priority ERL
 Description Photo ID
 Memo Cost Range

Sub System Grade Priority ERL
 Description
 Memo

Building Report

Component	B.4.2.3	Holes / Tears / Loose Seams	Grade	B	Priority	3	ERL	03
Description	Vinyl / Rubber		Photo ID					
Memo	Range of condition from new to poor; some vinyl wall base has pulled off wall; wall partially deteriorated behind.		Cost Range	\$10,000 to \$15,000				
Sub System	B.4.3	Interior Walls	Grade		Priority		ERL	
Description	Plaster							
Memo	Plaster wall finish.							
Component	B.4.3.3	Moisture Damage	Grade	D	Priority	4	ERL	01
Description	Plaster		Photo ID					
Memo	Plaster partition behind ceramic tile damaged due to tile failure. Water deterioration exhibited.		Cost Range	\$2,000 to \$3,000				
Component	B.4.3.6	Other	Grade	B	Priority	3	ERL	02
Description	Gypsum Board		Photo ID					
Memo	Generally in good condition, some repair needed in tactical areas.		Cost Range	\$10,000 to \$15,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Paint							
Memo	Interior wall paint finishes.							
Component	B.4.4.8	Other	Grade	B	Priority	1	ERL	05
Description	Paint		Photo ID					
Memo	Paint finishes damaged at interior corridors and doors in tactical area.		Cost Range	\$2,000 to \$3,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	Acoustical tile ceiling.							

Building Report

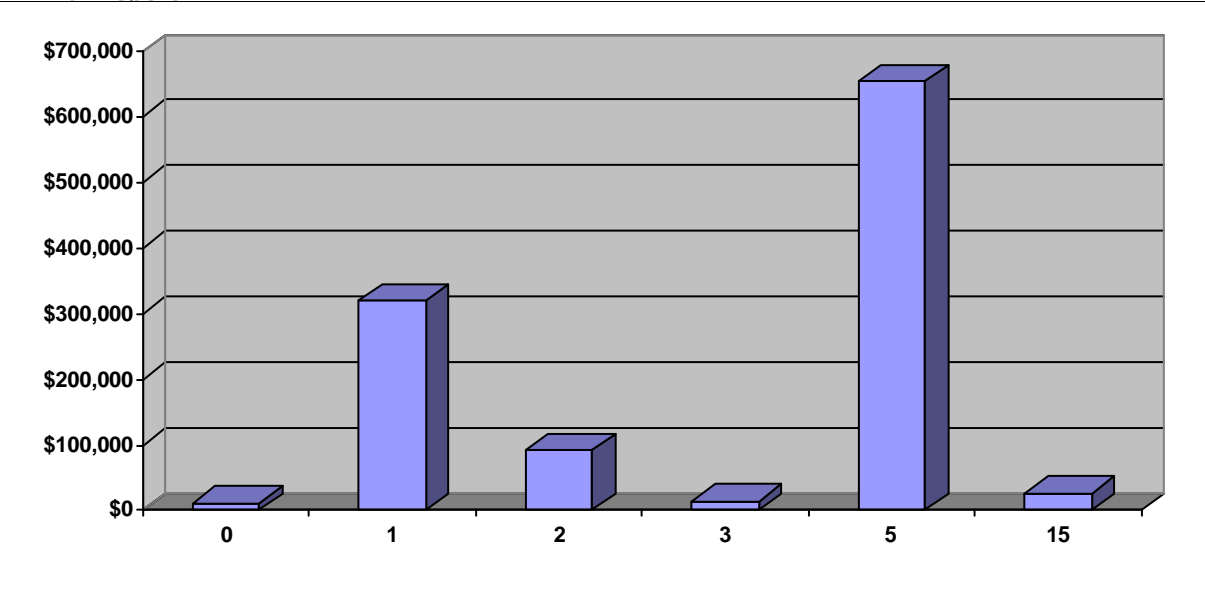
Component	B.4.5.1	Stains / Discoloration	Grade	B	Priority	2	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Some 2' x 2' ceiling tiles stained at office / classroom area and in need of selective replacement.		Cost Range	\$900 to \$1,000				
Component	B.4.5.3	Settlement / Sagging	Grade	F	Priority	1	ERL	01
Description	Acoustical Tile		Photo ID					
Memo	2' x 4' tiles deteriorated and contain growth of organic material; some missing tiles.		Cost Range	\$45,000 to \$50,000				
Component	B.4.5.7	Damaged Grid	Grade	C	Priority	3	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	ACT ceiling grid metal finish deteriorated and discolored at tactical area.		Cost Range	\$45,000 to \$50,000				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Wood Door							
Memo	Interior wood doors.							
Component	B.4.6.1	Deteriorated Finish	Grade	B	Priority	3	ERL	05
Description	Wood Door		Photo ID					
Memo			Cost Range	\$4,000 to \$5,000				
Component	B.4.6.8	Other	Grade	B	Priority	4	ERL	02
Description	Steel Door		Photo ID					
Memo	Some interior doors and frames show deterioration from possible water infiltration.		Cost Range	\$2,000 to \$3,000				
System	B.8	Mechanical - HVAC System	% of CRV	12%		CRV Amt	\$2,549,171.82	

Building Report

Sub System	B.8.6	Packaged HVAC Equipment	Grade	D	Priority	3	ERL	
Description								
Memo								

Component	B.8.6.2.2	Heat Transfer Equipment - Fan Coil Unit	Grade	D	Priority	3	ERL	05
Description	End of Life		Photo ID					
Memo	Trane Fan Coil Units throughout building. Fed by boilers in boiler house.		Cost Range	\$40,000 to \$50,000				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

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Building Report

Building	5	Brookens Administrative Center	Year Built	1970	CRV			
Address	1700 S Washington		Grade	B	\$19,600,297	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$713,000	3.64%
Construction Type	Block		Total SqFt	93,060	0-5 Year	\$1,841,000	9.39%	
			Annual Maintenance Cost	\$588,009	5-25 Year	\$17,759,297	90.61%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$2,352,035.59		
Sub System	B.2.1	Masonry Wall	Grade		Priority		ERL	
Description	Brick							
Memo	Exterior brick.							

Component	B.2.1.3	Mortar Joint Deterioration	Grade	C	Priority	4	ERL	02
Description	Brick		Photo ID					
Memo	Sealant generally needs to be removed with new installed.		Cost Range	\$20,000 to \$25,000				

Component	B.2.1.9	Other	Grade	B	Priority	3	ERL	05
Description	Brick		Photo ID					
Memo	Generally in good condition, some evidence of previous repointing.		Cost Range	\$75,000 to \$100,000				

Sub System	B.2.10	Insulation Board	Grade		Priority		ERL	
Description	Insulation Board							
Memo	Exterior exposed insulation board.							

Component	B.2.10.1	Wear	Grade	C	Priority	3	ERL	10
Description	Insulation Board		Photo ID					
Memo	Most areas appear to be damaged. Some areas have deteriorated or are missing.		Cost Range	\$45,000 to \$50,000				

Building Report

Sub System	B.2.4	Metal	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Metal							
Memo	Exterior metal handrails.							

Component	B.2.4.3	Surface Coating Failure	Grade	D	Priority	4	ERL	01
Description	Metal		Photo ID	<input type="text"/>				
Memo	Deterioration at base of handrails in some areas.		Cost Range	\$5,000 to \$10,000				

Component	B.2.4.5	Other	Grade	C	Priority	3	ERL	02
Description	Metal		Photo ID	<input type="text"/>				
Memo	Some deterioration of metal angle at window heads. No control joint in brick at end of angle. Mortar is missing.		Cost Range	\$20,000 to \$25,000				

Sub System	B.2.6	Window	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Aluminum / Glass							
Memo	Aluminum and glass windows.							

Component	B.2.6.1	Frame / Sash Deterioration	Grade	B	Priority	3	ERL	05
Description	Aluminum / Glass		Photo ID	<input type="text"/>				
Memo	Metal at some frames are damaged.		Cost Range	\$15,000 to \$20,000				

Component	B.2.6.6	Sealant Deterioration	Grade	C	Priority	4	ERL	03
Description	Aluminum / Glass		Photo ID	<input type="text"/>				
Memo	Sealant generally needs removed with new installed.		Cost Range	\$20,000 to \$25,000				

Sub System	B.2.8	Door and Frame	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Steel Door							
Memo	Exterior hollow metal doors.							

Building Report

Component	B.2.8.7	Other	Grade	B	Priority	3	ERL	05
Description	Steel Door		Photo ID					
Memo	Hollow metal doors have minor deterioration, primarily at the base of frame. (Repair and paint.)		Cost Range	\$20,000 to \$25,000				

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$980,014.86
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Sub System	B.3.1	Built-Up Roof	Grade	B	Priority	3	ERL	10
Description	Adhered							
Memo	Adhered built up roofing system, some areas of ponding.							

Component	B.3.1.10	Other	Grade	D	Priority	4	ERL	01
Description	Adhered		Photo ID					
Memo	Pods 100 and 200 need replaced.		Cost Range	\$650,000 to \$700,000				

Sub System	B.3.4	Metal	Grade		Priority		ERL	
Description	Standing Seam							
Memo	Painted metal roofing panels which extend down side of building.							

Component	B.3.4.7	Other	Grade	C	Priority	3	ERL	10
Description	Standing Seam		Photo ID					
Memo	Some damage, paint deteriorated at areas.		Cost Range	\$40,000 to \$50,000				

Sub System	B.3.5	Flashing, Gravel Stops & Expansion Joints	Grade		Priority		ERL	
Description	Aluminum							
Memo	Flashing on parapet.							

Building Report

Component Grade Priority ERL

Description Photo ID

Memo Cost Range

Sub System Grade Priority ERL

Description

Memo

Component Grade Priority ERL

Description Photo ID

Memo Cost Range

System % of CRV CRV Amt

Sub System Grade Priority ERL

Description

Memo

Component Grade Priority ERL

Description Photo ID

Memo Cost Range

Sub System Grade Priority ERL

Description

Memo

Building Report

Component	B.4.2.10	Other	Grade	B	Priority	2	ERL	10
Description	Vinyl / Rubber		Photo ID					
Memo	Exposed / tectum panels generally in good condition, stains at some areas.		Cost Range					
Sub System	B.4.3	Interior Walls	Grade		Priority		ERL	
Description	Glazed Block							
Memo	Glazed block interior walls in good condition.							
Component	B.4.3.6	Other	Grade	B	Priority	2	ERL	20
Description	Glazed Block		Photo ID					
Memo			Cost Range					
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Vinyl / Fabric Wall Cover							
Memo								
Component	B.4.4.4	Loose Material	Grade	B	Priority	3	ERL	10
Description	Vinyl / Fabric Wall Cover		Photo ID					
Memo	Vinyl wall coverings in generally good condition, few areas of impact damage.		Cost Range	\$10,000 to \$25,000				
Component	B.4.4.8	Other	Grade	B	Priority	2	ERL	10
Description	Wood Trim / Molding		Photo ID					
Memo	Interior millwork in generally good condition, some limited damage.		Cost Range	\$4,000 to \$5,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	Acoustical tile ceiling system.							

Building Report

Component	B.4.5.1	Stains / Discoloration	Grade	C	Priority	3	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Damage in some areas to grid and tiles, stained tiles need replaced, otherwise in good condition.		Cost Range	\$4,000 to \$5,000				
Component	B.4.5.9	Other	Grade	A	Priority	2	ERL	10
Description	Acoustic Panels		Photo ID					
Memo	Exposed / tectum panels generally in good condition, stains at some areas.		Cost Range					
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Metal							
Memo	Door hardware.							
Component	B.4.6.8	Other	Grade	B	Priority	2	ERL	10
Description	Metal		Photo ID					
Memo			Cost Range					
System	B.8	Mechanical - HVAC System	% of CRV	12%		CRV Amt	\$2,352,035.59	
Sub System	B.8.1	Boiler	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.1.1	Steam / Hot Water Boiler	Grade	C	Priority	3	ERL	10
Description	No Deficiency		Photo ID					
Memo	Gas-fired boiler, serves Pods 200 and 300.		Cost Range	\$70,000 to \$100,000				

Building Report

Sub System	B.8.4	Cooling System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.4.1.2	Water Chiller - Centrifugal	Grade	B	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Chiller installed in 2014, serves pods 200 and 300.		Cost Range	\$75,000 to \$100,000				

Sub System	B.8.5	HVAC Distribution System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	C	Priority	3	ERL	10
Description	No Deficiency		Photo ID					
Memo	(7) small Carrier air handling units serving pod 400.		Cost Range	\$140,000 to \$160,000				

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$2,352,035.59
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Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Generator: Cummins GGHE-1421702, S/N L140774768. 60kW Natural Gas, 15.1 Hours		Cost Range	\$20,000 to \$25,000				

Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Automatic Transfer Switch: Cummins OTECC-1421701		Cost Range	\$10,000 to \$15,000				

Building Report

Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Eaton Branch Panelboards PRLIA 120/208V, 3 Phase, 4 Wire		Cost Range	\$20,000 to \$25,000				

Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								

Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	05
Description	End of Life		Photo ID					
Memo	Lighting Fixture mix of T12 and T8 lamps. As lamps fail, the fixture is retrofitted with new T8 lamp and ballasts. \$175 replacement cost per device. Approximately 1/3 of building has been retrofitted.		Cost Range	\$30,000 to \$40,000				

Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	01
Description	End of Life		Photo ID					
Memo	Constant replacement of photo cell lighting controllers on outside of building. \$75 replacement cost per device.		Cost Range	\$2,000 to \$3,000				

Component	B.9.2.4.4	Exit/Emergency Lighting - Battery	Grade	A	Priority	1	ERL	05
Description	End of Life		Photo ID					
Memo	Emergency battery packs and exit fixtures. As existing old fixtures fail, they are replaced with upgraded LED type fixtures. \$170 replacement cost per device.		Cost Range	\$15,000 to \$20,000				

Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Simplex Fire Alarm Panel #4020		Cost Range	\$20,000 to \$25,000				

System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$980,014.86
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Sub System	C.1.1	Drives / Roads / Curbs	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								

Component	C.1.1.1.1	Surface Deterioration - Driveway to East Lot	Grade	C	Priority	2	ERL	10
Description	Asphalt Paving		Photo ID					
Memo	Alligator cracking; wheel depressions in asphalt; potholes; surface has been recently sealed; need to remove and replace asphalt		Cost Range	\$75,000 to \$100,000				

Component	C.1.1.1.3	Curbs Eroded or Missing - Driveway Along Washingto	Grade	C	Priority	2	ERL	10
Description	Asphalt Paving		Photo ID					
Memo	Curb severely deteriorated; wheel depressions in asphalt; alligator cracking; need to remove and replace asphalt		Cost Range	\$75,000 to \$100,000				

Sub System	C.1.2	Parking Lots	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								

Component	C.1.2.1.1	Surface Deterioration - East Lot	Grade	C	Priority	2	ERL	10
Description	Asphalt Paving		Photo ID					
Memo	Pothole at entrance and in center of lot; surface cracking; need to patch potholes and seal asphalt		Cost Range	\$100,000 to \$150,000				

Building Report

Sub System	C.1.3	Side Walks	Grade	C	Priority	2	ERL	05
Description	Concrete Paving							
Memo								
Component	C.1.3.1.1	Surface Deterioration - West Side of Building	Grade	C	Priority	2	ERL	05
Description	Concrete Construction		Photo ID					
Memo	Curb is spalling; sidewalk covered with debris; need to replace curb and clean sidewalk		Cost Range	\$5,000 to \$10,000				
Component	C.1.3.1.2	Cracking - Sidewalk Surrounding Flagpole	Grade	C	Priority	2	ERL	05
Description	Concrete Construction		Photo ID					
Memo	Cracked panels with weeds growing through cracks; need to remove and replace concrete panels		Cost Range	\$5,000 to \$6,000				
Component	C.1.3.1.3	Settling or Uplift - North Lot	Grade	C	Priority	2	ERL	10
Description	Concrete Construction		Photo ID					
Memo	Sidewalk depressed below curb; need to mudjack sidewalk		Cost Range	\$10,000 to \$15,000				
Sub System	C.1.5	Fencing	Grade	A	Priority	1	ERL	15
Description	Service							
Memo								
Component	C.1.5.1.6	Other	Grade	A	Priority	1	ERL	15
Description	Service		Photo ID					
Memo	Initial fence in good condition.		Cost Range					
Sub System	C.1.7	Retaining Walls	Grade	C	Priority	2	ERL	05
Description	Brick							
Memo								

Building Report

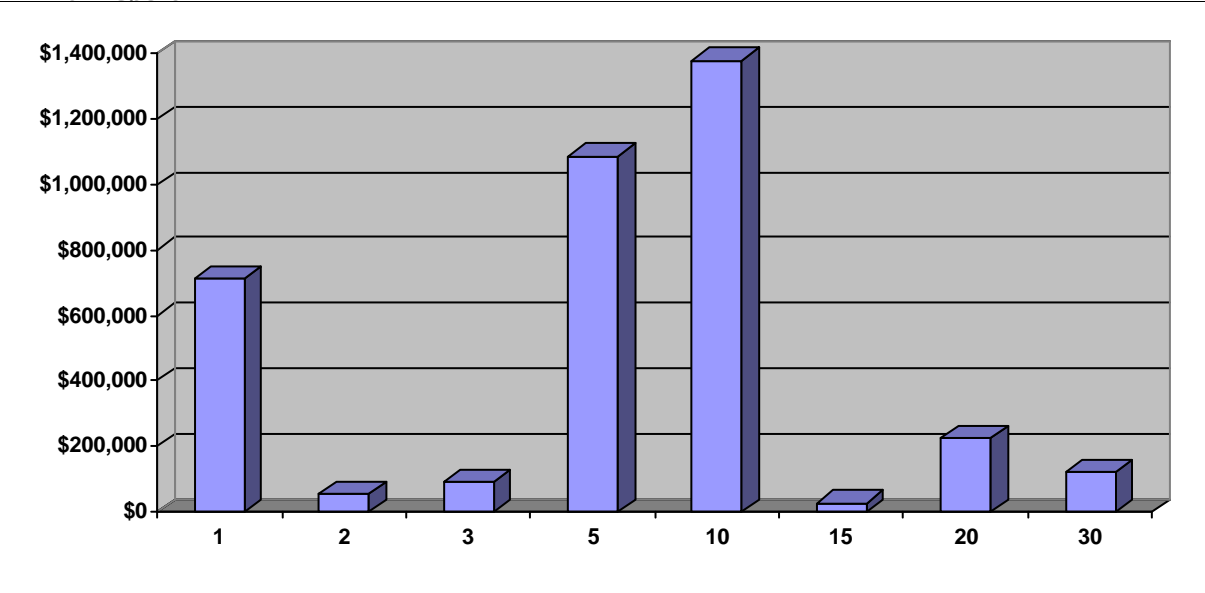
Component	C.1.7.1.5	Cracked/Broken Material - East Side of Building	Grade	C	Priority	2	ERL	05
Description	Brick		Photo ID					
Memo	Area serves as garbage can storage; brick wall deteriorating and missing bricks; concrete base deteriorating and spallings; need to fix wall; need to remove and replace concrete		Cost Range	\$5,000 to \$10,000				

Sub System	C.1.9	Site Drainage / Erosion	Grade	C	Priority	2	ERL	02
Description	Aluminum							
Memo								

Component	C.1.9.1.4	Other - Downspouts	Grade	C	Priority	2	ERL	02
Description	Aluminum		Photo ID					
Memo	Open downspouts (18-24 inches high) above ground surface connection on south and west side of building; causing erosion near foundation; need to install connections and regrade soil		Cost Range	\$1,000 to \$2,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building	3	Courthouse - Original Building	Year Built	1901	CRV			
Address	101 E Main		Grade	B	\$13,586,120	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$99,300	0.73%
Construction Type	Block		Total SqFt	46,839	0-5 Year	\$548,300	4.04%	
			Annual Maintenance Cost	\$407,584	5-25 Year	\$13,037,820	95.96%	

System	A.6	Architectural - Exterior Soffits/Canopies	% of CRV	1%	CRV Amt	\$135,861.20
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Sub System	A.6.2	Cornice	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Terracotta							
Memo	Terracotta cornice along the perimeter of the building.							

Component	A.6.2.1	Wear	Grade	B	Priority	2	ERL	10
Description	Terracotta		Photo ID	<input type="text"/>				
Memo	Terracotta in good condition with minor chipping and mortar deterioration observed.		Cost Range	\$20,000 to \$25,000				

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$1,630,334.36
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Sub System	B.2.1	Masonry Wall	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Stone							
Memo	Stone masonry wall façade.							

Component	B.2.1.9	Other	Grade	C	Priority	3	ERL	05
Description	Stone		Photo ID	<input type="text"/>				
Memo	Impact damage at stone opening.		Cost Range	\$4,000 to \$5,000				

Building Report

Sub System	B.2.3	Wood	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Wood Frame							
Memo	Wood ramp on exterior.							

Component	B.2.3.8	Other	Grade	F	Priority	4	ERL	01
Description	Wood Frame		Photo ID	<input type="text"/>				
Memo	Non code compliant wood ramp.		Cost Range	\$25,000 to \$50,000				

Sub System	B.2.6	Window	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Aluminum / Glass							
Memo	Aluminum and glass windows.							

Component	B.2.6.1	Frame / Sash Deterioration	Grade	B	Priority	2	ERL	05
Description	Aluminum / Glass		Photo ID	<input type="text"/>				
Memo	At exterior of dormer windows, at each location, copper flashing at window sill has deteriorated, adhered membrane flashing applied.		Cost Range	\$9,000 to \$10,000				

Component	B.2.6.6	Sealant Deterioration	Grade	B	Priority	4	ERL	01
Description	Aluminum / Glass		Photo ID	<input type="text"/>				
Memo	Deteriorated perimeter sealant at dormer windows.		Cost Range	\$4,000 to \$5,000				

Sub System	B.2.8	Door and Frame	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Door							
Memo	Hollow metal exterior doors.							

Component	B.2.8.7	Other	Grade	B	Priority	3	ERL	03
Description	Door		Photo ID	<input type="text"/>				
Memo	Damage to hollow metal door, paint finish deteriorated at some locations.		Cost Range	\$4,000 to \$5,000				

Building Report

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$679,306.01
Sub System	B.3.1	Built-Up Roof	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>
Description	Adhered		ERL	<input type="checkbox"/>		
Memo						
Component	B.3.1.10	Other	Grade	C	Priority	3
Description	Adhered		ERL	02		
Memo			Photo ID	<input type="text"/>		
			Cost Range	\$240,000 to \$260,000		
Sub System	B.3.2	Single Ply Roof	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>
Description	Ballasted		ERL	<input type="checkbox"/>		
Memo	Ballasted roof.					
Component	B.3.2.4	Missing Or Inconsistent Ballast	Grade	B	Priority	4
Description	Ballasted		ERL	03		
Memo	Roof ballast to be replaced at areas of repaired leaks.		Photo ID	<input type="text"/>		
			Cost Range	\$1,000 to \$2,000		
Component	B.3.2.9	Other	Grade	C	Priority	3
Description	Wood		ERL	01		
Memo	Wood debris at roof.		Photo ID	<input type="text"/>		
			Cost Range	\$500 to \$1,000		
Sub System	B.3.3	Shingles	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>
Description	Asphalt		ERL	<input type="checkbox"/>		
Memo	Asphalt shingles on main portions of roof.					
Component	B.3.3.7	Other	Grade	B	Priority	2
Description	Asphalt		ERL	10		
Memo	Roof shingles and flashing show no signs of deficiency. No base flashing observed at dormers.		Photo ID	<input type="text"/>		
			Cost Range	\$280,000 to \$300,000		

Building Report

Sub System	B.3.5	Flashing, Gravel Stops & Expansion Joints	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Flashing							
Memo	Roof flashing.							

Component	B.3.5.5	Component Failure	Grade	B	Priority	4	ERL	01
Description	Flashing		Photo ID	<input type="text"/>				
Memo	Fluid applied membrane waterproofing has failed.		Cost Range	\$2,000 to \$3,000				

Sub System	B.3.9	Wood	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Wood							
Memo	Roof walkway and rail.							

Component	B.3.9.1	Wear	Grade	C	Priority	4	ERL	01
Description	Wood		Photo ID	<input type="text"/>				
Memo	Deteriorated railing and ramp.		Cost Range	\$100,000				

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$2,037,918.08
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Sub System	B.4.1	Flooring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Marble							
Memo	Marble tile flooring.							

Component	B.4.1.1	Wear	Grade	B	Priority	3	ERL	03
Description	Marble		Photo ID	<input type="text"/>				
Memo	Stained and broken marble tile, grout has deteriorated.		Cost Range	\$75,000 to \$100,000				

Component	B.4.1.2	Stains/ Discoloration	Grade	A	Priority	2	ERL	02
Description	Carpet		Photo ID	<input type="text"/>				
Memo	Stained and worn carpet in limited office locations.		Cost Range	\$10,000 to \$15,000				

Building Report

Component	<input type="text" value="B.4.1.4"/> Loose or Broken Tiles	Grade	<input type="text" value="A"/>	Priority	<input type="text" value="3"/>	ERL	<input type="text" value="02"/>
Description	<input type="text" value="Vinyl Composition Tile"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Generally in good condition throughout facility. Deterioration of VCT flooring on stair from impact and removal of base at stair."/>	Cost Range	<input type="text" value="\$4,000 to \$5,000"/>				

Sub System	<input type="text" value="B.4.2"/> Base	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text" value="Vinyl / Rubber"/>						
Memo	<input type="text" value="Rubber wall base in multiple locations in interior spaces."/>						

Component	<input type="text" value="B.4.2.3"/> Holes / Tears / Loose Seams	Grade	<input type="text" value="A"/>	Priority	<input type="text" value="3"/>	ERL	<input type="text" value="02"/>
Description	<input type="text" value="Vinyl / Rubber"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Generally in good condition. Isolated deterioration from impact and removal of base at stair to attic."/>	Cost Range	<input type="text" value="\$2,000 to \$3,000"/>				

Sub System	<input type="text" value="B.4.3"/> Interior Walls	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text" value="Gypsum Board"/>						
Memo	<input type="text" value="Gypsum wall board on interior walls."/>						

Component	<input type="text" value="B.4.3.4"/> Impact Damage	Grade	<input type="text" value="B"/>	Priority	<input type="text" value="3"/>	ERL	<input type="text" value="02"/>
Description	<input type="text" value="Gypsum Board"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Generally in good condition. Damaged drywall at window jamb drywall return, vinyl wall covering. Stains at drywall sill (offices at 1st level)"/>	Cost Range	<input type="text" value="\$3,000 to \$4,000"/>				

Sub System	<input type="text" value="B.4.4"/> Finishes & Wall Coverings	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text" value="Wallpaper"/>						
Memo	<input type="text" value="Interior wallpaper finish."/>						

Building Report

Component	B.4.4.4	Loose Material	Grade	A	Priority	3	ERL	02
Description	Wallpaper		Photo ID					
Memo	Generally in good condition. Wallpaper delamination and damage at first level offices.		Cost Range	\$4,000 to \$5,000				
Component	B.4.4.7	Lacking Maintenance	Grade	B	Priority	2	ERL	02
Description	Marble		Photo ID					
Memo	Some stained marble and grout failure.		Cost Range	\$4,000 to \$5,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	24 x 24 acoustical tile ceiling.							
Component	B.4.5.1	Stains / Discoloration	Grade	A	Priority	3	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Generally in good condition, isolated areas of stained material.		Cost Range	\$5,000 to \$10,000				
Component	B.4.5.6	Cracks	Grade	B	Priority	3	ERL	02
Description	Precast Concrete		Photo ID					
Memo	Exposed concrete roof deck panels in attic show smapppls at concrete panesl with exposed reinforcing wire at some locations.		Cost Range	\$5,000 to \$10,000				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Wood Door							
Memo	Interior wood doors.							
Component	B.4.6.1	Deteriorated Finish	Grade	B	Priority	3	ERL	03
Description	Wood Door		Photo ID					
Memo	Generally in good condition, some scratched wood door veneer.		Cost Range	\$5,000 to \$10,000				

Building Report

System	B.5	Architectural - Conveying System	% of CRV	3%	CRV Amt	\$407,583.59
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Sub System	B.5.7	Other Systems	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Passenger							
Memo	Public stair.							

Component	B.5.7.3	Damaged Component	Grade	B	Priority	4	ERL	01
Description	Passenger		Photo ID	<input type="text"/>				
Memo	Stairs generally in good condition, deteriorated stair nosings at stair to attic.		Cost Range	\$4,000 to \$5,000				

System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$1,086,889.58
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Sub System	B.6.2	Water Supply Piping System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.6.2.2	Valves	Grade	X	Priority	4	ERL	01
Description	Missing		Photo ID	<input type="text"/>				
Memo	No backflow prevention on CW line to ice machine in Room 233.		Cost Range	\$300 to \$400				

System	B.7	Mechanical - Fire Protection System	% of CRV	4%	CRV Amt	\$543,444.79
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Sub System	B.7.1	Wet Pipe Fire Sprinkler System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.7.1.3	Sprinkler Head	Grade	X	Priority	5	ERL	01
Description	Missing		Photo ID	<input type="text"/>				
Memo	Sprinkler heads missing above windows in Courthouse Attic.		Cost Range	\$4,000 to \$5,000				

Building Report

System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$1,630,334.36		
Sub System	B.8.1	Boiler	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description								
Memo								
Component	B.8.1.1	Steam / Hot Water Boiler	Grade	C	Priority	3	ERL	15
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	B-1: Kewanee Model S-25-G, S/N 2599. 460V, 3 phase, MCA 8.6, 15 MOCP, 1743-5230 MBH.		Cost Range	\$70,000 to \$100,000				
Component	B.8.1.8	Valve	Grade	F	Priority	4	ERL	01
Description	End of Life		Photo ID	<input type="text"/>				
Memo	Sign indicates valve to boiler B-2 has failed and will need to be replaced.		Cost Range	\$500 to \$600				
Sub System	B.8.4	Cooling System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description								
Memo								
Component	B.8.4.1.2	Water Chiller - Centrifugal	Grade	C	Priority	2	ERL	10
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	CH-1: Trane Chiller on roof of courthouse. Reduced capacity; low airflow due to close proximity to adjacent chiller.		Cost Range	\$75,000 to \$100,000				
Sub System	B.8.5	HVAC Distribution System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description								
Memo								

Building Report

Component	B.8.5.2.4	Air Distribution - Air Terminal Unit	Grade	C	Priority	3	ERL	01
Description	Inadequate		Photo ID					
Memo	VAV box serving Room 145 is undersized. Room 145 cannot maintain setpoint.		Cost Range	\$4,000 to \$5,000				
Component	B.8.5.4.8	Hydronic Distribution - Other Component	Grade	C	Priority	4	ERL	01
Description	Inadequate		Photo ID					
Memo	Finned tube radiators in Holding Cells 127-130 are undersized. Holding cells cannot maintain heating setpoint.		Cost Range	\$5,000 to \$10,000				
Sub System	B.8.7	HVAC Control and Instrumentation	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.7.1.6	HVAC - Thermostat	Grade	F	Priority	3	ERL	01
Description	Missing		Photo ID					
Memo	Thermostat missing from room 120		Cost Range	\$700 to \$800				
System	B.9	Electrical - Electric System	% of CRV	12%		CRV Amt	\$1,630,334.36	
Sub System	B.9.1	Electrical Service and Distribution	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.1.2.1	Building Electrical Service & Distribution - Service Dist	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	ASCO OTPCC-4957617 Automatic Transfer Switch. 250 Amp.		Cost Range	\$15,000 to \$20,000				

Building Report

Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Cummins Model DGFB-4958262 175 kW Diesel generator. S/N D010232785, 398.8 hours.		Cost Range	\$30,000 to \$40,000				
Component	B.9.1.3.1	Interior Electrical Distribution - Transformer	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Transformer T1: Square D S/N 9L3210-A1, 500kVA. 480V Delta, 208Y/120, 220°C Ins, 80°C rise		Cost Range	\$8,000 to \$9,000				
Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	1600 Amp Square D QED 120/208V, 3 Phase, 4 Wire		Cost Range	\$20,000 to \$25,000				
Component	B.9.1.3.6	Interior Electrical Distribution - Other Component	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Time Clock: Intermatic Model ET70215C. Programmable.		Cost Range	\$100 to \$200				
Component	B.9.1.6.2	Motor Control - Motor Control Center	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Square D Motor Control Center Model #6. 600 amp horizontal bus, 300 amp vertical bus.		Cost Range	\$10,000 to \$15,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								

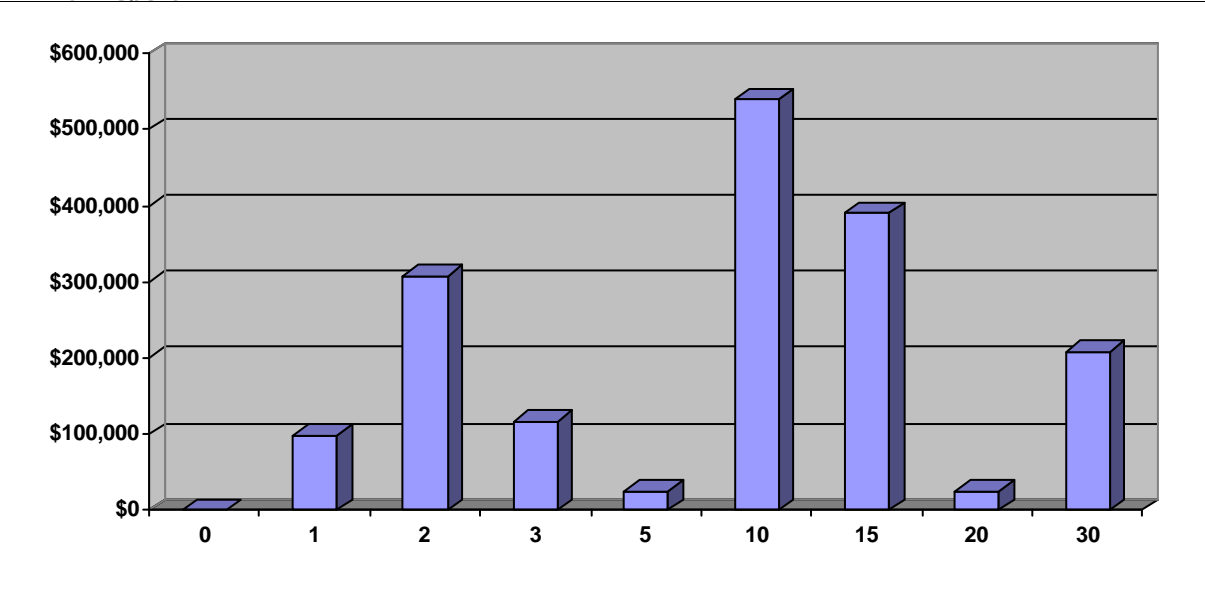
Building Report

Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Compact fluorescent down lights.		Cost Range	\$50,000 to \$70,000				
Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Metal halide outside building.		Cost Range	\$15,000 to \$20,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	LED Exit signage.		Cost Range	\$25,000 to \$30,000				
Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Edwards Fire Alarm Panel Multiplex Addressable System		Cost Range	\$20,000 to \$25,000				
System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$679,306.01		
Sub System	C.1.3	Side Walks	Grade	B	Priority	2	ERL	10
Description	Concrete Paving							
Memo								

Building Report

Component	C.1.3.1.1	Front Walk - West of Main Entrance	Grade	B	Priority	2	ERL	10
Description	Concrete Paving		Photo ID					
Memo	joint spalling; minor spalling and surface cracks; weeds growing in cracks; remove and replace panels		Cost Range	\$6,000 to \$7,000				
Component	C.1.3.1.2	Rear Walk - South of Building	Grade	B	Priority	2	ERL	10
Description	Concrete Paving		Photo ID					
Memo	3 panels developing surface cracks; depressed bricks along sidewalk edge; remove and replace panels and bricks		Cost Range	\$6,000 to \$7,000				
Component	C.1.3.1.7	Handicap Ramp - South Entrance	Grade	D	Priority	4	ERL	01
Description	Inadequate		Photo ID					
Memo	full depth concrete cracks; wood handrails severely warped and cracked with pieces missing; remove and replace ramp		Cost Range	\$9,000 to \$10,000				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building	16	Adult Detention Facility	Year Built	1996	CRV		
Address	502 S Lierman Ave		Grade	B	\$12,194,010	DMB	FCI
	Urbana	IL	61802	Priority	1	0-1 Year	\$304,000 2.49%
Construction Type	Precast Concrete		Total SqFt	57,000	0-5 Year	\$1,695,000	13.90%
			Annual Maintenance Cost	\$365,820	5-25 Year	\$10,499,010	86.10%

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$1,463,281.17
Sub System	B.2.2	Concrete Wall	Grade	<input type="text"/>	Priority	<input type="text"/> ERL <input type="text"/>
Description	Poured Concrete					
Memo	Exterior concrete.					

Component	B.2.2.1	Settlement / Cracks	Grade	B	Priority	1	ERL	20
Description	Poured Concrete		Photo ID	<input type="text"/>				
Memo	Concrete in progress of being repaired.		Cost Range	<input type="text"/>				

Sub System	B.2.4	Metal	Grade	<input type="text"/>	Priority	<input type="text"/> ERL <input type="text"/>
Description	Metal					
Memo	Metal deck over exterior recreation space.					

Component	B.2.4.3	Surface Coating Failure	Grade	C	Priority	4	ERL	00
Description	Metal		Photo ID	<input type="text"/>				
Memo	Paint at underside of deck is deteriorated and failing. Deterioration at joists is discoloring wall. Some screen material is deteriorated and not secure.		Cost Range	<input type="text"/>				

Sub System	B.2.6	Window	Grade	<input type="text"/>	Priority	<input type="text"/> ERL <input type="text"/>
Description	Aluminum / Glass					
Memo	Exterior windows.					

Building Report

Component Grade Priority ERL

Description Photo ID

Memo Cost Range

Sub System Grade Priority ERL

Description

Memo

Component Grade Priority ERL

Description Photo ID

Memo Cost Range

Component Grade Priority ERL

Description Photo ID

Memo Cost Range

System % of CRV CRV Amt

Sub System Grade Priority ERL

Description

Memo

Component Grade Priority ERL

Description

Memo Cost Range

Building Report

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$1,829,101.57
Sub System	B.4.1	Flooring	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Sealed Concrete		ERL	<input type="text"/>		
Memo	Exposed concrete flooring.					
Component	B.4.1.1	Wear	Grade	B	Priority	2
Description	Sealed Concrete		ERL	05		
Memo	Should be cleaned, cracks should be repaired and new coating applied.		Photo ID	<input type="text"/>		
			Cost Range	\$150,000		
Component	B.4.1.10	Other	Grade	D	Priority	3
Description	Sealed Concrete		ERL	03		
Memo	Advanced deterioration at drain grate, large amounts of debris in drain.		Photo ID	<input type="text"/>		
			Cost Range	\$1,000 to \$5,000		
Component	B.4.1.2	Stains/ Discoloration	Grade	B	Priority	2
Description	Vinyl Composition Tile		ERL	10		
Memo	Needs to be cleaned and waxed at all locations.		Photo ID	<input type="text"/>		
			Cost Range	\$10,000		
Component	B.4.1.9	Lacking Maintenance	Grade	C	Priority	4
Description	Ceramic / Quarry Tile		ERL	01		
Memo	Grout missing at multiple locations at kitchen including quarry base.		Photo ID	<input type="text"/>		
			Cost Range	\$5,000		
Sub System	B.4.2	Base	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Vinyl / Rubber		ERL	<input type="text"/>		
Memo	Rubber wall base.					

Building Report

Component	B.4.2.3	Holes / Tears / Loose Seams	Grade	C	Priority	3	ERL	01
Description	Vinyl / Rubber		Photo ID					
Memo	Base is missing or damaged in multiple locations.		Cost Range	\$5,000				
Sub System	B.4.3	Interior Walls	Grade		Priority		ERL	
Description	CMU							
Memo	Interior CMU walls.							
Component	B.4.3.2	Cracks / Open Joints	Grade	B	Priority	4	ERL	02
Description	CMU		Photo ID					
Memo	Generally in good condition. Cracks at employee entrance		Cost Range	\$1,500				
Component	B.4.3.6	Other	Grade	C	Priority	3	ERL	05
Description	CMU		Photo ID					
Memo	Sealants at many interior walls have failed or are deteriorated.		Cost Range	\$2,000 to \$3,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Vinyl / Fabric Wall Cover							
Memo	Vinyl cover on columns.							
Component	B.4.4.2	Peeling / Flaking	Grade	C	Priority	3	ERL	05
Description	Vinyl / Fabric Wall Cover		Photo ID					
Memo	Vinyl wrap at column covers is torn and is able to be peeled away from wall.		Cost Range	\$5,000				
Component	B.4.4.4	Loose Material	Grade	D	Priority	4	ERL	02
Description	Laminate		Photo ID					
Memo	Millwork finish is deteriorated and weak. Plywood is showing. Areas at booking do not function well.		Cost Range	\$150,000				

Building Report

Component	B.4.4.8	Other	Grade	B	Priority	2	ERL	20
Description	Paint		Photo ID					
Memo	Generally in good condition, could be repainted.		Cost Range					
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	Interior acoustical tile ceiling.							
Component	B.4.5.1	Stains / Discoloration	Grade	B	Priority	3	ERL	10
Description	Acoustical Tile		Photo ID					
Memo	Some stains and holes in tiles, grid in generally good condition.		Cost Range	\$10,000				
Component	B.4.5.2	Peeling / Flaking	Grade	D	Priority	4	ERL	00
Description	Acoustical Tile		Photo ID					
Memo	Finish is deteriorated and peeling at kitchen.		Cost Range	\$3,000				
Component	B.4.5.5	Moisture Damage	Grade	B	Priority	3	ERL	02
Description	Gypsum Board		Photo ID					
Memo	Paint is deteriorated, areas of previous water damage have not been repaired.		Cost Range	\$10,000				
Sub System	B.4.8	Specialty Items	Grade		Priority		ERL	
Description	Metal							
Memo	Security control panel.							
Component	B.4.8.6	Other	Grade	C	Priority	4	ERL	02
Description	Metal		Photo ID					
Memo	Security control panel is outdated and is difficult to find components for system, unreliable.		Cost Range	\$250,000				

Building Report

System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$975,520.78
Sub System	B.6.3	Water Supply Equipment System	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.6.3.2	Domestic Water Heater	Grade	B	Priority	1
Description	No Deficiency		Photo ID	<input type="text"/>		
Memo	A.O Smith Gas-fired water heater, Model GW-1300-400, S/N H0718164. 1300/1092 MBH input/output.		Cost Range	\$10,000 to \$15,000		
Sub System	B.6.5	Sanitary Waste System	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.6.5.2.1	Floor Drain	Grade	F	Priority	5
Description	Inadequate		Photo ID	<input type="text"/>		
Memo	Floor drain under dishwasher frequently backs up. Water on floor at time of inspection, and drains observed clogged. Likely underfloor piping is undersized to carry waste water from dishwasher.		Cost Range	\$30,000 to \$40,000		
System	B.7	Mechanical - Fire Protection System	% of CRV	4%	CRV Amt	\$487,760.39
Sub System	B.7.1	Wet Pipe Fire Sprinkler System	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.7.1.2	Valves and Specialties	Grade	D	Priority	4
Description	Leaking		Photo ID	<input type="text"/>		
Memo	Wet pipe system valve connection to elbow is leaking. Needs new gasket and connection to piping.		Cost Range	\$3,000 to \$4,000		

Building Report

System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$1,463,281.17
Sub System	B.8.1	Boiler	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.8.1.1	Steam / Hot Water Boiler	Grade	C	Priority	2
Description	No Deficiency		ERL	10		
Memo	Burnham Model 4FW-311-45-G-GP, S/N 23770. 2891/2313 MBH input/output, natural gas.		Photo ID	<input type="text"/>		
			Cost Range	\$50,000 to \$70,000		
Sub System	B.8.3	Other Heat Generation System	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.8.3.1	Unit Heater	Grade	A	Priority	1
Description	No Deficiency		ERL	20		
Memo	Reznor Model F300, S/N EAVD31K7N22731. 300/240 MBH input/output. Two in Kitchen Sallyport.		Photo ID	<input type="text"/>		
			Cost Range	\$15,000 to \$20,000		
Sub System	B.8.4	Cooling System	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.8.4.8.2	DX - Refrigerant Condenser	Grade	B	Priority	2
Description	No Deficiency		ERL	15		
Memo	ACCU-1: Carrier Model 38AH, S/N 2096F07604.		Photo ID	<input type="text"/>		
			Cost Range	\$40,000 to \$50,000		
Sub System	B.8.5	HVAC Distribution System	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					

Building Report

Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	AHU-1: Carrier, S/N 1996T81161. Filters last replaced 6/6/2015.		Cost Range	\$70,000 to \$100,000				
Component	B.8.5.2.6	Air Distribution - Air Inlet	Grade	C	Priority	4	ERL	05
Description	Lacking Maintenance		Photo ID					
Memo	Return and Exhaust grilles throughout building are heavily covered by lint and dust, restricting return airflow to air handling units. Ductwork is collapsed in certain areas due to high duct static.		Cost Range	\$100,000 to \$150,000				
System	B.9	Electrical - Electric System	% of CRV	12%		CRV Amt	\$1,463,281.17	
Sub System	B.9.1	Electrical Service and Distribution	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Generator: ONAN/Cummins 350kW, 277/480V, 3 phase, 4 wire series D960602855. Exterior mounted on grade with skin tight weatherproof housing with integral overcurrent devices and diesel fuel tank located below unit.		Cost Range	\$75,000 to \$100,000				
Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	JWBD Square D QED2 2000A, 277/480V, 3 phase, 4 wire, 65KAIC, dead front SWBD D-237716, CAT #06431335A0. 3 sections. Circuit breaker main and distribution.		Cost Range	\$100,000 to \$120,000				

Building Report

Component	B.9.1.3.1	Interior Electrical Distribution - Transformer	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Square D dry type transformer. Size varies between 15, 30, 45, 75, and 150kVA. 480V, 3 phase, 3 wire primary and 120/208V, 3 phase, 4 wire secondary. CAT#XXT3H.		Cost Range	\$25,000 to \$30,000				
Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Emergency Distribution Panels: Square D, bus size varies between 100A and 225A. 120/208V, 3 phase, 4 wire #NQOD 430M225CLI, series E2. Typical all 120/208V panels throughout facility circuit breakers.		Cost Range	\$15,000 to \$20,000				
Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Square D, bus size varies between 100A and 225A. 120/208V, 3 phase, 4 wire #NQOD 442M-225CU Series E2. Typical all 120/208V panels throughout facilities circuit breakers.		Cost Range	\$10,000 to \$15,000				
Component	B.9.1.6.5	Motor Control - Starter	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Square D Class 6536,6536 or 6538 type SBG13 Series C combination fuse disconnect switch and magnetic contactor with overload elements for all 480V 3 phase motors.		Cost Range	\$2,000 to \$3,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	B.9.2.2.4	Interior Lighting - Other Component	Grade	B	Priority	2	ERL	05
Description	No Deficiency		Photo ID					
Memo	Lighting Controls: Lighting within EA pod was originally controlled by panelboard circuit breakers (277V). County installed individual toggle switches for pod circuits were added and installed adjacent to lighting circuit branch panels.		Cost Range	\$30,000 to \$40,000				
Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Fire alarm system consists of Simplex 4020 control panel with pull stations, room smoke detectors, duct mounted smoke detectors, audible and visual signals throughout the entire facility. Building is also fully sprinkled.		Cost Range	\$25,000 to \$30,000				
Component	B.9.3.3.2	Voice and Data System - Paging System	Grade	C	Priority	3	ERL	05
Description	Non Functional		Photo ID					
Memo	Intercom system to central control provides intermittent issues and periodic failure.		Cost Range	\$50,000 to \$70,000				
Component	B.9.3.3.4	Voice and Data System - Door Answering System	Grade	B	Priority	4	ERL	05
Description	No Deficiency		Photo ID					
Memo	Door locking system and controls appear to have been maintained and updated throughout the years.		Cost Range	\$120,000 to \$140,000				

Building Report

Sub System	B.9.4	Special Electrical System	Grade		Priority		ERL	
Description								
Memo								

Component	B.9.4.8	Other Component	Grade	B	Priority	2	ERL	15
Description	No Deficiency		Photo ID					
Memo	Building contains Franklin style lightning protection system consisting of perimeter lightning rods, equipment lightning rods, down conductors and inter-connecting conductors.		Cost Range	\$50,000 to \$70,000				

System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$609,700.51
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Sub System	C.1.1	Drives / Roads / Curbs	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								

Component	C.1.1.1.1	Surface Deterioration - South Driveway	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	3ft by 3ft asphalt patch needed; low spots around edge of asphalt causing premature failure; need to seal cracks and asphalt surface		Cost Range	\$2,000 to \$3,000				

Component	C.1.1.1.2	Cracking - Main Entrance	Grade	B	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Developing surface cracks; need to seal asphalt surface		Cost Range	\$4,000 to \$5,000				

Sub System	C.1.2	Parking Lots	Grade	B	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								

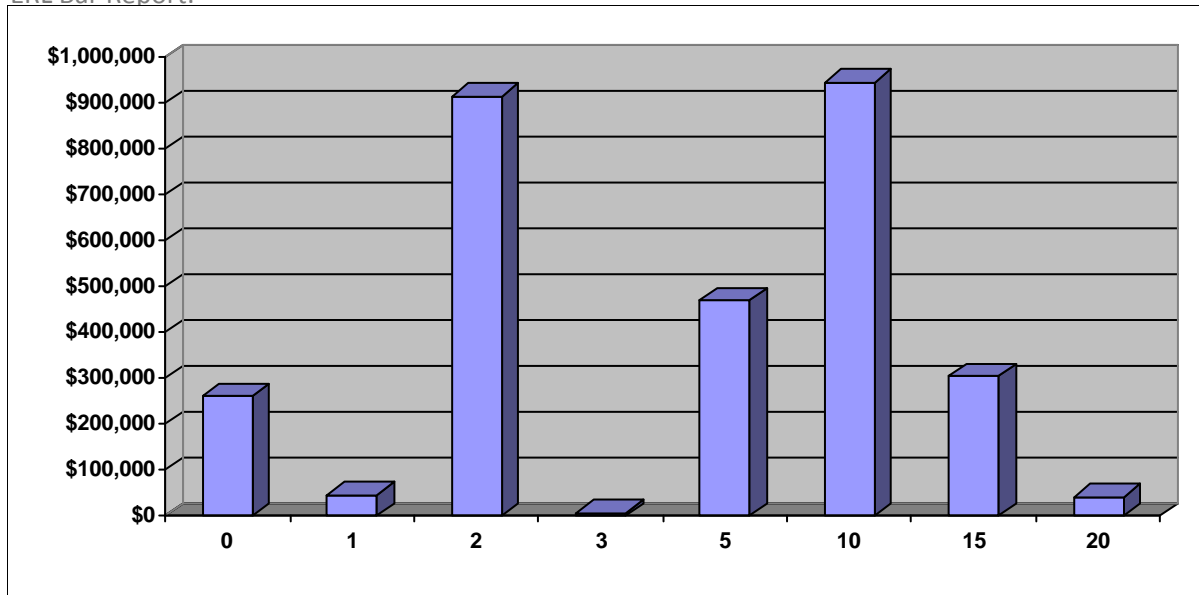
Building Report

Component	C.1.2.1.1	Surface Deterioration - Northwest Lot	Grade	B	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Broken parking bumper needs to be replaced; surface cracking needs to be sealed		Cost Range	\$10,000 to \$25,000				
Sub System	C.1.3	Side Walks	Grade	C	Priority	2	ERL	05
Description	Concrete Construction							
Memo								
Component	C.1.3.1.7	Tripping Hazard - Northwest Entrance	Grade	C	Priority	2	ERL	05
Description	Concrete Construction		Photo ID					
Memo	Panel in front of door entrance settled approximately 1-inch; 2-inch deep by 10-sq. ft. section missing from 2 separate panels; need to remove and replace panels		Cost Range	\$1,000 to \$2,000				
Sub System	C.1.9	Site Drainage / Erosion	Grade	C	Priority	2	ERL	02
Description	Concrete Construction							
Memo								
Component	C.1.9.1.1	Erosion - North Detention Basin	Grade	C	Priority	2	ERL	02
Description	Concrete Construction		Photo ID					
Memo	erosion around manholes; need to regrade and install rip-rap to protect against erosion; need to replace collapsed wooded structure above manhole		Cost Range	\$500 to \$1,000				
System	C.3	Civil - Landscape Structures	% of CRV	1%		CRV Amt	\$121,940.10	
Sub System	C.3.2	Freestanding Deck/Patio - Northwest Break Area	Grade	C	Priority	2	ERL	05
Description	Concrete Block							
Memo								

Building Report

Component	C.3.2.6 Other - Northwest Break Area	Grade	C	Priority	2	ERL	05	
Description	Concrete Block	Photo ID						
Memo	Concrete blocks falling off wall; vertical cracks running throughout wall; need to remove and replace wall	Cost Range	\$1,000 to \$5,000					

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building	21	Sheriff Correctional Center	Year Built	1980	CRV		
Address	204 E Main St		Grade	D	\$11,766,150	DMB	FCI
	Urbana	IL	61802	Priority	4	0-1 Year	\$919,000 7.81%
Construction Type	Block		Total SqFt	55,000	0-5 Year	\$2,033,800	17.29%
			Annual Maintenance Cost	\$352,985	5-25 Year	\$9,732,350	82.71%

System	A.4	General - Accessibility Review	% of CRV	0%	CRV Amt	\$0.00
Sub System	A.4.3	Accessible Passage Into Interior Space	Grade		Priority	
Description	Wood		ERL			
Memo	Noncompliant wood ramp.					

Component	A.4.3.12	Ramp Exceeds 1:12	Grade	F	Priority	4	ERL	00
Description	Wood		Photo ID					
Memo	Combustible wood ramp does not meet slope compliance.		Cost Range	\$3,000 to \$4,000				

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$1,411,937.97
Sub System	B.2.1	Masonry Wall	Grade		Priority	
Description	Brick		ERL			
Memo	Exterior brick façade.					

Component	B.2.1.5	Efflorescence/Staining	Grade	D	Priority	4	ERL	01
Description	Brick		Photo ID					
Memo	Considerable efflorescence at screen wall, joints at stone cap and brick are deteriorated.		Cost Range	\$50,000 to \$75,000				

Building Report

Component	B.2.1.9	Other	Grade	B	Priority	3	ERL	10
Description	Brick		Photo ID					
Memo	Brick on main building generally in fair condition except at areas noted.		Cost Range					
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Metal							
Memo	Exposed joists and structural elements over recreation area.							
Component	B.2.4.3	Surface Coating Failure	Grade	C	Priority	4	ERL	00
Description	Metal		Photo ID					
Memo	Exposed joists and structural elements at recreation area show deteriorated paint / coating.		Cost Range	\$45,000 to \$50,000				
Component	B.2.4.4	Lacking Maintenance	Grade	C	Priority	4	ERL	01
Description	Metal		Photo ID					
Memo	Chain link in recreation area is deteriorated and in need of repair.		Cost Range	\$20,000 to \$25,000				
Component	B.2.4.5	Other	Grade	D	Priority	4	ERL	00
Description	Metal		Photo ID					
Memo	Sun screen netting is deteriorated, some areas area missing.		Cost Range	\$20,000 to \$25,000				
Sub System	B.2.6	Window	Grade		Priority		ERL	
Description	Aluminum / Glass							
Memo	Aluminum and glass windows.							
Component	B.2.6.8	Other	Grade	B	Priority	3	ERL	10
Description	Aluminum / Glass		Photo ID					
Memo			Cost Range					

Building Report

Sub System	B.2.8	Door and Frame	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Overhead Door							
Memo	Overhead doors.							

Component	B.2.8.7	Other	Grade	C	Priority	3	ERL	05
Description	Overhead Door							
Memo	Generally in operable condition, not insulated. Showing wear.							
			Cost Range	\$30,000 to \$40,000				

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$1,764,922.57		
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Sub System	B.4.1	Flooring	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Carpet							
Memo	Interior carpet flooring.							

Component	B.4.1.1	Wear	Grade	D	Priority	4	ERL	00
Description	Carpet							
Memo	Carpet is worn and past useful life, many stains.							
			Cost Range	\$100,000 to \$150,000				

Component	B.4.1.10	Other	Grade	B	Priority	2	ERL	10
Description	Sealed Concrete							
Memo								
			Cost Range					

Component	B.4.1.4	Loose or Broken Tiles	Grade	F	Priority	5	ERL	00
Description	Vinyl Composition Tile							
Memo	Floor adhesive has failed and tiles are loose and easily removed or missing.							
			Cost Range	\$15,000 to \$20,000				

Sub System	B.4.3	Interior Walls	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	CMU							
Memo	CMU at indoor recreation area.							

Building Report

Component	B.4.3.2	Cracks / Open Joints	Grade	c	Priority	4	ERL	01
Description	CMU		Photo ID					
Memo	Vertical and stair-step cracks visible at high CMU walls.		Cost Range	\$9,000 to \$10,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Paint							
Memo	Paint on interior CMU walls.							
Component	B.4.4.2	Peeling / Flaking	Grade	C	Priority	3	ERL	01
Description	Paint		Photo ID					
Memo	Paint on CMU generally in fair condition. Paint is deteriorated in areas and easily removed.		Cost Range	\$45,000 to \$50,000				
Component	B.4.4.6	Missing Elements	Grade	D	Priority	4	ERL	01
Description	Wood Trim / Molding		Photo ID					
Memo	Laminate is deteriorated or no longer present on millwork.		Cost Range	\$150,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	Lay-in tile and concealed spline ceilings.							
Component	B.4.5.1	Stains / Discoloration	Grade	D	Priority	5	ERL	00
Description	Acoustical Tile		Photo ID					
Memo	Lay-in tile and concealed spline ceilings are generally stained and in poor condition. Due to surface texture they are not able to be cleaned and are difficult to remove to access above ceiling.		Cost Range	\$50,000 to \$75,000				

Building Report

Component	B.4.5.6	Cracks	Grade	D	Priority	3	ERL	05
Description	Plaster		Photo ID					
Memo	Deteriorated and cracks at areas, some areas removed due to work and not patched. Paint failing.		Cost Range	\$20,000				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Steel Door							
Memo	Interior metal doors.							
Component	B.4.6.1	Deteriorated Finish	Grade	C	Priority	3	ERL	01
Description	Steel Door		Photo ID					
Memo	Paint is deteriorated and damaged from impacts with equipment.		Cost Range	\$45,000 to \$50,000				
System	B.5	Architectural - Conveying System	% of CRV	3%		CRV Amt	\$352,984.49	
Sub System	B.5.2	Elevator	Grade		Priority		ERL	
Description	Passenger							
Memo	Passenger elevator.							
Component	B.5.2.2	Unreliable Operation	Grade	C	Priority	3	ERL	01
Description	Passenger		Photo ID					
Memo	Elevator is not reliable and has frequent outages.		Cost Range	\$140,000 to \$160,000				
System	B.6	Mechanical - Plumbing System	% of CRV	8%		CRV Amt	\$941,291.98	
Sub System	B.6.3	Water Supply Equipment System	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	<input type="text" value="B.6.3.2"/>	<input type="text" value="Domestic Water Heater"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="No Deficiency"/>		Photo ID	<input type="text"/>				
Memo	<input type="text" value="Domestic Water Heaters: 2 Lochinvar CopperFin II, Model CFN0991PM. S/N L03H00160322 and S/N L03H00160323. 990 MBH input, 1020 GPH recovery. Installed in 2003; heat exchangers replaced in 2013."/>		Cost Range	<input type="text" value="\$30,000 to \$40,000"/>				
Component	<input type="text" value="B.6.3.3"/>	<input type="text" value="Water Supply Pump"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="No Deficiency"/>		Photo ID	<input type="text"/>				
Memo	<input type="text" value="Hot water circulation pump: Armstrong Model 0406"/>		Cost Range	<input type="text" value="\$1,000 to \$2,000"/>				
System	<input type="text" value="B.7"/>	<input type="text" value="Mechanical - Fire Protection System"/>	% of CRV	<input type="text" value="4%"/>		CRV Amt	<input type="text" value="\$470,645.99"/>	
Sub System	<input type="text" value="B.7.1"/>	<input type="text" value="Wet Pipe Fire Sprinkler System"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							
Component	<input type="text" value="B.7.1.3"/>	<input type="text" value="Sprinkler Head"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="No Deficiency"/>		Photo ID	<input type="text"/>				
Memo	<input type="text" value="Basement File Storage is sprinkled adequately."/>		Cost Range	<input type="text" value="\$20,000 to \$25,000"/>				
System	<input type="text" value="B.8"/>	<input type="text" value="Mechanical - HVAC System"/>	% of CRV	<input type="text" value="12%"/>		CRV Amt	<input type="text" value="\$1,411,937.97"/>	
Sub System	<input type="text" value="B.8.1"/>	<input type="text" value="Boiler"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Building Report

Component	B.8.1.1	Steam / Hot Water Boiler	Grade	D	Priority	4	ERL	03
Description	End of Life		Photo ID					
Memo	Cleaver-Brooks model CB-200-60, S/N L-67166. 2,511 MBH input. Installed in 1979. Stack in very bad condition; intake too close to wet cooling tower.		Cost Range	\$50,000 to \$75,000				
Component	B.8.1.6	Hot Water Circ. Pump	Grade	D	Priority	4	ERL	03
Description	End of Life		Photo ID					
Memo	Taco model BB2508-7-4B5B2D2TL-0. 140 GPM, 50' head. Installed in 1979. Two pumps installed.		Cost Range	\$2,000 to \$3,000				
Sub System	B.8.4	Cooling System	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.4.1.1	Water Chiller - Absorption	Grade	D	Priority	4	ERL	05
Description	End of Life		Photo ID					
Memo	Water cooled chiller: Bohn Heat Transfer, Model HWDC 75, S/N BLA8192, 75HP. Works but not used; tower is full of leaks.		Cost Range	\$70,000 to \$100,000				
Component	B.8.4.1.2	Water Chiller - Centrifugal	Grade	B	Priority	2	ERL	20
Description	No Deficiency		Photo ID					
Memo	New air cooled chiller and condenser. Trane model RTUD, 2 compressors. Condensing unit: Heatcraft Model BHND10A074, S/N T10D02608, ten condenser fans at 1.5HP each.		Cost Range	\$75,000 to \$100,000				

Building Report

Component	B.8.4.1.5	Water Chiller - Circulation Pump	Grade	D	Priority	4	ERL	05
Description	End of Life		Photo ID					
Memo	Condenser water pump: Aurora Pump, Model 98-12320, 450 GPM, 40' head, 7.5 HP.		Cost Range	\$1,000 to \$2,000				
Component	B.8.4.9.4	Heat Pump - Circulation Pump	Grade	D	Priority	4	ERL	05
Description	End of Life		Photo ID					
Memo	Chilled Water Circulation Pump: Taco model 883008-7.0B5B2E118. 280GPM, 60' head, 5 HP. Original to building.		Cost Range	\$1,000 to \$2,000				
Sub System	B.8.5	HVAC Distribution System	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	C	Priority	3	ERL	05
Description	End of Life		Photo ID					
Memo	AHU-1 serving First Floor: Carrier Model 39ED26, S/N 791566180. Cooling coil in poor shape, has been replaced several times.		Cost Range	\$50,000 to \$70,000				
Sub System	B.8.6	Packaged HVAC Equipment	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.6.1.3	PTAC - Terminal Air Conditioning Unit	Grade	D	Priority	4	ERL	01
Description	End of Life		Photo ID					
Memo	Fan coils serving perimeter rooms in nonsecure areas: End of life, controls non-operational.		Cost Range	\$50,000 to \$70,000				

Building Report

Sub System	B.8.7	HVAC Control and Instrumentation	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.7.1.3	HVAC - Pneumatic Control System	Grade	D	Priority	5	ERL	03
Description	End of Life		Photo ID					
Memo	Air compressor for pneumatic controls: Quincy Compressor, Model 370-7 119436-L. 5 HP.		Cost Range	\$8,000 to \$9,000				

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$1,411,937.97
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Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	C	Priority	3	ERL	05
Description	End of Life		Photo ID					
Memo	ONAN 75DYC, 277/480V, 3 phase, 4 wire diesel generator with underbelly fuel tank, weatherproof housing. Replacement parts difficult to obtain.		Cost Range	\$50,000 to \$70,000				

Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	C	Priority	3	ERL	05
Description	End of Life		Photo ID					
Memo	General Electric AV-line switchboard, QMR fused switches 800 amp, 277/480V, 3 phase, 4 wire. Installed in 1980; replacement parts difficult to obtain.		Cost Range	\$75,000 to \$100,000				

Building Report

Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	C	Priority	3	ERL	05
Description	End of Life		Photo ID					
Memo	General Electric NHB distribution panels, 277/480V, 3 phase, 4 wire installed in 1980. Replacement parts difficult to obtain.		Cost Range	\$30,000 to \$40,000				
Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	C	Priority	3	ERL	05
Description	End of Life		Photo ID					
Memo	General Electric NLAB branch panels, 120/208V, 3 phase, 4 wire installed in 1980. Replacement parts difficult to obtain.		Cost Range	\$30,000 to \$40,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.2.1.2	Electrical Branch Wiring - Wiring Device	Grade	C	Priority	3	ERL	10
Description	End of Life		Photo ID					
Memo	General Electric QHT dry type transformers, 480V primary to 120/208V secondary.		Cost Range	\$20,000 to \$25,000				
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	C	Priority	3	ERL	05
Description	End of Life		Photo ID					
Memo	Existing lighting fixtures are mostly T12 lamps with core and coil ballast, incandescent both can lights and egress lights.		Cost Range	\$75,000 to \$100,000				
Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								

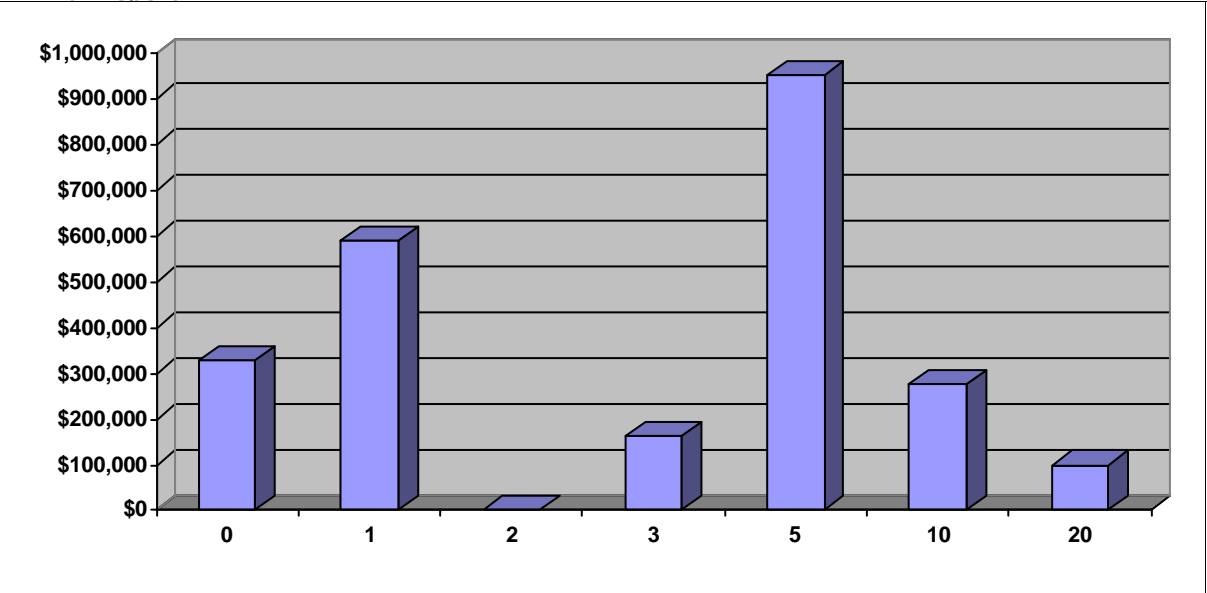
Building Report

Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Fire alarm system Edwards EST quick start up graded in 2000, along with duct smoke detectors. Other devices original to building.		Cost Range	\$20,000 to \$25,000				
Component	B.9.3.3.4	Voice and Data System - Door Answering System	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Intercom system/locking system upgraded in 2000. Will need updating throughout the years.		Cost Range	\$140,000 to \$160,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$588,307.51	
Sub System	C.1.1	Drives / Roads / Curbs	Grade	B	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								
Component	C.1.1.1.2	Cracking - East Driveway	Grade	B	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Cracking developing; Needs to be removed and replaced		Cost Range	\$2,000 to \$3,000				
Component	C.1.1.1.3	Curbs Eroded or Missing - West Entrance Curb	Grade	B	Priority	2	ERL	05
Description	Concrete Construction		Photo ID					
Memo	Chipped section missing at base of curb from spalling; Need to remove and replace section of curb		Cost Range	\$100 to \$500				
Sub System	C.1.2	Parking Lots	Grade	B	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								

Building Report

Component	C.1.2.1.2	Cracking - East Lot	Grade	B	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Minor cracks developing; Surface needs to be sealed		Cost Range	\$9,000 to \$10,000				
Sub System	C.1.3	Side Walks	Grade	B	Priority	2	ERL	05
Description	Concrete Construction							
Memo								
Component	C.1.3.1.1	Surface Deterioration - East Driveway Sidewalk	Grade	B	Priority	2	ERL	05
Description	Concrete Construction		Photo ID					
Memo	Section of concrete spalled off and missing at joint; need to remove and replace adjacent panels		Cost Range	\$5,000 to \$6,000				
Sub System	C.1.9	Site Drainage / Erosion	Grade	C	Priority	2	ERL	05
Description	Concrete Construction							
Memo								
Component	C.1.9.1.4	Other - East Driveway Inlet	Grade	C	Priority	2	ERL	05
Description	Concrete Construction		Photo ID					
Memo	Inlet covered with debris from past storms; needs to be cleaned off		Cost Range	\$100 to \$200				
System	C.4	Civil - Site Utilities	% of CRV	5%		CRV Amt	\$588,307.51	
Sub System	C.4.3	Site Energy Utilities	Grade	C	Priority	2	ERL	02
Description	West							
Memo								
Component	C.4.3.2.1	Site Lighting - Housing	Grade	C	Priority	3	ERL	02
Description	Broken		Photo ID					
Memo	Broken hinge on light fixture; needs to be replaced		Cost Range	\$200 to \$300				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	1	Highway Fleet Maintenance	Year Built	2007	CRV			
Address	1605 East Main Street		Grade	B	\$8,890,666	DMB	FCI	
	Urbana	IL	61802	Priority	4	0-1 Year	\$10,200	0.11%
Construction Type	Precast Concrete		Total SqFt	43,975	0-5 Year	\$67,300	0.76%	
			Annual Maintenance Cost	\$266,720	5-25 Year	\$8,823,366	99.24%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$1,066,879.90		
Sub System	B.2.2	Concrete Wall	Grade	B	Priority	4	ERL	Ind
Description	Precast Concrete							
Memo	Precast concrete panels typical at exterior walls							

Component	B.2.2.1	Settlement / Cracks	Grade	C	Priority	3	ERL	05
Description	Precast Concrete		Photo ID					
Memo	Small cracks several locations throughout exterior panels		Cost Range	\$5,000 to \$6,000				

Component	B.2.2.3	Sealant Joint Deterioration	Grade	D	Priority	4	ERL	03
Description	Precast Concrete		Photo ID					
Memo	Vertical joints between panels failing or aging		Cost Range	\$10,000 to \$15,000				

Component	B.2.2.4	Efflorescence/Staining	Grade	F	Priority	2	ERL	00
Description	Water Damage		Photo ID					
Memo	At low wall to the west of site storage, exposed steel joining plates are rusting		Cost Range	\$4,000 to \$5,000				

Building Report

Component	B.2.2.8	Other	Grade	D	Priority	4	ERL	00
Description	Water Damage		Photo ID					
Memo	Water staining inside face of wall due to cracks at roof parapet. Exposed steel joining plate is rusting and cracking surrounding concrete.		Cost Range	\$2,000 to \$3,000				
Sub System	B.2.7	Curtain Wall	Grade	B	Priority	3	ERL	30
Description	Aluminum / Glass							
Memo	Thermal frame, thermal pane windows, some with operable vents. Wood sills in office areas. Frosted glass at lockers.							
Component	B.2.6.6	Sealant Deterioration	Grade		Priority	3	ERL	10
Description	Aluminum / Glass		Photo ID					
Memo	Sealant replacement at windows		Cost Range	\$5,000 to \$10,000				
Component	B.2.7.2	Sealant Joint Deterioration	Grade		Priority	3	ERL	10
Description	Aluminum / Glass		Photo ID					
Memo	Sealant replacement campaign		Cost Range	\$3,000 to \$4,000				
System	B.3	Architectural - Roofing System	% of CRV	5%		CRV Amt	\$444,533.31	
Sub System	B.3.4	Metal	Grade	B	Priority	5	ERL	30
Description	Standing Seam							
Memo	Typical throughout							
Component	B.3.4.8	Sealant Deterioration	Grade	D	Priority	3	ERL	03
Description	Deteriorated		Photo ID					
Memo	Sealant joint under flashing at parapet wall in need of replacement		Cost Range	\$1,000 to \$2,000				
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%		CRV Amt	\$1,333,599.95	

Building Report

Sub System	B.4.1	Flooring	Grade	C	Priority	2	ERL	10
Description	Epoxy							
Memo	Poured epoxy flooring at some restrooms, locker rooms, hallways, and break room							
Component	B.4.1.1	Wear	Grade	C	Priority	2	ERL	10
Description			Photo ID					
Memo	Poor quality epoxy used. It is wearing at any location of high traffic, particularly at furniture locations.		Cost Range	\$45,000 to \$50,000				
Component	B.4.1.7	Cracks	Grade	C	Priority	2	ERL	00
Description			Photo ID					
Memo	Crack in corner of main entry		Cost Range	\$500 to \$1,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade	B	Priority	2	ERL	10
Description	Paint							
Memo	Paint at CMU, gyp board walls							
Component	B.4.4.8	Other	Grade		Priority	3	ERL	20
Description	Paint		Photo ID					
Memo	Full painting campaign.		Cost Range	\$20,000 to \$25,000				
Sub System	B.4.5	Ceilings	Grade	B	Priority	3	ERL	20
Description	Acoustical Tile							
Memo	Typical throughout offices, locker rooms, restrooms, break room, corridors							
Component	B.4.5.1	Stains / Discoloration	Grade	C	Priority	2	ERL	05
Description	Stain		Photo ID					
Memo	Stained tile near office next to garage		Cost Range	0 to \$100				

Building Report

System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$711,253.26
Sub System	B.6.2	Water Supply Piping System	Grade	A	Priority	1 ERL 30
Description						
Memo						
Component	B.6.2.3	Piping Specialties, Gauges, Meters, Backflow Prevent	Grade	A	Priority	1 ERL 30
Description			Photo ID			
Memo	Water service entry to the building is in very good condition. Water enters the building in two separate lines; one for domestic water, and one for fire protection.		Cost Range	\$5,000 to \$6,000		
Sub System	B.6.7	Special Plumbing System	Grade	A	Priority	1 ERL 20
Description						
Memo	Compressed air system in south end of facility					
Component	B.6.7.1	Compressed Air	Grade	A	Priority	1 ERL 20
Description			Photo ID			
Memo	Quincy model 390, S/N QU0909260074.		Cost Range	\$3,000 to \$4,000		
Component	B.6.7.15	Other Component 1	Grade	A	Priority	1 ERL 15
Description			Photo ID			
Memo	Air Dryer serving Compressor. Pneumatech model ADA-75, S/N USO580765. 75 SCFM capacity, 1/2 HP compressor, R-134a refrigerant. 115V, 1Ø.		Cost Range	\$2,000 to \$3,000		

Building Report

Component	B.6.7.4	Fuel Oil System	Grade	X	Priority	5	ERL	00
Description	Not Sealed		Photo ID					
Memo	No fuel oil piping penetrations in 152 Lube/Comp have been fire sealed. There is an existing transfer grille above the door with a fire damper.		Cost Range	\$500 to \$600				

System	B.7	Mechanical - Fire Protection System	% of CRV	4%	CRV Amt	\$355,626.63
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Sub System	B.7.1	Wet Pipe Fire Sprinkler System	Grade	A	Priority	1	ERL	20
Description								
Memo	Wet pipe system serves office spaces at north end of building.							

Component	B.7.1.2	Valves and Specialties	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Sprinkler service enters the building in room 140. RPZ assembly and system valves are in very good condition.		Cost Range	\$1,000 to \$2,000				

Component	B.7.1.3	Sprinkler Head	Grade	X	Priority	5	ERL	00
Description	Missing		Photo ID					
Memo	The architectural overhang above Reception 106 is greater than 4' wide, but has no sprinkler head underneath. Sprinklers are present in ceiling above, but missing in the overhang.		Cost Range	\$500 to \$600				

Sub System	B.7.2	Dry Pipe Fire Sprinkler System	Grade	A	Priority	1	ERL	20
Description								
Memo	Dry pipe system serves vehicle maintenance areas and wash bays.							

Building Report

Component	B.7.2.2	Valves and Specialties	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Sprinkler service enters the building in room 140. RPZ assembly and system valves are in very good condition.		Cost Range	\$2,000 to \$3,000				
Component	B.7.2.5	Air Compressor	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Emerson model M616NEX. 1 HP, 1725 RPM, 120/240V, 1Ø		Cost Range	\$2,000 to \$3,000				
System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$1,066,879.90		
Sub System	B.8.1	Boiler	Grade		Priority		ERL	
Description								
Memo	Domestic Hot Water is provided by (2) A.O. Smith water heaters in 140 Water Meter.							
Component	B.8.1.1	Steam / Hot Water Boiler	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	WH-1: A.O. Smith Model BTH 400A 100, S/N H07M005909. 130 Gallon, 400 MBH natural gas input, 465.33 GPH recovery rate.120V.		Cost Range	\$10,000 to \$15,000				
Sub System	B.8.3	Other Heat Generation System	Grade		Priority		ERL	
Description								
Memo	Building uses a geothermal loop with approximately 60 wells to provide heating and cooling to office spaces.							

Building Report

Component	B.8.3.4	Motor	Grade	B	Priority	4	ERL	05
Description	Corroded		Photo ID					
Memo	P-1: Bell & Gossett 1510BF 7.75, 1.5BC Impeller. S/N C045085-01F70. 60 GPM, 63.7' head, 5 HP, 1800 RPM. Significant condensation has formed on valves to pump, and has caused significant rust and corrosion on valve assemblies.		Cost Range	\$400 to \$500				
Component	B.8.3.6	Other Component 1	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Water-to-Water 1: Climate Master Model TMW100AHC10C0CS, S/N K13176322. 208/230V, 3Ø, 53.6 RLA compressor. 81 kW Heating Capacity.		Cost Range	\$25,000 to \$30,000				
Sub System	B.8.4	Cooling System	Grade		Priority		ERL	
Description								
Memo	Small split-system cooling unit serving the data rack in 104.							
Component	B.8.4.8.4	DX - Other Component	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Sanyo model KS1872, S/N 0282964.		Cost Range	\$1,000 to \$2,000				
Sub System	B.8.5	HVAC Distribution System	Grade		Priority		ERL	
Description								
Memo	Air is distributed to the office spaces by (8) geothermal heat pump units in Mechanical spaces.							

Building Report

Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	A	Priority	1	ERL	30
Description	Part(s) Missing		Photo ID					
Memo	HP-1: Climate Master Model GRV030BHC10CLTS, S/N K13072989. 208/230V, 3Ø. 1/2 HP blower, 8 kW Cooling, 8 kW Heating. Condensate drain piping has no trap.		Cost Range	\$100 to \$200				
Component	B.8.5.5.4	Exhaust Fan - Power Roof/Wall Ventilator	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	EF-1: Greenheck model LBP-18-4, S/N 07C03845.		Cost Range	\$900 to \$1,000				
Sub System	B.8.6	Packaged HVAC Equipment	Grade		Priority		ERL	
Description								
Memo	Makeup air is provided to the spaces by means of (3) gas-fired makeup air units throughout the space							
Component	B.8.6.1.2	PTAC - Rooftop Air Conditioning Unit	Grade	A	Priority	4	ERL	20
Description	Leaking		Photo ID					
Memo	MUA-1: Aaon Model RM-013-8-0-AB02-349, Part #79675. S/N 200707-AMGK34501. 208V. Heating: 200°F LAT, 270/219 MBH Input/Output. Cooling: 13 tons, R-22 Refrigerant. Condensate drain has not been fully piped and drains to roof. Condensate is allowed to drip t		Cost Range	\$100 to \$200				
Component	B.8.6.2.6	Heat Transfer Equipment - Unit Ventilator	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	MUA-2: Trane Model DFI 222 HRS, S/N 07-F07D04191. 28,000 CFM, 2750 MBH input, 130°F LAT. 200V/3Ø, 25 HP Fan Motor.		Cost Range	\$30,000 to \$40,000				
System	B.9	Electrical - Electric System	% of CRV	12%		CRV Amt	\$1,066,879.90	

Building Report

Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	A	Priority	1	ERL	30
Description			Photo ID					
Memo	1600/3Ø. 4W. PLANT #43 CAT. #22293425-001 SQ. D. POWER STYLE, M.L.O. WITH ARRESTOR		Cost Range	\$30,000 to \$40,000				
Component	B.9.1.2.5	Building Electrical Service & Distribution - Main Disco	Grade	A	Priority	1	ERL	30
Description			Photo ID					
Memo	ASCO #7000 SERIES		Cost Range	\$5,000 to \$6,000				
Component	B.9.1.3.6	Interior Electrical Distribution - Other Component	Grade	A	Priority	1	ERL	30
Description			Photo ID					
Memo	CUMMINS DFEK 5856709, SERIAL #D070053056 500KW DIESEL 1600AMP MAIN		Cost Range	\$140,000 to \$160,000				
Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	20
Description			Photo ID					
Memo	NOTIFIER NFW2-100 MULTIPLEX ADDRESSABLE SYSTEM		Cost Range	\$1,000 to \$2,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Building Report

Component	B.9.2.1.1	Electrical Branch Wiring - Wire and Raceway	Grade	A	Priority	1	ERL	30
Description			Photo ID					
Memo	NQOD SQUARE D, CAT NO. 12222934250 120001 120/208V. 3Ø. 4 WIRE		Cost Range	\$15,000 to \$20,000				
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description			Photo ID					
Memo	COMPACT FLUORESCENT IN DOWN LIGHT HORIZONTAL LAMPS		Cost Range	\$10,000 to \$15,000				
Component	B.9.2.2.4	Interior Lighting - Other Component	Grade	A	Priority	1	ERL	15
Description			Photo ID					
Memo	LIGHTING IN THE BUILDING F32, T8		Cost Range	\$10,000 to \$25,000				
Component	B.9.2.3.4	Exterior Lighting - Other Component	Grade	A	Priority	1	ERL	15
Description			Photo ID					
Memo	METAL HALIDE GARAGE PENDENTS		Cost Range	\$30,000 to \$40,000				
Component	B.9.2.4.6	Exit/Emergency Lighting - Other Component	Grade	A	Priority	1	ERL	15
Description			Photo ID					
Memo	EXIT SIGNAGE LED		Cost Range	\$7,000 to \$8,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$444,533.31	
Sub System	C.1.1	Drives / Roads / Curbs	Grade	A	Priority	2	ERL	30
Description	Asphalt Paving							
Memo	Asphalt recently sealed and in adequate shape.							

Building Report

Component Grade Priority ERL

Description Photo ID

Memo Cost Range

Sub System Grade Priority ERL

Description

Memo

Component Grade Priority ERL

Description Photo ID

Memo

Cost Range

Sub System Grade Priority ERL

Description

Memo

Component Grade Priority ERL

Description Photo ID

Memo

Cost Range

Sub System Grade Priority ERL

Description

Memo

Component Grade Priority ERL

Description Photo ID

Memo

Cost Range

Building Report

Sub System	C.1.7	Retaining Walls	Grade	A	Priority	2	ERL	30
Description	Concrete Block							
Memo	Walls around detention pond missing 3 block caps.							
Component	C.1.7.1.6	Other	Grade	B	Priority	2	ERL	30
Description	No Deficiency		Photo ID					
Memo	Need to replace 3 block caps on retaining wall around detention pond.		Cost Range	\$100 to \$200				
System	C.2	Civil - Tunnels & Bridges	% of CRV	1%		CRV Amt	\$88,906.66	
Sub System	C.2.1	Pedestrian Bridge	Grade	A	Priority	2	ERL	30
Description	Steel Construction							
Memo	Steel frame with wooden deck over detention pond.							
Component	C.2.1.6	Other	Grade	B	Priority	2	ERL	30
Description	Concrete Construction		Photo ID					
Memo	Place rip-rap over bridge abutments to prevent erosion.		Cost Range	\$1,000 to \$5,000				
System	S.1	Structural - Foundation System	% of CRV	4%		CRV Amt	\$355,626.63	
Sub System	S.1.3	Cast Concrete - Foundation Wall	Grade	A	Priority	1	ERL	15
Description								
Memo	Cast-in-place continuous reinforced concrete footings							
Component	S.1.3.5	Vibration - Trivial	Grade	A	Priority	1	ERL	15
Description			Photo ID					
Memo	Cast-in-place continuous reinforced concrete footings.		Cost Range	\$0				
System	S.2	Structural - Floor Framing System	% of CRV	3%		CRV Amt	\$266,719.97	

Building Report

Sub System	S.2.1	Cast Concrete - Floor Slab	Grade	A	Priority	1	ERL	15
Description								
Memo								

Component	S.2.1.5	Vibration - Trivial	Grade	A	Priority	1	ERL	15
Description								
Memo	Precast, pre-stressed hollow core concrete planks with cast-in-place concrete topping		Cost Range	\$0				

System	S.3	Structural - Roof Framing System	% of CRV	3%	CRV Amt	\$266,719.97
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Sub System	S.3.8	Structural Steel - Beam / Joist Floor	Grade	A	Priority	1	ERL	15
Description								
Memo								

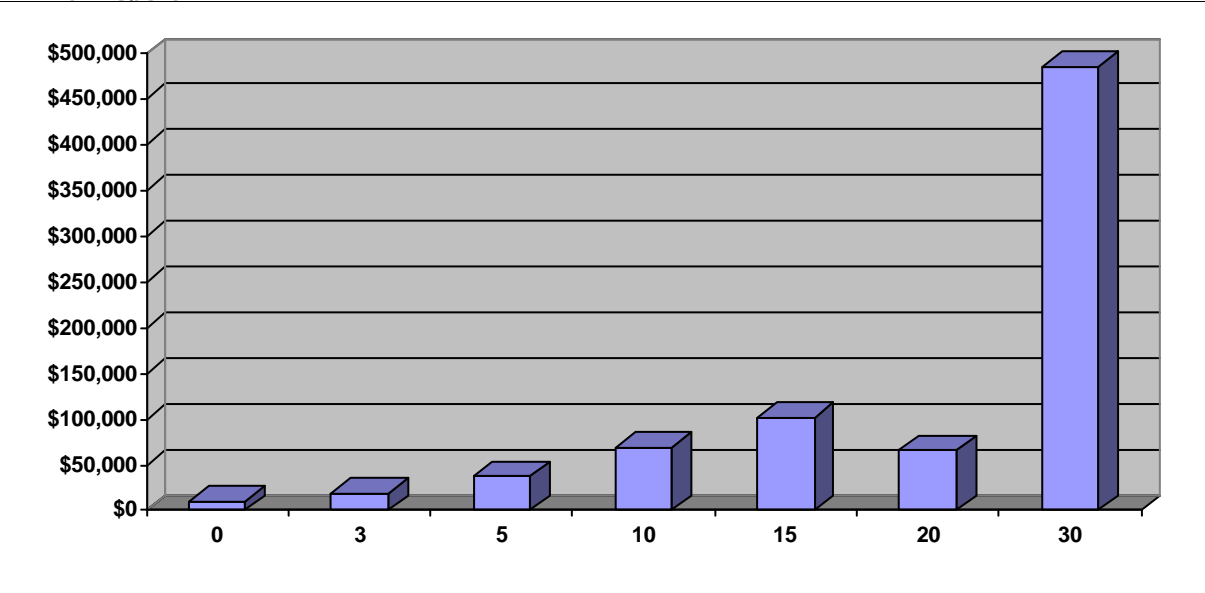
Component	S.3.8.5	Vibration - Trivial	Grade	A	Priority	1	ERL	15
Description								
Memo	Steel joists supporting metal roof deck		Cost Range	\$0				

System	S.4	Structural - Exterior Wall System	% of CRV	2%	CRV Amt	\$177,813.32
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Sub System	S.4.5	CMU - Structural	Grade	A	Priority	1	ERL	15
Description								
Memo	Precast, pre-stressed concrete wall panels. Sandwich panels with insulation.							

Component	S.4.5.5	Vibration - Trivial	Grade	A	Priority	1	ERL	15
Description								
Memo	Precast, pre-stressed concrete wall panels. Sandwich panels with insulation.		Cost Range	\$0				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building	8	Juvenile Detention Facility	Year Built	2000	CRV			
Address	400 Art Bartell Drive		Grade	C	\$6,631,830	DMB	FCI	
	Urbana	IL	61802	Priority	2	0-1 Year	\$220,300	3.32%
Construction Type	Precast Concrete		Total SqFt	31,000	0-5 Year	\$379,300	5.72%	
			Annual Maintenance Cost	\$198,955	5-25 Year	\$6,252,530	94.28%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$795,819.58
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Sub System	B.2.6	Window	Grade		Priority		ERL	
Description	Aluminum / Glass							
Memo	Exterior aluminum and glass windows..							

Component	B.2.6.1	Frame / Sash Deterioration	Grade	B	Priority	4	ERL	01
Description	Aluminum Frame		Photo ID					
Memo	Paint peeling - 90% of windows showing deterioration.		Cost Range	\$30,000 to \$40,000				

Component	B.2.6.6	Sealant Deterioration	Grade	C	Priority	5	ERL	01
Description	Aluminum Frame		Photo ID					
Memo	Windows leaking; sealant needs to be replaced - 100%.		Cost Range	\$75,000 to \$100,000				

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$994,774.54
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Sub System	B.4.1	Flooring	Grade		Priority		ERL	
Description	Carpet							
Memo	Corridor at admin.							

Building Report

Component	B.4.1.2	Stains/ Discoloration	Grade	C	Priority	3	ERL	01
Description	Carpet		Photo ID					
Memo	Carpet stained in need of replacement or cleaning.		Cost Range	\$4,000 to \$5,000				
Component	B.4.1.7	Cracks	Grade	B	Priority	3	ERL	01
Description	Vinyl Composition Tile		Photo ID					
Memo	Broken tiles at entrance of vestibule - correct threshold - possibly due to joint in concrete around walk off carpet.		Cost Range	\$50,000 to \$70,000				
Sub System	B.4.3	Interior Walls	Grade		Priority		ERL	
Description	CMU							
Memo	Joint in CMU wall cracked.							
Component	B.4.3.2	Cracks / Open Joints	Grade	C	Priority	4	ERL	01
Description	CMU		Photo ID					
Memo	Crack at open joint in CMU wall.		Cost Range	\$2,000 to \$3,000				
Component	B.4.3.3	Moisture Damage	Grade	D	Priority	3	ERL	03
Description	Plaster		Photo ID					
Memo	Moisture damage from inside wall deteriorating exterior surface - multiple locations.		Cost Range	\$15,000 to \$20,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	Ceiling tiles in various areas.							
Component	B.4.5.1	Stains / Discoloration	Grade	B	Priority	3	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Severe discoloration around all supply grilles - clean and/or replace.		Cost Range	\$2,000 to \$3,000				

Building Report

Component	B.4.5.3	Settlement / Sagging	Grade	D	Priority	3	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Tiles in vestibule popping out due to pressure in vestibule.		Cost Range	\$4,000 to \$5,000				
Component	B.4.5.4	Broken / Missing Units	Grade	F	Priority	4	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Holes in gymnasium ceiling.		Cost Range	\$4,000 to \$5,000				
Component	B.4.5.5	Moisture Damage	Grade	F	Priority	4	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Moisture damage above security camera - possible roof leak.		Cost Range	\$30,000 to \$40,000				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Steel Door							
Memo	Laundry room door & 175 Unit F.							
Component	B.4.6.1	Deteriorated Finish	Grade	C	Priority	2	ERL	10
Description	Steel Door		Photo ID					
Memo	175 Unit F door finish damaged due to impact from carts on door.		Cost Range	\$3,000 to \$4,000				
Component	B.4.6.5	Malfunctioning Hardware	Grade	C	Priority	4	ERL	05
Description	Overhead Door		Photo ID					
Memo	Hinges breaking off, unable to support size/ weight of garage door - replace 2 doors.		Cost Range	\$45,000 to \$50,000				
Component	B.4.6.7	Lacking Maintenance	Grade	D	Priority	5	ERL	02
Description	Aluminum Frame		Photo ID					
Memo	Sealant has deteriorated and needs to be replaced.		Cost Range					

Building Report

Sub System	B.4.7	Casework	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Laminate							
Memo	Desk casework.							

Component	B.4.7.5	Damaged Top	Grade	D	Priority	2	ERL	10
Description	Laminate		Photo ID					
Memo	Damaged laminate covering desk casework - replace laminate panel.		Cost Range	\$2,000 to \$3,000				

System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$530,546.39
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Sub System	B.6.1	Plumbing Fixtures	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.6.1.12	Other Component	Grade	X	Priority	5	ERL	01
Description	Non Code Compliant		Photo ID					
Memo	Cold Water supply to Ice Maker in Kitchen requires an approved form of backflow prevention per Illinois Plumbing Code 890.1130.f.1.		Cost Range	\$1,000 to \$2,000				

Sub System	B.6.3	Water Supply Equipment System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.6.3.2	Domestic Water Heater	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Rheem Model GPV75-75E, S/N RHNG 1099G00484. Natural gas, 75 MBH input capacity.		Cost Range					

System	B.7	Mechanical - Fire Protection System	% of CRV	4%	CRV Amt	\$265,273.19
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Building Report

Sub System	B.7.1	Wet Pipe Fire Sprinkler System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component			Grade	B	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Wet pipe sprinkler service and valve assembly original to building. Valve assembly and risers are in good condition.		Cost Range					

System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$795,819.58
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Sub System	B.8.1	Boiler	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.1.7	Pipe and Pipe Fittings	Grade	C	Priority	2	ERL	05
Description	Corroded		Photo ID					
Memo	Natural Gas piping on roof has no coating, and is corroded on the exterior.		Cost Range	\$9,000 to \$10,000				

Sub System	B.8.3	Other Heat Generation System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.3.1	Unit Heater	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Garage Radiant Tube Heaters: Re-verber-ray Model DTHS20-40N-2, 40 MBH input heating capacity. 2 in garage.		Cost Range					

Building Report

Sub System	B.8.5	HVAC Distribution System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	RTU-1: Aaon Model 25893 RK-04-2-FO-322:KGCUVAOOHOOHOX, S/N 99LKGC471. 208V/3Ø, 4 tons cooling, 90/72 input/output heating MBH.		Cost Range					

Component	B.8.5.5.4	Exhaust Fan - Power Roof/Wall Ventilator	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	EF-10: Greenheck Model CUBE-160-4-X, S/N 99117753		Cost Range					

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$795,819.58
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Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Caterpillar Model 3306/SR4B, 250kW, 120/208V, 3Ø, 4W, Diesel, 373 hours.		Cost Range	\$45,000 to \$50,000				

Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Square D Distribution Panel, CAT 12162803-084. 1200 Amp, 120/208V.		Cost Range	\$10,000 to \$15,000				

Building Report

Component	B.9.1.3.6	Interior Electrical Distribution - Other Component	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	UPS: Mitsubishi 2033A UPS system, Model 1CR3-3035X.360F.UL. 360V DC, 72.78 Amps.		Cost Range	\$50,000 to \$70,000				
Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Square D NQOD 120/208V, 3Ø, 4W.		Cost Range	\$1,000 to \$2,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	01
Description	End of Life		Photo ID					
Memo	Existing control room has A-19 incandescent lamps. Install new LED dimmable replacement lamps at 60W.		Cost Range	\$200 to \$300				
Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	As existing lamps on outside of building fail, upgrade to new units.		Cost Range	\$5,000 to \$6,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	Emergency battery lighting and exit fixtures. As units fail, replace with new units.		Cost Range	\$4,000 to \$5,000				

Building Report

Sub System	B.9.3	Communication and Security System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Existing fire alarm panel: Edwards EST2.		Cost Range	\$5,000 to \$6,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$331,591.50	
Sub System	C.1.1	Drives / Roads / Curbs	Grade	C	Priority	2	ERL	05
Description	Concrete Paving							
Memo								
Component	C.1.1.1.2	Cracking - North Side of Building	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Alligator cracking; need to remove and replace		Cost Range	\$6,000 to \$7,000				
Component	C.1.1.1.7	Other - South Side of Building	Grade	C	Priority	2	ERL	10
Description	Concrete Paving		Photo ID					
Memo	Weeds growing through joints in concrete (no cracking); need to seal joints		Cost Range	\$1,000 to \$5,000				
Sub System	C.1.2	Parking Lots	Grade	B	Priority	2	ERL	10
Description	Asphalt							
Memo								
Component	C.1.2.1.2	Cracking - Front Lot	Grade	B	Priority	2	ERL	10
Description	Asphalt Paving		Photo ID					
Memo	alligator cracking in water flow paths; need to seal cracks in asphalt		Cost Range	\$25,000 to \$50,000				

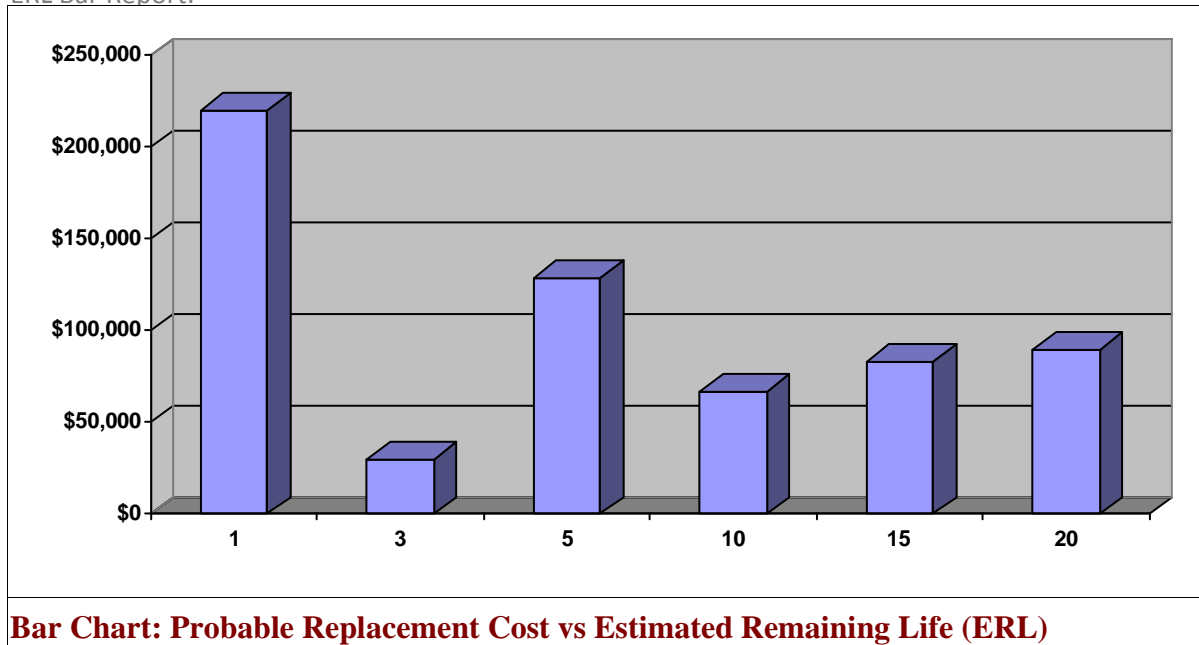
Building Report

Sub System	C.1.3	Side Walks	Grade	C	Priority	2	ERL	10
Description	Concrete Paving							
Memo								
Component	C.1.3.1.1	Surface Deterioration - Front of Building	Grade	C	Priority	2	ERL	10
Description	Concrete Paving		Photo ID					
Memo	Concrete joints spalling 3-4 inches across and 1-inch deep; need to remove and replace		Cost Range	\$1,000 to \$5,000				
Sub System	C.1.9	Site Drainage / Erosion	Grade	C	Priority	2	ERL	20
Description	Concrete Construction							
Memo								
Component	C.1.9.1.3	Site Detention Insulation - North Side of Building	Grade	B	Priority	2	ERL	20
Description	Lacking Maintenance		Photo ID					
Memo	Need to remove silt sack from inlet for proper drainage		Cost Range	\$50 to \$100				
Component	C.1.9.1.4	Other - South End of Parking Lot	Grade	C	Priority	2	ERL	20
Description	Concrete Construction		Photo ID					
Memo	Inlet approximately .75-inch higher than surrounding pavement; need to remove and replace grate		Cost Range	\$500 to \$1,000				
System	C.4	Civil - Site Utilities	% of CRV	5%		CRV Amt	\$331,591.50	
Sub System	C.4.3	Site Energy Utilities	Grade	B	Priority	2	ERL	20
Description	Precast Concrete							
Memo								

Building Report

Component	C.4.3.1.4	Electrical Distribution Systems - Structures - South Sid	Grade	B	Priority	2	ERL	20
Description	Lacking Maintenance		Photo ID					
Memo	low spot of settled ground next to structure leading to possible water ponding; need to regrade around structure		Cost Range	\$500 to \$600				

ERL Bar Report:



Building Report

Building Report

Building	9	Emergency Operation Center (METCAD)	Year Built	1960	CRV			
Address	1905 E Main		Grade	B	\$4,128,152	DMB	FCI	
	Urbana	IL	61802	Priority	1	0-1 Year	\$3,000	0.07%
Construction Type	Block		Total SqFt	19,600	0-5 Year	\$336,000	8.14%	
			Annual Maintenance Cost	\$123,845	5-25 Year	\$3,792,152	91.86%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$495,378.23
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Sub System	B.2.1	Masonry Wall	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Brick							
Memo	Exterior brick façade.							

Component	B.2.1.3	Mortar Joint Deterioration	Grade	B	Priority	2	ERL	10
Description	Brick		Photo ID	<input type="text"/>				
Memo	Eventual repointing required.		Cost Range	\$45,000 to \$50,000				

Sub System	B.2.4	Metal	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Metal							
Memo	Ramp handrail.							

Component	B.2.4.5	Other	Grade	B	Priority	4	ERL	01
Description	Metal		Photo ID	<input type="text"/>				
Memo	Railing at ramp not ADA compliant.		Cost Range	\$2,000 to \$3,000				

Sub System	B.2.6	Window	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Aluminum / Glass							
Memo	Aluminum and glass windows.							

Building Report

Component Sealant Deterioration Grade Priority ERL
 Description Photo ID
 Memo Cost Range

System Architectural - Roofing System % of CRV CRV Amt

Sub System Built-Up Roof Grade Priority ERL
 Description
 Memo

Component Other Grade Priority ERL
 Description Photo ID
 Memo Cost Range

System Mechanical - Plumbing System % of CRV CRV Amt

Sub System Water Supply Equipment System Grade Priority ERL
 Description
 Memo

Component Domestic Water Heater Grade Priority ERL
 Description
 Memo Cost Range

Component Pump Grade Priority ERL
 Description
 Memo Cost Range

Building Report

System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$495,378.23		
Sub System	B.8.1	Boiler	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description								
Memo								
Component	B.8.1.1	Steam / Hot Water Boiler	Grade	B	Priority	1	ERL	20
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	Lochinvar Copper Fin 2, Model CHN401, S/N L017066. 400/336 MBH input/output capacity.		Cost Range	<input type="text"/>				
Sub System	B.8.4	Cooling System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description								
Memo								
Component	B.8.4.8.2	DX - Refrigerant Condenser	Grade	A	Priority	1	ERL	20
Description			Photo ID	<input type="text"/>				
Memo	Carrier Model 38AKS028---500--, S/N 0302F32014. 208/230VAC, 3Ø, 1 compressor, (2) 1HP condenser fans.		Cost Range	<input type="text"/>				
Sub System	B.8.5	HVAC Distribution System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description								
Memo								
Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	Carrier Custom AHU. S/N 1502F46873. DX Cooling, Hot Water heating, filter and fan sections.		Cost Range	<input type="text"/>				

Building Report

Component	B.8.5.1.2	Supply/Return Air Fan - Centrifugal Fan	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Carrier Return Fan. S/N 1502F46872.		Cost Range					
Component	B.8.5.4.6	Hydronic Distribution - Pump	Grade	A	Priority	4	ERL	20
Description	Poor Installation		Photo ID					
Memo	Hot Water circulation pumps installed vertical, and cannot hold oil. 3/4HP.		Cost Range					
System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$495,378.23		
Sub System	B.9.1	Electrical Service and Distribution	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.1.2.12	Building Electrical Service & Distribution - Other Com	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Caterpillar Olympian Generator, model D200P4-1, 250kW, 120/208V, 3Ø, 4W, Diesel, 462.3 hours.		Cost Range	\$45,000 to \$50,000				
Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	B	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Siemens main distribution panel, CAT 5C90N61200ABS, S/N 17-48007-A90. 1200 Amp, 120/208V.		Cost Range	\$20,000 to \$25,000				
Component	B.9.1.3.6	Interior Electrical Distribution - Other Component	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Cummins/Onan Automatic Transfer Switch, Model BT4005029C. 400 Amp, with bypass.		Cost Range	\$20,000 to \$25,000				

Building Report

Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Siemens branch panel PRL2A, 120/208V, 3Ø, 4W.		Cost Range	\$30,000 to \$40,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	C	Priority	1	ERL	03
Description	End of Life		Photo ID					
Memo	Lighting fixtures in building lower level are all T12 lamps. As lamps fail, retrofit with new T8 lamps and electronic ballasts.		Cost Range	\$20,000 to \$25,000				
Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	B	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	As existing lighting on outside of building fail, upgrade to new lighting units.		Cost Range	\$6,000 to \$7,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	A	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	Emergency battery lighting and exit fixtures throughout building. As fixtures fail replace with new units.		Cost Range	\$15,000 to \$20,000				
Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Simplex fire alarm panel, 4010.		Cost Range	\$5,000 to \$6,000				

System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$206,407.60
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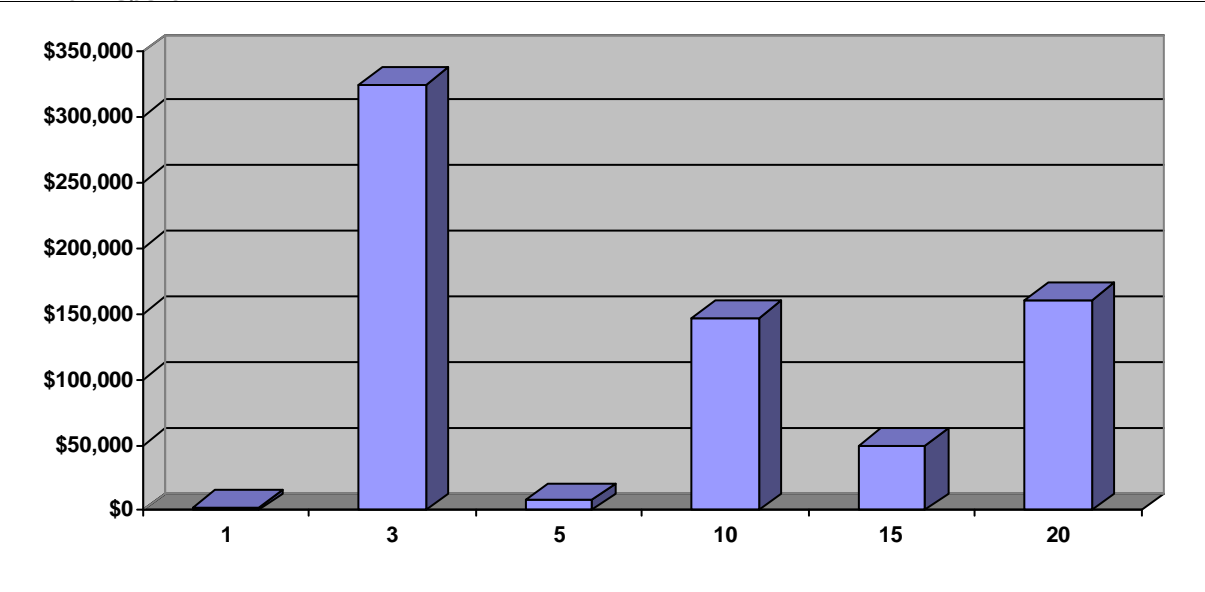
Sub System	C.1.1	Drives / Roads / Curbs	Grade	C	Priority	2	ERL	05
Description	Poured Concrete							
Memo								

Component	C.1.1.1.3	Curbs Eroded or Missing - NW and NE Corner of Lot	Grade	C	Priority	2	ERL	05
Description	Broken		Photo ID					
Memo	chipped and broken from snow plows; need to remove and replace sections		Cost Range	\$2,000 to \$3,000				

Sub System	C.1.2	Parking Lots	Grade	C	Priority	2	ERL	10
Description	Asphalt							
Memo								

Component	C.1.2.1.2	Cracking - North, West and South of Building	Grade	C	Priority	2	ERL	10
Description	Asphalt		Photo ID					
Memo	Beginning to alligator crack; cracks need to be sealed		Cost Range	\$50,000 to \$70,000				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building	2	Coroner's Office	Year Built	2010	CRV		
Address	202 Art Bartell Rd		Grade	B	\$1,449,000	DMB	FCI
	Urbana	IL	61802	Priority	2	0-1 Year	\$120,000 8.28%
Construction Type	Steel		Total SqFt	5,750	0-5 Year	\$140,500	9.70%
			Annual Maintenance Cost	\$43,470	5-25 Year	\$1,308,500	90.30%

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$173,880.00
Sub System	B.2.2	Concrete Wall	Grade		Priority	
Description	Poured Concrete		ERL			
Memo	Concrete foundation wall.					

Component	B.2.2.8	Other	Grade	B	Priority	2	ERL	00
Description	Poured Concrete		Photo ID					
Memo	Damaged and missing insulation along exterior foundation wall.		Cost Range					

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$217,350.01
Sub System	B.4.1	Flooring	Grade		Priority	
Description	Vinyl Composition Tile		ERL			
Memo	VCT flooring in bathroom, breakroom and storage area.					

Component	B.4.1.1	Wear	Grade	A	Priority	3	ERL	05
Description	Vinyl Composition Tile		Photo ID					
Memo	Heavy wear and damage to VCT flooring in kitchen area - wax.		Cost Range	\$2,000 to \$3,000				

Building Report

Component	B.4.1.3	Holes / Tears / Loose Seams	Grade	A	Priority	3	ERL	03
Description	Vinyl Composition Tile		Photo ID					
Memo	Separated and loose tile seams in prep room.		Cost Range	\$2,000 to \$3,000				
Sub System	B.4.2	Base	Grade		Priority		ERL	
Description	Vinyl / Rubber							
Memo	Rubber wall base in offices, bathrooms and corridors.							
Component	B.4.2.6	Lifting / Cupping / Warpage	Grade	A	Priority	2	ERL	03
Description	Vinyl / Rubber		Photo ID					
Memo	Rubber wall base warped and lifting off wall in isolated places.		Cost Range	\$2,000 to \$3,000				
Sub System	B.4.3	Interior Walls	Grade		Priority		ERL	
Description	Gypsum Board							
Memo	Gypsum wall board in throughout building including portions of garage.							
Component	B.4.3.4	Impact Damage	Grade	B	Priority	2	ERL	05
Description	Gypsum Board		Photo ID					
Memo	Scratches and puncture damage to gypsum wall board.		Cost Range	\$2,000 to \$3,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Paint							
Memo	Paint on gypsum wall board throughout building.							
Component	B.4.4.3	Rips / Tears	Grade	B	Priority	2	ERL	05
Description	Paint		Photo ID					
Memo	Paint damage on gypsum wall board at scratches and impact punctures.		Cost Range	\$2,000 to \$3,000				

Building Report

Sub System	B.4.5	Ceilings	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Acoustical Tile							
Memo	Acoustical tiles in offices and corridors.							

Component	B.4.5.1	Stains / Discoloration	Grade	B	Priority	3	ERL	03
Description	Acoustical Tile		Photo ID					
Memo	Water stains on acoustical tiles in isolated areas.		Cost Range	\$2,000 to \$3,000				

System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$115,920.00
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Sub System	B.6.3	Water Supply Equipment System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.6.3.2	Domestic Water Heater	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description			Photo ID					
Memo	AO Smith Model ECS-40-200, S/N 1104A002003. 3.5kW heating capacity.		Cost Range					

System	B.7	Mechanical - Fire Protection System	% of CRV	4%	CRV Amt	\$57,960.00
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Sub System	B.7.1	Wet Pipe Fire Sprinkler System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.7.1.2	Valves and Specialties	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Sprinkler service entry to building and valves are in excellent condition.		Cost Range					

System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$173,880.00
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Building Report

Sub System	B.8.5	HVAC Distribution System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Carrier model 48TCED14A2G5A0A0A0, S/N 1210G50707. 208/230V, 3Ø, 224/184 MBH input/output heating, 140 MBH cooling.		Cost Range					

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$173,880.00
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Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.1.2.1	Building Electrical Service & Distribution - Service Dist	Grade	F	Priority	5	ERL	01
Description			Photo ID					
Memo			Cost Range	\$100,000 to \$120,000				

Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Siemens branch panel CAT #G3042L3200CU, series A.		Cost Range	\$1,000 to \$2,000				

Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

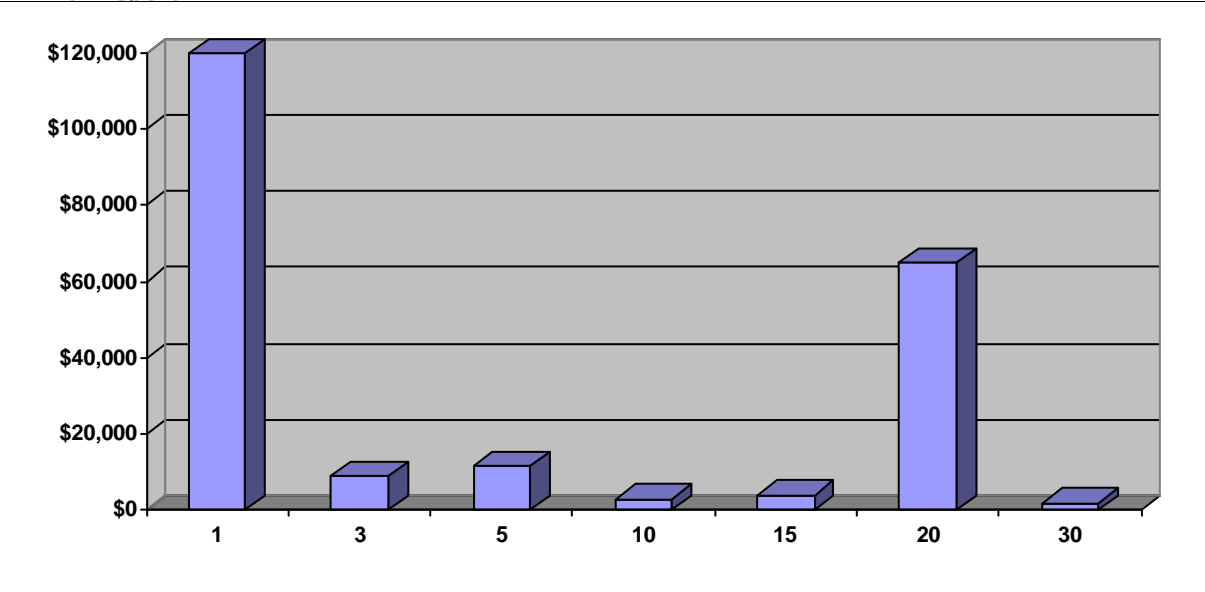
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Fixtures T8 lamps, with electronic ballasts.		Cost Range	\$3,000 to \$4,000				

Building Report

Component	B.9.2.2.4	Interior Lighting - Other Component	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	Occupancy sensors to control lighting throughout building		Cost Range	\$400 to \$500				
Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	HID fixtures on exterior of building		Cost Range	\$2,000 to \$3,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	LED type fixtures		Cost Range	\$1,000 to \$2,000				
Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Notifier fire alarm #NFW2-10C		Cost Range	\$20,000 to \$25,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$72,450.00	
Sub System	C.1.1	Drives / Roads / Curbs	Grade	B	Priority	2	ERL	20
Description	Asphalt							
Memo								
Component	C.1.1.1.7	Other - Perimeter of Building	Grade	B	Priority	2	ERL	20
Description	Asphalt		Photo ID					
Memo	No deficiencies; cost given in future replacement required		Cost Range	\$30,000 to \$40,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	12	Physical Plant Shop	Year Built	2010	CRV			
Address	202 Art Bartell Rd		Grade	B	\$1,374,342	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$5,000	0.36%
Construction Type	Steel		Total SqFt	11,956	0-5 Year	\$32,000	2.33%	
			Annual Maintenance Cost	\$41,230	5-25 Year	\$1,342,342	97.67%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$164,921.04
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Sub System	B.2.2	Concrete Wall	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Concrete foundation wall.							

Component	B.2.2.8	Other	Grade	B	Priority	2	ERL	00
Description	Poured Concrete		Photo ID					
Memo	Damaged and missing insulation around foundation wall.		Cost Range	\$4,000 to \$5,000				

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$68,717.10
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Sub System	B.3.7	Gutter & Downspouts	Grade		Priority		ERL	
Description	Aluminum							
Memo	Aluminum gutters and downspouts on building exterior.							

Component	B.3.7.3	Impact Damage	Grade	C	Priority	3	ERL	02
Description	Aluminum		Photo ID					
Memo	Dented downspout on exterior.		Cost Range	\$2,000 to \$3,000				

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$206,151.31
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Building Report

Sub System	B.4.1	Flooring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Sealed Concrete							
Memo	Sealed concrete flooring throughout storage and staging area.							

Component	B.4.1.1	Wear	Grade	C	Priority	3	ERL	03
Description	Sealed Concrete		Photo ID	<input type="text"/>				
Memo	Wear and scratches on sealed concrete flooring in office and storage and staging area.		Cost Range	<input type="text"/>				

Component	B.4.1.2	Stains/ Discoloration	Grade	C	Priority	2	ERL	05
Description	Vinyl Composition Tile		Photo ID	<input type="text"/>				
Memo	Stains and discoloration to VCT in bathrooms.		Cost Range	<input type="text"/>				

Sub System	B.4.3	Interior Walls	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Exposed Structure							
Memo	Exposed structure and insulation in storage and staging area.							

Component	B.4.3.1	Stains / Discoloration	Grade	C	Priority	3	ERL	03
Description	Exposed Structure		Photo ID	<input type="text"/>				
Memo	Water stains on insulation around exposed structure.		Cost Range	<input type="text"/>				

Component	B.4.3.4	Impact Damage	Grade	C	Priority	2	ERL	05
Description	Gypsum Board		Photo ID	<input type="text"/>				
Memo	Scratches and impact punctures to gypsum wall board in storage and staging area.		Cost Range	<input type="text"/>				

Sub System	B.4.5	Ceilings	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Exposed Structure							
Memo	Exposed structure and insulation in storage and staging area.							

Building Report

Component	<input type="text" value="B.4.5.5"/> Moisture Damage	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="3"/>	ERL	<input type="text" value="03"/>
Description	<input type="text" value="Exposed Structure"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Water stains on insulation around exposed structure."/>	Cost Range	<input type="text"/>				

System	<input type="text" value="B.6"/> Mechanical - Plumbing System	% of CRV	<input type="text" value="8%"/>	CRV Amt	<input type="text" value="\$109,947.36"/>
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Sub System	<input type="text" value="B.6.1"/> Plumbing Fixtures	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.6.1.12"/> Other Component	Grade	<input type="text" value="X"/>	Priority	<input type="text" value="4"/>	ERL	<input type="text" value="01"/>
Description	<input type="text" value="Non Code Compliant"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Cold Water supply to Ice Maker on shop floor requires an approved form of backflow prevention per Illinois Plumbing Code 890.1130.f.1."/>	Cost Range	<input type="text"/>				

System	<input type="text" value="B.8"/> Mechanical - HVAC System	% of CRV	<input type="text" value="12%"/>	CRV Amt	<input type="text" value="\$164,921.04"/>
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Sub System	<input type="text" value="B.8.3"/> Other Heat Generation System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.8.3.1"/> Unit Heater	Grade	<input type="text" value="B"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="20"/>
Description	<input type="text"/>						
Memo	<input type="text" value="Reznor Model UDAP250, S/N BKA79Y3N80583X. Natural Gas, 250/207.5 MBH input/output capacity."/>	Cost Range	<input type="text"/>				

Sub System	<input type="text" value="B.8.4"/> Cooling System	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Building Report

Component	B.8.4.8.2	DX - Refrigerant Condenser	Grade	B	Priority	1	ERL	20
Description			Photo ID					
Memo	Carrier model 38MVC018---301--, S/N 0111V02223. R410a Refrigerant. 1.5 tons cooling.		Cost Range					
Sub System	B.8.5	HVAC Distribution System	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.5.2.4	Air Distribution - Air Terminal Unit	Grade	B	Priority	4	ERL	20
Description	High Humidity		Photo ID					
Memo	Carrier Model 40MVC018---301--, S/N 0111V01904. 1.5 ton capacity; oversized for space served, resulting in high humidity.		Cost Range					
System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$164,921.04		
Sub System	B.9.1	Electrical Service and Distribution	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.1.3.5	Interior Electrical Distribution - Distribution Panel	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Siemens Distribution Panel, 600 amp main circuit breaker, 120/208V, 3Ø, 4W. CAT #P3C80LX600ATS.		Cost Range	\$10,000 to \$15,000				
Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Siemens Branch Panel. CAT #G3042L3200CU, Series A.		Cost Range	\$5,000 to \$6,000				

Building Report

Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Fixtures T8 lamps, with electronic ballasts.		Cost Range	\$20,000 to \$25,000				
Component	B.9.2.2.4	Interior Lighting - Other Component	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	Occupancy sensors to control lighting throughout building		Cost Range	\$8,000 to \$9,000				
Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	HID fixtures on exterior of building		Cost Range	\$6,000 to \$7,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	LED type fixtures		Cost Range	\$10,000 to \$15,000				
Sub System	B.9.3	Communication and Security System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Notifier fire alarm #NFW2-100		Cost Range	\$20,000 to \$25,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$68,717.10	

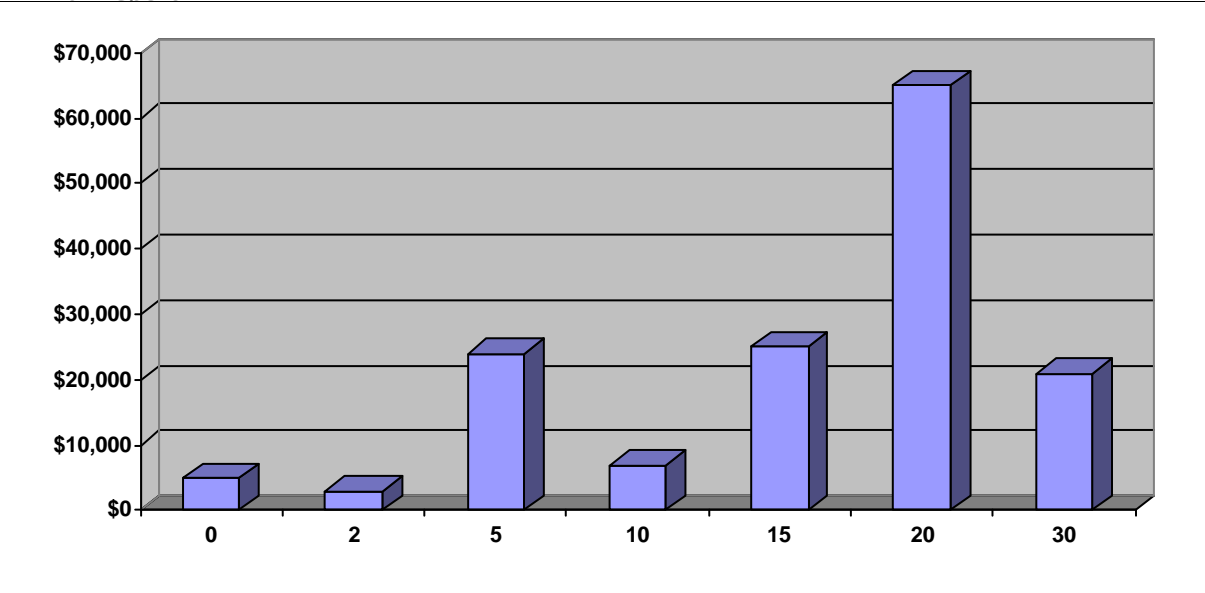
Building Report

Sub System	C.1.1	Drives / Roads / Curbs	Grade	B	Priority	2	ERL	20
Description	Asphalt							
Memo								

Component	C.1.1.1.7	Other - Perimeter of Building	Grade	B	Priority	2	ERL	20
Description	Asphalt		Photo ID					
Memo	No deficiencies; cost given if future replacement required		Cost Range	\$30,000 to \$40,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	11	Election Supply	Year Built	2010	CRV			
Address	202 Art Bartell Rd		Grade	B	\$677,630	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$0	0.00%
Construction Type	Steel		Total SqFt	5,895	0-5 Year	\$16,700	2.46%	
			Annual Maintenance Cost	\$20,329	5-25 Year	\$660,930	97.54%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$81,315.60		
Sub System	B.2.2	Concrete Wall	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Concrete foundation wall.							

Component	B.2.2.8	Other	Grade	B	Priority	2	ERL	00
Description	Poured Concrete		Photo ID					
Memo	No deficiency.		Cost Range					

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$101,644.50		
Sub System	B.4.1	Flooring	Grade		Priority		ERL	
Description	Vinyl Composition Tile							
Memo	VCT flooring in bathroom.							

Component	B.4.1.1	Wear	Grade	B	Priority	2	ERL	10
Description	Vinyl Composition Tile		Photo ID					
Memo	Wear and scratches to VCT in bathroom.		Cost Range					

Building Report

Component	B.4.1.2	Stains/ Discoloration	Grade	B	Priority	3	ERL	05
Description	Vinyl Composition Tile		Photo ID					
Memo	Stains and discoloration to VCT in bathroom near toilet - clean and wax.		Cost Range	\$4,000 to \$5,000				
Sub System	B.4.2	Base	Grade		Priority		ERL	
Description	Vinyl / Rubber							
Memo	Rubber wall base in storage areas and bathroom.							
Component	B.4.2.6	Lifting / Cupping / Warpage	Grade	B	Priority	2	ERL	05
Description	Vinyl / Rubber		Photo ID					
Memo	Some wear and warpage of rubber base - repair.		Cost Range	\$2,000 to \$3,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Acoustical Tile							
Memo	Acoustical ceiling in storage areas, office and bathroom.							
Component	B.4.5.4	Broken / Missing Units	Grade	B	Priority	2	ERL	05
Description	Acoustical Tile		Photo ID					
Memo	Missing acoustical tile in workspace.		Cost Range	\$2,000 to \$3,000				
System	B.8	Mechanical - HVAC System	% of CRV	12%		CRV Amt	\$81,315.60	
Sub System	B.8.3	Other Heat Generation System	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	B.8.3.1	Unit Heater	Grade	B	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	(2) gas-fired Reznor unit heaters. Tags missing from heaters. Equivalent size to Unit Heater in south end of adjacent Physical Plant building.		Cost Range					
Component	B.8.3.6	Other Component 1	Grade	C	Priority	4	ERL	05
Description	Exposed Live Parts		Photo ID					
Memo	Natural Gas service to building and AHU are exposed to parking lot, with no protection.		Cost Range	\$900 to \$1,000				
Sub System	B.8.5	HVAC Distribution System	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	B	Priority	1	ERL	20
Description			Photo ID					
Memo	Carrier Model 48TCED12A2G5A0A0A0, S/N 5110G20586. 2 compressors, 2 condenser fans, 1 supply fan, 1 combustion fan. 224/184 input/output MBH heating, 114 MBH cooling.		Cost Range					
System	B.9	Electrical - Electric System	% of CRV	12%		CRV Amt	\$81,315.60	
Sub System	B.9.1	Electrical Service and Distribution	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	A	Priority	1	ERL	30
Description	No Deficiency		Photo ID					
Memo	Siemens Branch Panel CRT #G3042L3200CU, Series A.		Cost Range	\$6,000 to \$7,000				

Building Report

Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	T8 lamps with electronic ballasts.		Cost Range	\$5,000 to \$6,000				
Component	B.9.2.2.4	Interior Lighting - Other Component	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	Occupancy sensors to control lighting throughout building.		Cost Range	\$600 to \$700				
Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	HID Fixtures on exterior of building.		Cost Range	\$3,000 to \$4,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	LED Type Fixtures		Cost Range	\$3,000 to \$4,000				
Sub System	B.9.3	Communication and Security System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Notifier fire alarm #NFW2-100		Cost Range	\$20,000 to \$25,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$33,881.50	

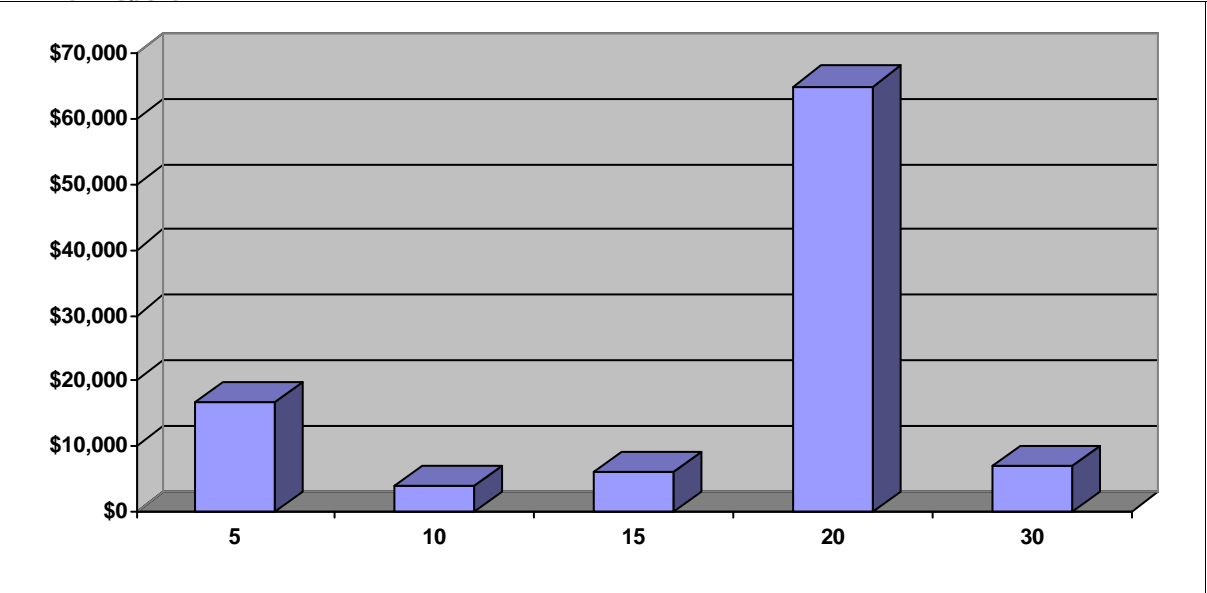
Building Report

Sub System	C.1.1	Drives / Roads / Curbs	Grade	B	Priority	2	ERL	20
Description	Asphalt							
Memo								

Component	C.1.1.1.7	Other Perimeter of Building	Grade	B	Priority	2	ERL	20
Description	Asphalt		Photo ID					
Memo	No deficiencies; cost given if future replacement required		Cost Range	\$30,000 to \$40,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	18	Highway Salt Dome	Year Built	2005	CRV			
Address	1701 E Main St		Grade	C	\$667,590	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$20,000	3.00%
Construction Type	Wood		Total SqFt	7,854	0-5 Year	\$166,050	24.87%	
			Annual Maintenance Cost	\$20,028	5-25 Year	\$501,540	75.13%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$80,110.80		
Sub System	B.2.2	Concrete Wall	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Concrete exterior walls.							

Component	B.2.2.1	Settlement / Cracks	Grade	B	Priority	3	ERL	03
Description	Poured Concrete		Photo ID					
Memo	Cracks in concrete pavement around foundation.		Cost Range	\$4,000 to \$5,000				

Component	B.2.2.3	Sealant Joint Deterioration	Grade	B	Priority	3	ERL	03
Description	Poured Concrete		Photo ID					
Memo	Evidence of patching and sealant deterioration on concrete wall and at base of wall along foundation.		Cost Range	\$4,000 to \$5,000				

Component	B.2.2.4	Efflorescence/Staining	Grade	C	Priority	3	ERL	03
Description	Poured Concrete		Photo ID					
Memo	Heavy deterioration and exposed aggregate along concrete wall in multiple locations - patch.		Cost Range	\$2,000 to \$3,000				

Building Report

Component	B.2.2.8	Other	Grade	C	Priority	2	ERL	03
Description	Poured Concrete		Photo ID					
Memo	Mold and mildew growing at base of concrete wall and along pavement.		Cost Range	\$2,000 to \$3,000				
Sub System	B.2.3	Wood	Grade		Priority		ERL	
Description	Plywood							
Memo	Exposed plywood on exterior at entrance.							
Component	B.2.3.3	Decay / Rot	Grade	C	Priority	3	ERL	01
Description	Plywood		Photo ID					
Memo	Deterioration and holes in plywood at entrance of salt dome.		Cost Range	\$4,000 to \$5,000				
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Steel Frame							
Memo	Steel frame at entrance.							
Component	B.2.4.5	Other	Grade	F	Priority	3	ERL	01
Description	Steel Frame		Photo ID					
Memo	Corrosion of corner guards, heavy rust on metal frame at entrance.		Cost Range	\$9,000 to \$10,000				
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$100,138.50		
Sub System	B.4.3	Interior Walls	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Concrete interior walls.							
Component	B.4.3.6	Other	Grade	C	Priority	3	ERL	10
Description	Poured Concrete		Photo ID					
Memo	Pitting and exposed aggregate on concrete wall.		Cost Range					

Building Report

Sub System	B.4.5	Ceilings	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Exposed Structure							
Memo	Exposed wood structure ceiling.							

Component	B.4.5.1	Stains / Discoloration	Grade	C	Priority	2	ERL	10
Description	Wood		Photo ID	<input type="text"/>				
Memo	Staining and wear on rafters.		Cost Range	<input type="text"/>				

Component	B.4.5.6	Cracks	Grade	C	Priority	3	ERL	01
Description	Wood		Photo ID	<input type="text"/>				
Memo	Wood splitting along roof structure in one location.		Cost Range	\$4,000 to \$5,000				

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$80,110.80
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Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	C	Priority	3	ERL	05
Description	Corroded		Photo ID	<input type="text"/>				
Memo	Square D, QO Plug-in load center inside NEMA 3R fiberglass enclosure. Slight rust.		Cost Range	\$3,000 to \$4,000				

Component	B.9.1.3.3	Interior Electrical Distribution - Wires and Cables	Grade	F	Priority	1	ERL	NA
Description	Missing		Photo ID	<input type="text"/>				
Memo	No duplex outlets present in building.		Cost Range	<input type="text"/>				

Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

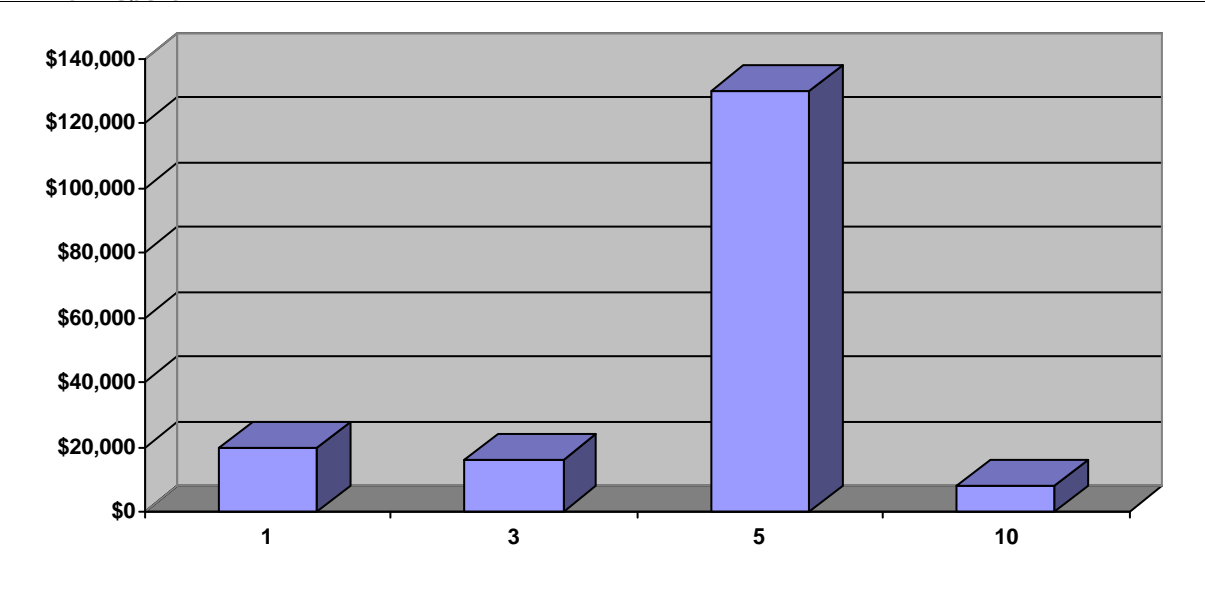
Building Report

Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Ceiling mounted HID lighting fixtures, hard wired connection.		Cost Range	\$2,000 to \$3,000				
Component	B.9.2.2.4	Interior Lighting - Other Component	Grade	B	Priority	2	ERL	03
Description			Photo ID					
Memo	Photo control mounted near the top of salt dome.		Cost Range	\$10 to \$50				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$33,379.50	
Sub System	C.1.1	Drives / Roads / Curbs	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								
Component	C.1.1.1.1	Surface Deterioration - West Drive	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	3 potholes, each 2-foot in diameter and 2-inches deep; need to be patched		Cost Range	\$500 to \$1,000				
Component	C.1.1.1.2	Cracking - Perimeter of Building	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Alligator cracking; need to remove and replace asphalt		Cost Range	\$100,000 to \$120,000				
Sub System	C.1.11	Other	Grade	B	Priority	2	ERL	10
Description	Concrete Construction							
Memo								

Building Report

Component	<input type="text" value="Exterior Foundation Pad"/>	Grade	<input type="text" value="B"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="Concrete Construction"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Surface cracks and small amount of spalling; need to seal cracks"/>	Cost Range	<input type="text" value="\$1,000 to \$2,000"/>				
Sub System	<input type="text" value="C.1.3"/> <input type="text" value="Side Walks"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="Concrete Paving"/>						
Memo	<input type="text"/>						
Component	<input type="text" value="C.1.3.1.2"/> <input type="text" value="Cracking - Front Entrance"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="Concrete Paving"/>						
Memo	<input type="text" value="Concrete pad cracked and spalling; need to remove and replace"/>						
Sub System	<input type="text" value="C.1.9"/> <input type="text" value="Site Drainage / Erosion"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="05"/>
Description	<input type="text" value="Asphalt Paving"/>						
Memo	<input type="text"/>						
Component	<input type="text" value="C.1.9.1.1"/> <input type="text" value="Erosion - South Drive"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="05"/>
Description	<input type="text" value="Lacking Maintenance"/>						
Memo	<input type="text" value="Erosion from truck washout causing asphalt failure at edge; hardened slurry residue left behind in eroded channel; need to armor or riprap area to prevent future erosion"/>						

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	10	Animal Control	Year Built	2010	CRV			
Address	210 S Art Bartell Road		Grade	C	\$517,275	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$2,400	0.46%
Construction Type	Steel		Total SqFt	4,500	0-5 Year	\$186,900	36.13%	
			Annual Maintenance Cost	\$15,518	5-25 Year	\$330,375	63.87%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$62,073.00		
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Metal Siding							
Memo	Metal siding around entire building enclosure.							

Component	B.2.4.1	Metal Trim	Grade	C	Priority	3	ERL	05
Description	Impact Damage		Photo ID					
Memo	Impact damage on metal trim.		Cost Range	\$1,000 to \$2,000				

Component	B.2.4.5	Metal Siding	Grade	C	Priority	2	ERL	05
Description	Impact Damage		Photo ID					
Memo	Exterior metal siding dented in multiple locations- replace & add bollards.		Cost Range	\$10,000 to \$15,000				

Sub System	B.2.8	Door and Frame	Grade		Priority		ERL	
Description	Steel Door							
Memo	All exterior doors.							

Component	B.2.8.1	Steel Door	Grade	B	Priority	2	ERL	10
Description	Lacking Maintenance		Photo ID					
Memo	Exterior door shows signs of wear and damage.		Cost Range					

Building Report

Component	B.2.8.2	Steel Frame	Grade	C	Priority	4	ERL	00
Description	Failed Sealant		Photo ID					
Memo	Failed sealant at door threshold.		Cost Range	\$1,000 to \$2,000				
Component	B.2.8.6	Wood Frame	Grade	C	Priority	4	ERL	02
Description	Deteriorated		Photo ID					
Memo	Wood door frame has peeling paint and shows signs of deterioration.		Cost Range	\$1,000 to \$2,000				
Component	B.2.8.7	Overhead Door	Grade	C	Priority	3	ERL	05
Description	Impact Damage		Photo ID					
Memo	Dents and impact damage on overhead doors.		Cost Range	\$1,000 to \$5,000				
System	B.3	Architectural - Roofing System	% of CRV	5%		CRV Amt	\$25,863.75	
Sub System	B.3.7	Gutter & Downspouts	Grade		Priority		ERL	
Description	Aluminum							
Memo								
Component	B.3.7.1	Downspout	Grade	C	Priority	3	ERL	05
Description	Impact Damage		Photo ID					
Memo	Twisted and dented downspout.		Cost Range	\$2,000 to \$3,000				
Component	B.3.7.5	Downspout	Grade	C	Priority	2	ERL	10
Description	Deteriorated		Photo ID					
Memo	Worn paint on downspouts.		Cost Range	\$1,000 to \$2,000				
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%		CRV Amt	\$77,591.25	

Building Report

Sub System	B.4.1	Flooring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Sealed Concrete							
Memo	Sealed concrete flooring in garage and animal containment spaces.							

Component	B.4.1.1	Sealed Concrete	Grade	B	Priority	2	ERL	05
Description	Worn		Photo ID					
Memo	Sealed concrete worn in multiple locations; reseal.		Cost Range	\$4,000 to \$5,000				

Sub System	B.4.2	Base	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Vinyl / Rubber							
Memo	Rubber wall base in offices and kitchen.							

Component	B.4.2.1	Rubber Base	Grade	B	Priority	2	ERL	05
Description	Worn		Photo ID					
Memo	Rubber wall base is worn and damaged in places.		Cost Range	\$1,000 to \$2,000				

Sub System	B.4.3	Interior Walls	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Metal Panels							
Memo	Metal panels in garage and animal containment spaces.							

Component	B.4.3.1	Stains / Discoloration	Grade	B	Priority	2	ERL	10
Description	Metal Panels		Photo ID					
Memo	Stains and discoloration on metal panels.		Cost Range	\$4,000 to \$5,000				

Component	B.4.3.4	Impact Damage	Grade	C	Priority	3	ERL	10
Description	Metal Panels		Photo ID					
Memo			Cost Range	\$4,000 to \$5,000				

Building Report

Sub System	B.4.5	Ceilings	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Acoustical Tile							
Memo	Acoustical tile mainly in offices and kitchen; some in garage spaces.							

Component	B.4.5.4	Acoustical Tile	Grade	C	Priority	3	ERL	02
Description	Broken/Missing		Photo ID	<input type="text"/>				
Memo	Some holes in acoustical tiles.		Cost Range	\$1,000 to \$2,000				

Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Wood Frame							
Memo	Frame around all interior doors.							

Component	B.4.6.1	Wood Frame	Grade	B	Priority	2	ERL	05
Description	Deteriorated		Photo ID	<input type="text"/>				
Memo	Cosmetic damage to interior wood door trim.		Cost Range	\$1,000 to \$2,000				

Component	B.4.6.8	Steel Door	Grade	C	Priority	3	ERL	10
Description	Impact Damage		Photo ID	<input type="text"/>				
Memo	Scratches through the finish on metal doors.		Cost Range	\$1,000 to \$2,000				

System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$41,382.00
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Sub System	B.6.2	Water Supply Piping System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Building Report

Component	B.6.2.3	Piping Specialties, Gauges, Meters, Backflow Prevent	Grade	<input checked="" type="checkbox"/> X	Priority	<input type="checkbox"/> 5	ERL	<input type="checkbox"/> 01
Description	Non Code Compliant		Photo ID	<input type="text"/>				
Memo	Hose Bibbs serving hoses to fill basins are required to be provided with vacuum breakers to prevent back-siphon of dirty or contaminated water into the building water supply system. Vacuum breakers are not present.		Cost Range	<input type="text" value="\$300 to \$400"/>				

Sub System	B.6.3	Water Supply Equipment System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Component	B.6.3.2	Domestic Water Heater	Grade	<input type="checkbox"/> B	Priority	<input type="checkbox"/> 1	ERL	<input type="checkbox"/> 20
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	AO Smith Model BTH-150-970, S/N A05M009782. 150 input MBH, 170.9 GPH recovery rate, 100 gallons.		Cost Range	<input type="text"/>				

System	B.8	Mechanical - HVAC System	% of CRV	<input type="checkbox"/> 12%	CRV Amt	<input type="checkbox"/> \$62,073.00
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Sub System	B.8.3	Other Heat Generation System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Component	B.8.3.1	Unit Heater	Grade	<input type="checkbox"/> B	Priority	<input type="checkbox"/> 1	ERL	<input type="checkbox"/> 20
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	Sterling model QVSF125, S/N G05576591002001. 125/100 MBH input/output capacity. Serves garage in south end of building.		Cost Range	<input type="text"/>				

Sub System	B.8.5	HVAC Distribution System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Building Report

Component	B.8.5.1.1	Supply/Return Air Fan - Air Handling Unit	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Aaon Model 64009 RM-008-8-0-0000-359:GCCDDOBBCEOOA0000ABB0000C000000B, S/N 200508-AMGH19648. 208V/3Ø, 8 tons cooling.		Cost Range					
Component	B.8.5.2.4	Air Distribution - Air Terminal Unit	Grade	B	Priority	2	ERL	05
Description	Inadequate		Photo ID					
Memo	Ocean Air Model OAC361, S/N K4-25035 mobile PTAC unit in Cat Holding room. PTAC is not intended to be used as a permanent fixture, and the cooling provided to this room will need to be investigated.		Cost Range	\$5,000 to \$6,000				
System	B.9	Electrical - Electric System	% of CRV	12%		CRV Amt	\$62,073.00	
Sub System	B.9.1	Electrical Service and Distribution	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.1.2.1	Building Electrical Service & Distribution - Service Dist	Grade	F	Priority	4	ERL	05
Description			Photo ID					
Memo	No Back-up Generator		Cost Range	\$50,000 to \$75,000				
Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	B	Priority	1	ERL	15
Description			Photo ID					
Memo	Square D 120/240 volt, 3Ø, 4 wire. High leg #NQODQ2.		Cost Range	\$6,000 to \$7,000				

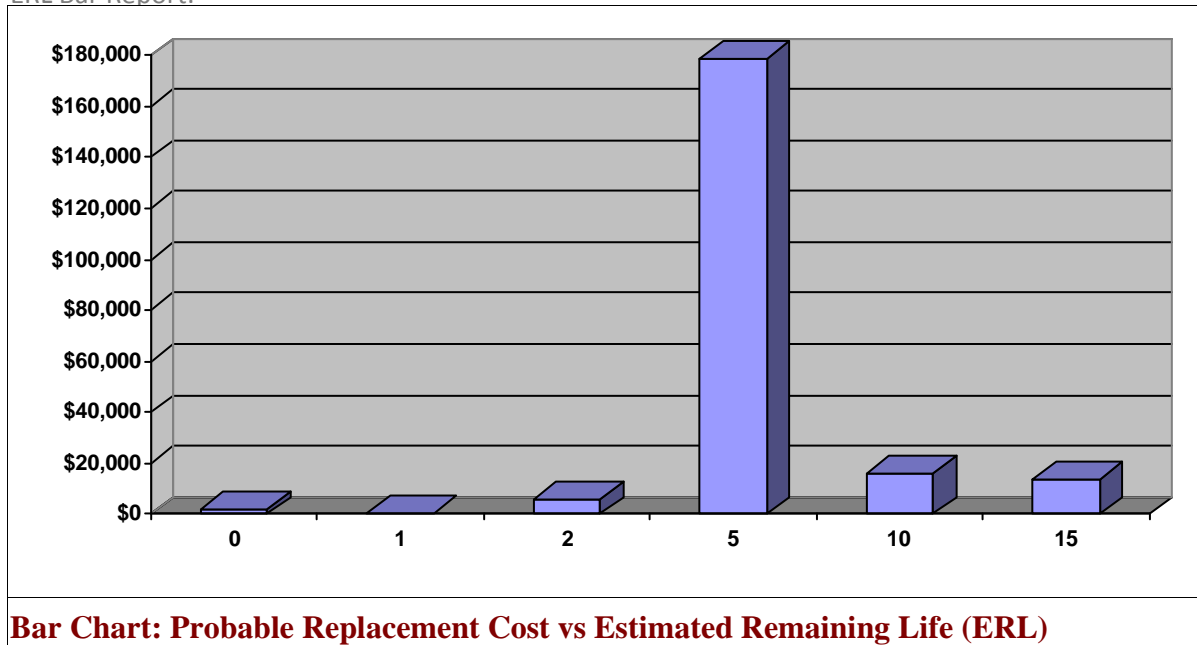
Building Report

Component	B.9.1.4.1	Electrical Branch Circuit - Panelboard	Grade	B	Priority	1	ERL	15
Description			Photo ID					
Memo	Square D 120/240 volt, 1Ø, 3 wire. #NQOB.		Cost Range	\$6,000 to \$7,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	B	Priority	1	ERL	05
Description	End of Life		Photo ID					
Memo	As lamps fail, retrofit with new T8 lamps and electronic ballasts. Total building T12 lamps.		Cost Range	\$10,000 to \$15,000				
Component	B.9.2.4.1	Exit/Emergency Lighting - Lamp	Grade	B	Priority	1	ERL	05
Description	End of Life		Photo ID					
Memo	Emergency/exit battery fixtures.		Cost Range	\$6,000 to \$7,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$25,863.75	
Sub System	C.1.2	Parking Lots	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								
Component	C.1.2.1.2	Cracking - Front of Building	Grade	C	Priority	2	ERL	05
Description	Asphalt		Photo ID					
Memo	Small areas of alligator cracking; need to seal cracks		Cost Range	\$15,000 to \$20,000				
Sub System	C.1.9	Site Drainage / Erosion	Grade	C	Priority	2	ERL	05
Description	Precast Concrete							
Memo								

Building Report

Component	C.1.9.1.4	Other - Under Front Driveway	Grade	C	Priority	2	ERL	05
Description	Precast Concrete		Photo ID					
Memo	8 - inch culvert half silted in and overgrown with weeds; needs to be cleaned out and maintained		Cost Range	\$400 to \$500				

ERL Bar Report:



Building Report

Building Report

Building	37	ILEAS Boiler House	Year Built	1920	CRV		
Address	1701 E Main		Grade	D	\$480,000	DMB	FCI
	Urbana	IL	61820	Priority	4	0-1 Year	\$185,000 38.54%
Construction Type	Block		Total SqFt	1,200	0-5 Year	\$255,000	53.13%
			Annual Maintenance Cost	\$14,400	5-25 Year	\$225,000	46.88%

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$57,600.00
Sub System	B.2.1	Masonry Wall	Grade	<input type="text"/>	Priority	<input type="text"/> ERL <input type="text"/>
Description	Brick					
Memo	Exterior brick.					

Component	B.2.1.3	Mortar Joint Deterioration	Grade	F	Priority	4	ERL	00
Description	Brick		Photo ID	<input type="text"/>				
Memo	Exterior brick is severely damaged, loose and cracked bricks.		Cost Range	\$30,000 to \$40,000				

Component	B.2.1.9	Other	Grade	D	Priority	3	ERL	00
Description	Brick		Photo ID	<input type="text"/>				
Memo	Brick cleaning required.		Cost Range	\$10,000 to \$15,000				

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$24,000.00
Sub System	B.3.3	Shingles	Grade	<input type="text"/>	Priority	<input type="text"/> ERL <input type="text"/>
Description	Asphalt					
Memo	Asphalt shingle roof.					

Building Report

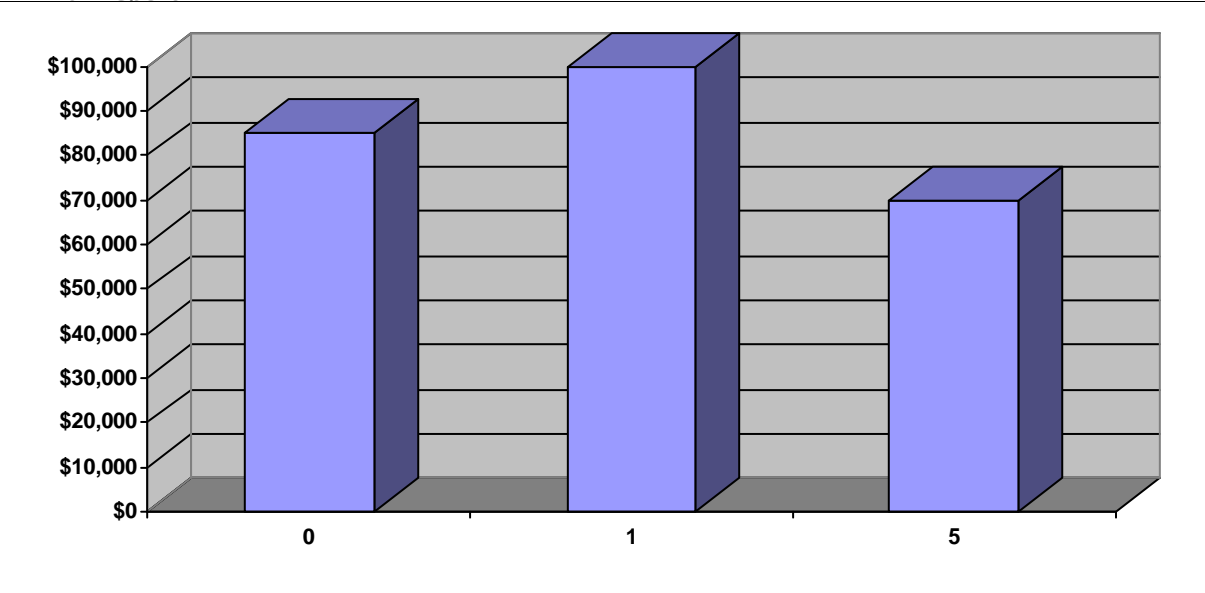
Component	<input type="text" value="B.3.3.3"/> Decay / Rot / Deterioration	Grade	<input type="text" value="D"/>	Priority	<input type="text" value="4"/>	ERL	<input type="text" value="00"/>
Description	<input type="text" value="Asphalt"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Asphlat shingle roofing system and structure is failing and requires replacement."/>	Cost Range	<input type="text" value="\$25,000 to \$30,000"/>				

System	<input type="text" value="B.8"/> Mechanical - HVAC System	% of CRV	<input type="text" value="12%"/>	CRV Amt	<input type="text" value="\$57,600.00"/>
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Sub System	<input type="text" value="B.8.1"/> Boiler	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.8.1.1"/> Steam / Hot Water Boiler	Grade	<input type="text" value="B"/>	Priority	<input type="text" value="3"/>	ERL	<input type="text" value="05"/>
Description	<input type="text"/>						
Memo	<input type="text" value="Existing boiler B1-B4 in boiler house"/>	Cost Range	<input type="text" value="\$50,000 to \$70,000"/>				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	22	Sheriff Garage	Year Built	2007	CRV			
Address	1701 E Main St		Grade	D	\$390,000	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$49,800	12.77%
Construction Type	Steel		Total SqFt	7,800	0-5 Year	\$91,400	23.44%	
			Annual Maintenance Cost	\$11,700	5-25 Year	\$298,600	76.56%	

System	B.1	Architectural - Foundation System	% of CRV	0%	CRV Amt	\$0.00		
Sub System	B.1.1	General Foundation Condition & Alignment	Grade		Priority		ERL	
Description	Poured Concrete							
Memo	Concrete apron.							

Component	B.1.1.10	Other	Grade	C	Priority	3	ERL	00
Description	Poured Concrete		Photo ID					
Memo	Failed concrete apron.		Cost Range	\$1,000 to \$2,000				

Component	B.1.1.7	Joint Deterioration	Grade	C	Priority	2	ERL	05
Description	Poured Concrete		Photo ID					
Memo	Concrete apron is deteriorating from outlet of downspout.		Cost Range	\$100 to \$200				

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$46,800.00		
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Metal Panels							
Memo	Exterior metal panels at grade, gaps around exterior metal panel penetrations.							

Building Report

Component	B.2.4.2	Sealant Joint Deterioration	Grade	C	Priority	3	ERL	00
Description	Metal Panels		Photo ID					
Memo	Gaps around exterior metal panel penetrations.		Cost Range	\$3,000 to \$4,000				
Component	B.2.4.4	Lacking Maintenance	Grade	C	Priority	3	ERL	00
Description			Photo ID					
Memo	Plant growth at base flashing of metal wall.		Cost Range	\$300 to \$400				
Component	B.2.4.5	Other	Grade	C	Priority	3	ERL	00
Description	Metal Panels		Photo ID					
Memo	Replace portion of exterior metal panel, regrade and provide rock base at perimeter.		Cost Range	\$10,000 to \$15,000				
Sub System	B.2.8	Door and Frame	Grade		Priority		ERL	
Description	Steel Frame							
Memo	Metal jamb.							
Component	B.2.8.3	Frame Deterioration	Grade	F	Priority	3	ERL	00
Description	Steel Frame		Photo ID					
Memo	Rusted metal jamb.		Cost Range	\$1,000 to \$2,000				
Component	B.2.8.6	Lacking Maintenance	Grade	C	Priority	3	ERL	05
Description	Steel Frame		Photo ID					
Memo	Clean and paint exterior galvanized metal garage jambs.		Cost Range	\$100 to \$200				
Component	B.2.8.7	Other	Grade	F	Priority	4	ERL	00
Description	Steel Door		Photo ID					
Memo	Rust and deterioration of hollow metal door.		Cost Range	\$1,000 to \$2,000				

Building Report

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$19,500.00
Sub System	B.3.4	Metal	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Coping Cap					
Memo	Metal/ aluminum coping and soffit.					
Component	B.3.4.1	Corrosion	Grade	C	Priority	3
Description	Coping Cap		Photo ID	<input type="text"/>		
Memo	Rust stains caused by use of improper fastener; impact damage.		Cost Range	\$500 to \$1,000		
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$58,500.00
Sub System	B.4.1	Flooring	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Ceramic Tile					
Memo	Floor and wall tile in showers.					
Component	B.4.1.2	Stains/ Discoloration	Grade	C	Priority	4
Description	Ceramic Tile		Photo ID	<input type="text"/>		
Memo	Clean floor and wall tile- no structural repairs.		Cost Range	\$1,000 to \$2,000		
Component	B.4.1.8	Deteriorating Finish	Grade	X	Priority	4
Description	Vinyl Composition Tile		Photo ID	<input type="text"/>		
Memo	Water damaged VCT and no wall base.		Cost Range	\$6,000 to \$7,000		
Sub System	B.4.3	Interior Walls	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Gypsum Board					
Memo	Drywall and paint finish.					

Building Report

Component	B.4.3.2	Cracks / Open Joints	Grade	F	Priority	4	ERL	00
Description	Gypsum Board		Photo ID					
Memo	Drywall repairs at perimeter of space heater.		Cost Range	\$500 to \$1,000				
Component	B.4.3.3	Moisture Damage	Grade	X	Priority	4	ERL	00
Description	Gypsum Board		Photo ID					
Memo	Water damaged drywall and paint finish.		Cost Range	\$3,000 to \$4,000				
Sub System	B.4.4	Finishes & Wall Coverings	Grade		Priority		ERL	
Description	Not Sealed							
Memo	No sealant at shower fixtures.							
Component	B.4.4.8	Other	Grade	D	Priority	4	ERL	00
Description			Photo ID					
Memo	Sealant at shower fixtures- no structural repairs.		Cost Range	\$500 to \$1,000				
Sub System	B.4.5	Ceilings	Grade		Priority		ERL	
Description	Exposed Structure							
Memo	Foil-faced insulation panel.							
Component	B.4.5.4	Broken / Missing Units	Grade	F	Priority	3	ERL	00
Description	Exposed Structure		Photo ID					
Memo	Replace foil face insulation panel.		Cost Range	\$700 to \$800				
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Steel Door							
Memo	Metal door and closer.							

Building Report

Component	B.4.6.1	Deteriorated Finish	Grade	<input checked="" type="checkbox"/>	Priority	4	ERL	00
Description	Steel Door		Photo ID					
Memo	Deteriorated metal door and outdated closer.		Cost Range	\$1,000 to \$2,000				
Component	B.4.6.8	Other	Grade	<input checked="" type="checkbox"/>	Priority	4	ERL	00
Description	Wood Door		Photo ID					
Memo	Residential door at rated door location.		Cost Range	\$1,000 to \$2,000				
Sub System	B.4.7	Casework	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Wood							
Memo	Wood storage shelves.							
Component	B.4.7.6	Lacking Maintenance	Grade	<input checked="" type="checkbox"/>	Priority	4	ERL	00
Description	Wood		Photo ID					
Memo	Wood storage shelves are combustible.		Cost Range	\$1,000 to \$2,000				
System	B.6	Mechanical - Plumbing System	% of CRV	8%		CRV Amt	\$31,200.00	
Sub System	B.6.1	Plumbing Fixtures	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.6.1.1	Water Closet	Grade	<input type="checkbox"/>	Priority	1	ERL	01
Description	Abandoned		Photo ID					
Memo	Piping and fixtures in restroom have been abandoned.		Cost Range					
Sub System	B.6.3	Water Supply Equipment System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Building Report

Component	B.6.3.2	Domestic Water Heater	Grade	F	Priority	1	ERL	01
Description	Abandoned		Photo ID					
Memo	Natural gas-fired water heater abandoned in restroom. Valves and piping to unit have been disconnected, and unit abandoned; significant corrosion and damage present on top of tank.		Cost Range					
Sub System	B.6.5	Sanitary Waste System	Grade		Priority		ERL	
Description								
Memo								
Component	B.6.5.2.2	Interceptor	Grade	X	Priority	5	ERL	01
Description	Missing		Photo ID					
Memo	No oil interceptor present on sanitary lines from garage trench drains.		Cost Range					
System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$46,800.00		
Sub System	B.8.3	Other Heat Generation System	Grade		Priority		ERL	
Description								
Memo								
Component	B.8.3.1	Unit Heater	Grade	C	Priority	2	ERL	05
Description	No Deficiency		Photo ID					
Memo	Modine model PA150AB unit heater, S/N 15012011189. 150/112.5 MBH input/output capacity, natural gas. (2) units in garage.		Cost Range					
Sub System	B.8.5	HVAC Distribution System	Grade		Priority		ERL	
Description								
Memo								

Building Report

Component	<input type="text" value="B.8.5.5.4"/>	<input type="text" value="Exhaust Fan - Power Roof/Wall Ventilator"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="No Deficiency"/>		Photo ID	<input type="text"/>				
Memo	<input type="text" value="Sidewall exhaust fan on west wall of garage. Fan is inaccessible and tag unreadable."/>		Cost Range	<input type="text"/>				

System	<input type="text" value="B.9"/>	<input type="text" value="Electrical - Electric System"/>	% of CRV	<input type="text" value="12%"/>	CRV Amt	<input type="text" value="\$46,800.00"/>
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Sub System	<input type="text" value="B.9.1"/>	<input type="text" value="Electrical Service and Distribution"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Component	<input type="text" value="B.9.1.2.1"/>	<input type="text" value="Building Electrical Service & Distribution - Service Dist"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="03"/>
Description	<input type="text" value="No Deficiency"/>		Photo ID	<input type="text"/>				
Memo	<input type="text" value="200 amp, 120/208V, 1Ø, 3W, Square D QO load center with plug-in breaker and sub panel."/>		Cost Range	<input type="text" value="\$10,000 to \$15,000"/>				

Sub System	<input type="text" value="B.9.2"/>	<input type="text" value="Lighting and Branch Wiring"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Component	<input type="text" value="B.9.2.2.1"/>	<input type="text" value="Interior Lighting - Lamp & Ballast"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="01"/>
Description	<input type="text" value="No Deficiency"/>		Photo ID	<input type="text"/>				
Memo	<input type="text" value="Fluorescent lighting fixtures: replace existing T12 fixtures with T8 lamp electronic ballast lighting fixtures."/>		Cost Range	<input type="text" value="\$1,000 to \$2,000"/>				

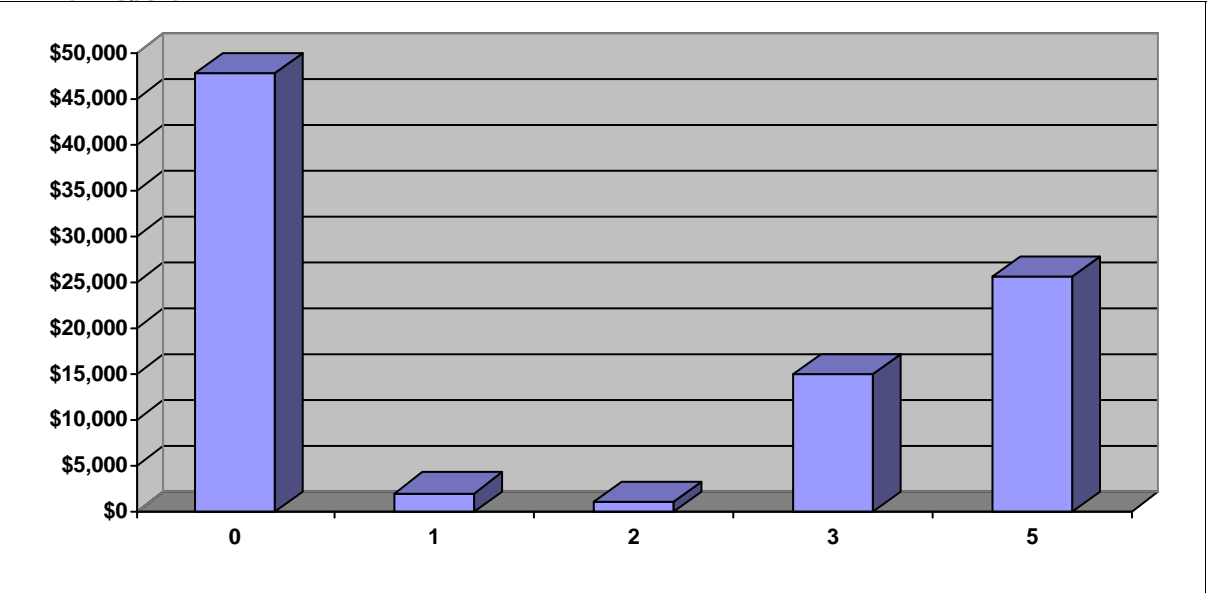
System	<input type="text" value="C.1"/>	<input type="text" value="Civil - Site Work"/>	% of CRV	<input type="text" value="5%"/>	CRV Amt	<input type="text" value="\$19,500.00"/>
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Sub System	<input type="text" value="C.1.1"/>	<input type="text" value="Drives / Roads / Curbs"/>	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="05"/>
Description	<input type="text" value="Asphalt Paving"/>							
Memo	<input type="text"/>							

Building Report

Component	C.1.1.1.2	Cracking - South Side of Building	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Alligator cracking; need to remove and replace		Cost Range	\$20,000 to \$25,000				
Component	C.1.1.1.5	Settling or Uplift - East Side of Building	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Heave and depression most likely caused by trailer tongue stand; need to remove and replace		Cost Range	\$100 to \$200				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	19	County Highway Garage	Year Built	2007	CRV			
Address	1701 E Main St		Grade	C	\$216,000	DMB	FCI	
	Urbana	IL	61802	Priority	3	0-1 Year	\$0	0.00%
Construction Type	Steel		Total SqFt	4,320	0-5 Year	\$14,000	6.48%	
			Annual Maintenance Cost	\$6,480	5-25 Year	\$202,000	93.52%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$25,920.00		
Sub System	B.2.4	Metal	Grade		Priority		ERL	
Description	Metal Panels							
Memo	Metal wall panel.							

Component	B.2.4.1	Impact Damage	Grade	C	Priority	3	ERL	05
Description	Metal Panels		Photo ID					
Memo	Re-fasten metal panel joints.		Cost Range	\$500 to \$1,000				

Component	B.2.4.5	Other	Grade	C	Priority	3	ERL	10
Description	Concrete Construction		Photo ID					
Memo	Bollard will need to be re-poured with new metal sleeve.		Cost Range	\$2,000 to \$3,000				

Sub System	B.2.8	Door and Frame	Grade		Priority		ERL	
Description	Steel Door							
Memo	Door, frame and sill.							

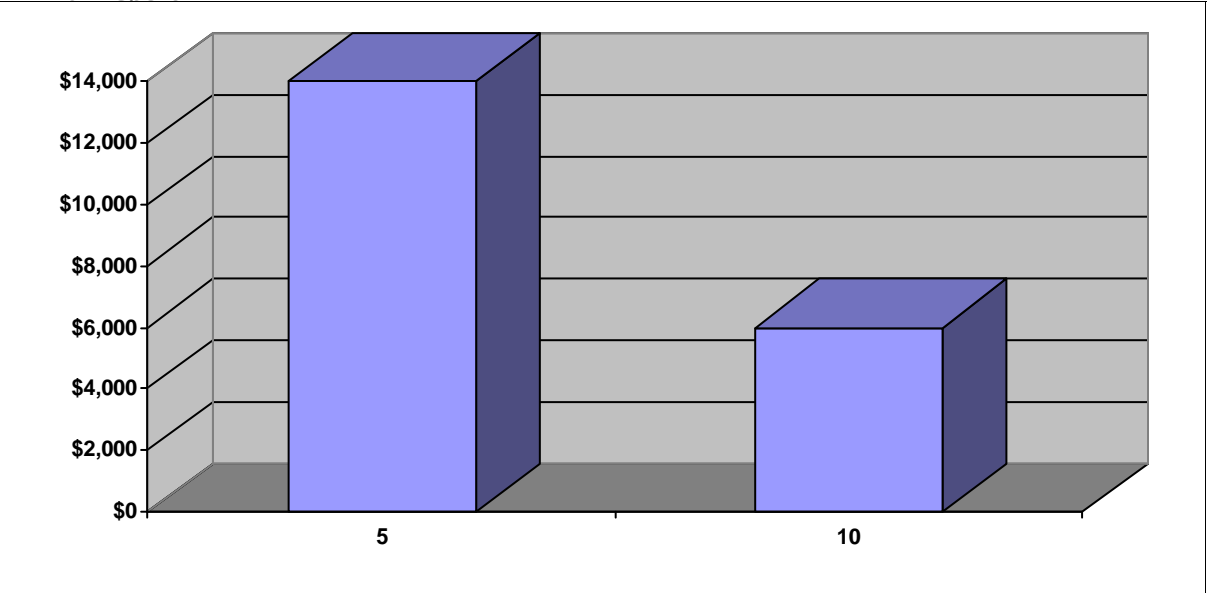
Component	B.2.8.3	Frame Deterioration	Grade	D	Priority	3	ERL	05
Description	Steel Door		Photo ID					
Memo	Rusting at door sill from moisture infiltration.		Cost Range	\$500 to \$1,000				

Building Report

Component	B.2.8.7	Other	Grade	C	Priority	3	ERL	05
Description	Overhead Door		Photo ID					
Memo	Fiberglass overhead door cracked and split opening.		Cost Range	\$2,000 to \$3,000				
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$32,400.00		
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade		Priority		ERL	
Description	Fiberglass							
Memo	Fiberglass overhead door.							
Component	B.4.6.5	Malfunctioning Hardware	Grade	C	Priority	3	ERL	05
Description			Photo ID					
Memo	Cracked and split opening in door.		Cost Range	\$2,000 to \$3,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	13	Nursing Home Storage	Year Built	2010	CRV			
Address	202 Art Bartell Rd		Grade	B	\$165,988	DMB	FCI	
	Urbana	IL	61802	Priority	2	0-1 Year	\$0	0.00%
Construction Type	Steel		Total SqFt	1,444	0-5 Year	\$600	0.36%	
			Annual Maintenance Cost	\$4,980	5-25 Year	\$165,388	99.64%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$19,918.56		
Sub System	B.2.2	Concrete Wall	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Poured Concrete							
Memo	Concrete foundation wall.							

Component	B.2.2.8	Other	Grade	B	Priority	2	ERL	00
Description	Poured Concrete		Photo ID	<input type="text"/>				
Memo	Damaged and missing insulation around foundation wall.		Cost Range	<input type="text"/>				

Sub System	B.2.4	Metal	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Metal Siding							
Memo	Metal panel siding on exterior of building.							

Component	B.2.4.1	Impact Damage	Grade	B	Priority	2	ERL	15
Description	Metal Siding		Photo ID	<input type="text"/>				
Memo	Dent to corner of metal siding.		Cost Range	<input type="text"/>				

Component	B.2.4.2	Sealant Joint Deterioration	Grade	C	Priority	3	ERL	00
Description	Metal Siding		Photo ID	<input type="text"/>				
Memo	Failing and deteriorating sealant between metal siding and concrete drive.		Cost Range	<input type="text"/>				

Building Report

Sub System	B.2.8	Door and Frame	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Overhead Door							
Memo	Exterior overhead door.							

Component	B.2.8.7	Other	Grade	C	Priority	2	ERL	03
Description	Overhead Door							
Memo	Overhead door is warped.							
			Photo ID					
			Cost Range					

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$24,898.20
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Sub System	B.4.1	Flooring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Sealed Concrete							
Memo	Sealed concrete flooring.							

Component	B.4.1.1	Wear	Grade	B	Priority	2	ERL	10
Description	Sealed Concrete							
Memo	Wear to sealed concrete flooring.							
			Photo ID					
			Cost Range					

Sub System	B.4.3	Interior Walls	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Gypsum Board							
Memo	Gypsum wall board interior walls.							

Component	B.4.3.4	Impact Damage	Grade	C	Priority	2	ERL	05
Description	Gypsum Board							
Memo	Scratches and puncture impacts to gypsum wall board.							
			Photo ID					
			Cost Range					

System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$19,918.56
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Building Report

Sub System	B.8.3	Other Heat Generation System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.8.3.1	Unit Heater	Grade	B	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Reznor unit heater mounted from ceiling. Tag data absent.		Cost Range					

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$19,918.56
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Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.1.2.1	Building Electrical Service & Distribution - Service Dist	Grade	A	Priority	1	ERL	30
Description			Photo ID					
Memo	Branch circuits fed from the Siemens branch panels in Physical Plant Shop.		Cost Range	\$2,000 to \$3,000				

Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								

Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	15
Description	No Deficiency		Photo ID					
Memo	Interior fixtures are T8 lamps with electronic ballasts.		Cost Range	\$1,000 to \$2,000				

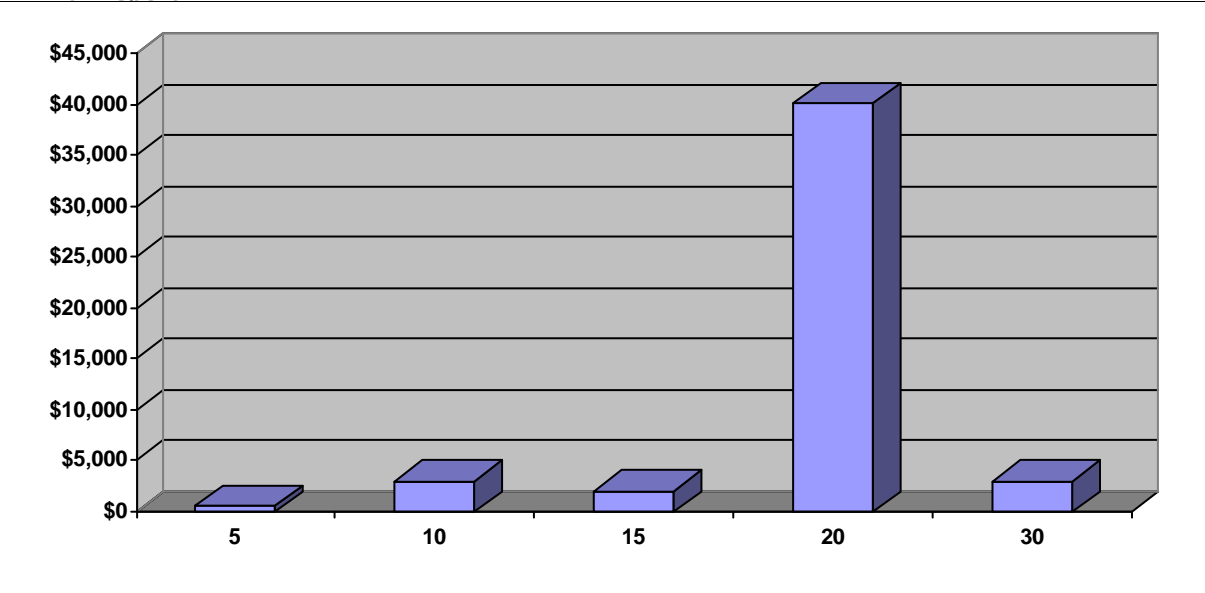
Component	B.9.2.2.4	Interior Lighting - Other Component	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	Occupancy sensors to control lighting in room.		Cost Range	\$50 to \$100				

Building Report

Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	A	Priority	1	ERL	10
Description	No Deficiency		Photo ID					
Memo	H.I.D. lighting fixtures on exterior of building.		Cost Range	\$2,000 to \$3,000				
Component	B.9.2.4.4	Exit/Emergency Lighting - Battery	Grade	A	Priority	1	ERL	05
Description	No Deficiency		Photo ID					
Memo	Battery lighting and egress lighting, LED type fixtures.		Cost Range	\$400 to \$500				
Sub System	B.9.3	Communication and Security System	Grade		Priority		ERL	
Description								
Memo								
Component	B.9.3.1.1	Alarms and Detection System - Fire Alarm System	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID					
Memo	Fire alarm horn/visual strobe. Fed from notifier panel NFWZ-100 panel in Physical Plant Shop.		Cost Range	\$100 to \$200				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$8,299.40	
Sub System	C.1.1	Drives / Roads / Curbs	Grade	B	Priority	2	ERL	20
Description	Asphalt							
Memo								
Component	C.1.1.1.7	Other - Perimeter of Building	Grade	B	Priority	2	ERL	20
Description	Asphalt		Photo ID					
Memo	No deficiencies; cost given if future replacement required		Cost Range	\$30,000 to \$40,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building	17	EMA Garage	Year Built	2009	CRV		
Address	1701 E Main St		Grade	D	\$144,000	DMB	FCI
	Urbana	IL	61802	Priority	2	0-1 Year	\$25,000 17.36%
Construction Type	Steel		Total SqFt	2,880	0-5 Year	\$50,500	35.07%
			Annual Maintenance Cost	\$4,320	5-25 Year	\$93,500	64.93%

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$17,280.00
Sub System	B.2.4	Metal	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Metal Panels		ERL	<input type="text"/>		
Memo	Exterior metal panel.					

Component	B.2.4.1	Impact Damage	Grade	D	Priority	3	ERL	02
Description	Metal Panels		Photo ID	<input type="text"/>				
Memo	Metal panel exterior trim at door opening damaged.		Cost Range	\$1,000 to \$5,000				

Component	B.2.4.4	Lacking Maintenance	Grade	D	Priority	3	ERL	03
Description	Metal Panels		Photo ID	<input type="text"/>				
Memo	Metal panel exterior soffit steel outrigger with surface rust.		Cost Range	\$1,000 to \$5,000				

Sub System	B.2.8	Door and Frame	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Steel Door							
Memo	Metal exterior door.							

Component	B.2.8.6	Lacking Maintenance	Grade	D	Priority	4	ERL	03
Description	Steel Door		Photo ID	<input type="text"/>				
Memo	Exterior metal doors and HW worn finishes deteriorated.		Cost Range	\$1,000 to \$5,000				

Building Report

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$7,200.00
Sub System	B.3.7	Gutter & Downspouts	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Deteriorated		ERL	<input type="text"/>		
Memo	Metal downspout at exterior.					
Component	B.3.7.1	Corrosion	Grade	D	Priority	3
Description	Deteriorated		ERL	03		
Memo	Metal panel exterior downspout deterioration, leaks at joints.		Photo ID	<input type="text"/>		
			Cost Range	\$1,000 to \$5,000		
Component	B.3.7.5	Lacking Maintenance	Grade	D	Priority	4
Description	Deteriorated		ERL	03		
Memo	Exterior metal gutter and downspouts damaged, deteriorated, leaking.		Photo ID	<input type="text"/>		
			Cost Range	\$2,000 to \$3,000		
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$21,600.00
Sub System	B.4.3	Interior Walls	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Exposed Structure		ERL	<input type="text"/>		
Memo	Exposed steel structure wall and ceiling.					
Component	B.4.3.6	Other	Grade	C	Priority	3
Description	Exposed Structure		ERL	10		
Memo	Steel structure finish worn and deteriorated. Refinish.		Photo ID	<input type="text"/>		
			Cost Range	\$2,000 to \$3,000		
Sub System	B.4.6	Interior Doors, Frames, Hardware & Windows	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Wood Door		ERL	<input type="text"/>		
Memo	Interior wood door.					

Building Report

Component Deteriorated Finish Grade Priority ERL
 Description Photo ID
 Memo Cost Range

System Mechanical - Plumbing System % of CRV CRV Amt

Sub System Water Supply Equipment System Grade Priority ERL
 Description
 Memo

Component Domestic Water Heater Grade Priority ERL
 Description Photo ID
 Memo Cost Range

Sub System Sanitary Waste System Grade Priority ERL
 Description
 Memo

Component Interceptor Grade Priority ERL
 Description Photo ID
 Memo Cost Range

System Mechanical - HVAC System % of CRV CRV Amt

Sub System Other Heat Generation System Grade Priority ERL
 Description
 Memo

Building Report

Component	<input type="text" value="B.8.3.1"/> Unit Heater	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="03"/>
Description	<input type="text" value="End of Life"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Hastings model F-200X unit heater, S/N 183063. 200/160 MBH input/output, natural gas."/>	Cost Range	<input type="text"/>				

Sub System	<input type="text" value="B.8.5"/> HVAC Distribution System	Grade	<input type="text" value="X"/>	Priority	<input type="text" value="4"/>	ERL	<input type="text" value="01"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.8.5.5.3"/> Exhaust Fan - Propeller Fan	Grade	<input type="text" value="X"/>	Priority	<input type="text" value="4"/>	ERL	<input type="text" value="01"/>
Description	<input type="text" value="Missing"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Garage has no exhaust fan or means of ventilation. Garage does not have enough wall free area to allow exemption from exhaust requirement."/>	Cost Range	<input type="text" value="\$4,000 to \$5,000"/>				

System	<input type="text" value="B.9"/> Electrical - Electric System	% of CRV	<input type="text" value="12%"/>	CRV Amt	<input type="text" value="\$17,280.00"/>
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Sub System	<input type="text" value="B.9.1"/> Electrical Service and Distribution	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>						
Memo	<input type="text"/>						

Component	<input type="text" value="B.9.1.2.1"/> Building Electrical Service & Distribution - Service Dist	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="10"/>
Description	<input type="text" value="No Deficiency"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="200 amp, 120/208V, 1Ø, 3W Square D QO Load Center with plug-in breakers."/>	Cost Range	<input type="text" value="\$8,000 to \$9,000"/>				

Component	<input type="text" value="B.9.1.2.12"/> Building Electrical Service & Distribution - Other Com	Grade	<input type="text" value="C"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="05"/>
Description	<input type="text" value="No Deficiency"/>	Photo ID	<input type="text"/>				
Memo	<input type="text" value="Time Clock: Intermatic model T7401B Motor driven 120V, adjustable pins."/>	Cost Range	<input type="text" value="\$400 to \$500"/>				

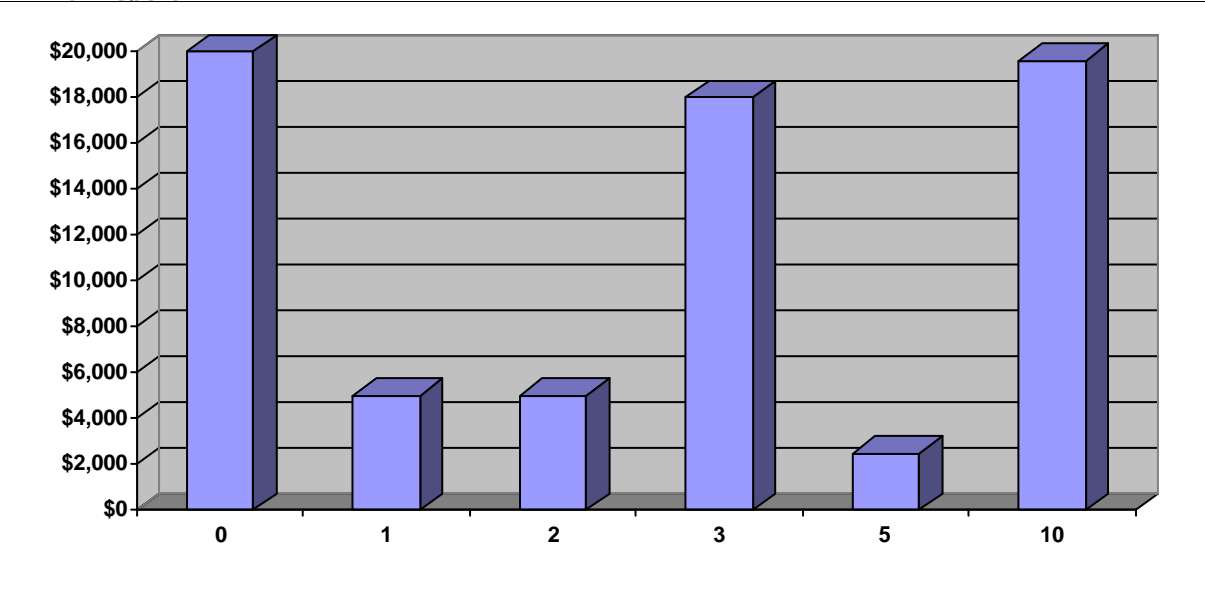
Building Report

Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	C	Priority	1	ERL	05
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	Pendant HID lighting		Cost Range	\$900 to \$1,000				

Component	B.9.2.3.1	Exterior Lighting - Lamp & Ballast	Grade	C	Priority	1	ERL	05
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	Wall mounted exterior HID lighting		Cost Range	\$900 to \$1,000				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	32	ILEAS Garage 2	Year Built	2007	CRV			
Address	1707 E Main St		Grade	B	\$144,000	DMB	FCI	
	Urbana	IL	61802	Priority	1	0-1 Year	\$0	0.00%
Construction Type	Steel		Total SqFt	2,880	0-5 Year	\$8,500	5.90%	
			Annual Maintenance Cost	\$4,320	5-25 Year	\$135,500	94.10%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$17,280.00
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Sub System	B.2.6	Window	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Aluminum / Glass							
Memo	Aluminum and glass windows.							

Component	B.2.6.8	Other	Grade	C	Priority	3	ERL	10
Description	Aluminum / Glass		Photo ID	<input type="text"/>				
Memo	Window aged and deteriorated.		Cost Range	\$4,000 to \$5,000				

Sub System	B.2.8	Door and Frame	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Steel Frame							
Memo	Metal door frame on entrance doors and overhead doors.							

Component	B.2.8.7	Other	Grade	C	Priority	3	ERL	10
Description	Steel Frame		Photo ID	<input type="text"/>				
Memo	Rusted door frames require replacement.		Cost Range	\$900 to \$1,000				

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$7,200.00
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Building Report

Sub System	B.3.7	Gutter & Downspouts	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Aluminum							
Memo	Exterior aluminum gutter and downspouts.							

Component	B.3.7.3	Impact Damage	Grade	C	Priority	3	ERL	05
Description	Aluminum		Photo ID	<input type="text"/>				
Memo	Dented and rusted downspouts.		Cost Range	\$400 to \$500				

Component	B.3.7.6	Other	Grade	C	Priority	3	ERL	15
Description	Aluminum		Photo ID	<input type="text"/>				
Memo	Rusted gutter, requires replacement.		Cost Range	\$900 to \$1,000				

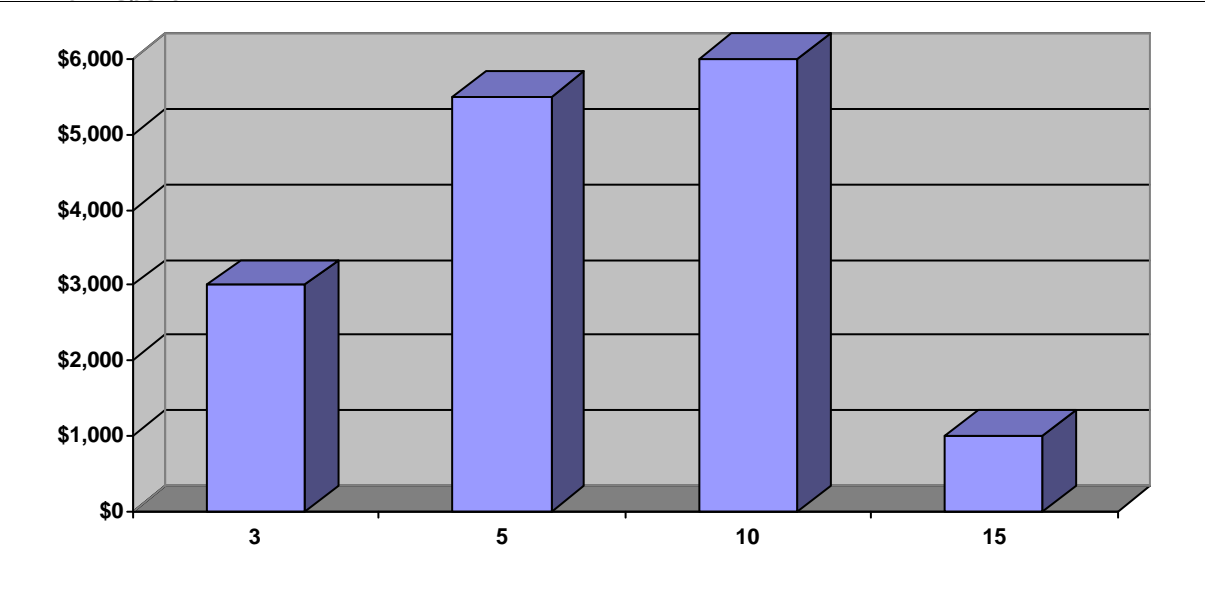
System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$21,600.00
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Sub System	B.4.3	Interior Walls	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Exposed Structure							
Memo	Exposed structural walls.							

Component	B.4.3.6	Other	Grade	D	Priority	4	ERL	03
Description	Exposed Structure		Photo ID	<input type="text"/>				
Memo	Delaminating structural steel, remove rust / anti-rust coating / reinforce		Cost Range	\$2,000 to \$3,000				

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	33	ILEAS Garage 3	Year Built	2007	CRV			
Address	1707 E Main St		Grade	B	\$144,000	DMB	FCI	
	Urbana	IL	61802	Priority	1	0-1 Year	\$4,000	2.78%
Construction Type	Steel		Total SqFt	2,880	0-5 Year	\$11,000	7.64%	
			Annual Maintenance Cost	\$4,320	5-25 Year	\$133,000	92.36%	

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$17,280.00		
Sub System	B.2.4	Metal	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Metal Panels							
Memo								

Component	B.2.4.5	Other	Grade	A	Priority	2	ERL	05
Description			Photo ID	<input type="text"/>				
Memo			Cost Range	\$1,000 to \$2,000				

Sub System	B.2.8	Door and Frame	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Aluminum / Glass Door							
Memo	Exterior doors.							

Component	B.2.8.6	Lacking Maintenance	Grade	C	Priority	3	ERL	05
Description	Aluminum / Glass Door		Photo ID	<input type="text"/>				
Memo	Deteriorating doors.		Cost Range	<input type="text"/>				

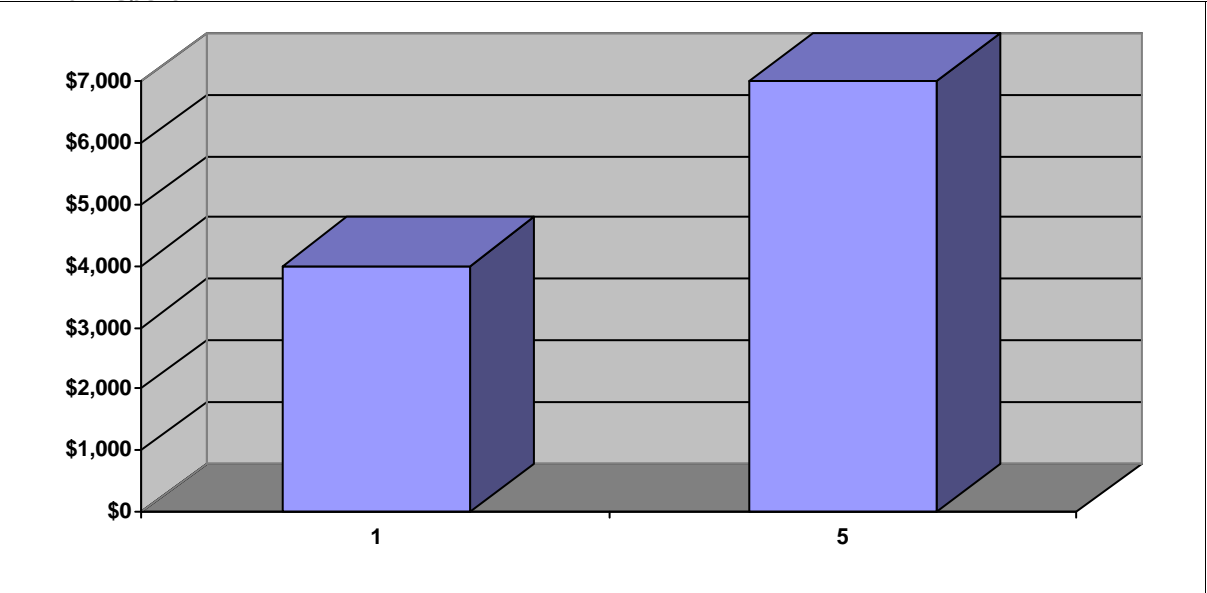
Component	B.2.8.7	Other	Grade	D	Priority	3	ERL	05
Description			Photo ID	<input type="text"/>				
Memo	Failing garage doors.		Cost Range	\$2,000 to \$3,000				

Building Report

System	B.4	Architectural - Interior Finishes & Openings	% of CRV	15%	CRV Amt	\$21,600.00
Sub System	B.4.1	Flooring	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Sealed Concrete		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.4.1.1	Wear	Grade	C	Priority	2
Description	<input type="text"/>		ERL	01		
Memo	<input type="text"/>		Photo ID	<input type="text"/>		
	<input type="text"/>		Cost Range	\$1,000 to \$2,000		
Sub System	B.4.4	Finishes & Wall Coverings	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	Paint		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	B.4.4.8	Other	Grade	B	Priority	2
Description	<input type="text"/>		ERL	01		
Memo	<input type="text"/>		Photo ID	<input type="text"/>		
	<input type="text"/>		Cost Range	\$1,000 to \$2,000		
System	C.1	Civil - Site Work	% of CRV	5%	CRV Amt	\$7,200.00
Sub System	C.1.1	Drives / Roads / Curbs	Grade	<input type="text"/>	Priority	<input type="text"/>
Description	<input type="text"/>		ERL	<input type="text"/>		
Memo	<input type="text"/>					
Component	C.1.1.1.2	Cracking	Grade	B	Priority	2
Description	<input type="text"/>		ERL	05		
Memo	<input type="text"/>		Photo ID	<input type="text"/>		
	<input type="text"/>		Cost Range	\$1,000 to \$2,000		

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	20	Salt Dome Garage	Year Built	1992	CRV		
Address	1701 E Main St		Grade	C	\$119,000	DMB	FCI
	Urbana	IL	61802	Priority	2	0-1 Year	\$1,000 0.84%
Construction Type	Wood		Total SqFt	1,400	0-5 Year	\$53,000	44.54%
			Annual Maintenance Cost	\$3,570	5-25 Year	\$66,000	55.46%

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$14,280.00
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Sub System	B.2.8	Door and Frame	Grade		Priority		ERL	
Description	Overhead Door							
Memo	Overhead garage door.							

Component	B.2.8.1	Missing Hardware	Grade	B	Priority	3	ERL	01
Description	Overhead Door		Photo ID					
Memo	Missing weather stripping, key pad operator difficult to operate.		Cost Range	\$900 to \$1,000				

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$5,950.00
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Sub System	B.3.3	Shingles	Grade		Priority		ERL	
Description	Asphalt							
Memo	Asphalt shingles on roof.							

Component	B.3.3.2	Missing	Grade	C	Priority	4	ERL	02
Description	Asphalt		Photo ID					
Memo	Deteriorated and missing wood deck, missing shingles, wood fascia cupping and deteriorated.		Cost Range	\$7,000 to \$8,000				

Building Report

Sub System	B.3.5	Flashing, Gravel Stops & Expansion Joints	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	Flashing							
Memo	Flashing at building.							

Component	B.3.5.6	Deteriorating Finish	Grade	C	Priority	2	ERL	02
Description	Flashing		Photo ID	<input type="text"/>				
Memo	Paint at flashing deteriorated.		Cost Range	\$1,000 to \$2,000				

System	B.6	Mechanical - Plumbing System	% of CRV	8%	CRV Amt	\$9,520.00
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Sub System	B.6.3	Water Supply Equipment System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Component	B.6.3.7	Pump	Grade	C	Priority	3	ERL	10
Description	Corroded		Photo ID	<input type="text"/>				
Memo	Brine tank pump body and motor is in good shape, but fittings, bolts, and unions are heavily corroded.		Cost Range	<input type="text"/>				

System	B.8	Mechanical - HVAC System	% of CRV	12%	CRV Amt	\$14,280.00
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Sub System	B.8.3	Other Heat Generation System	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description	<input type="text"/>							
Memo	<input type="text"/>							

Component	B.8.3.1	Unit Heater	Grade	A	Priority	1	ERL	20
Description	No Deficiency		Photo ID	<input type="text"/>				
Memo	Unit heater in top corner of building. Tag not visible. Replaced two years ago.		Cost Range	<input type="text"/>				

System	B.9	Electrical - Electric System	% of CRV	12%	CRV Amt	\$14,280.00
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Building Report

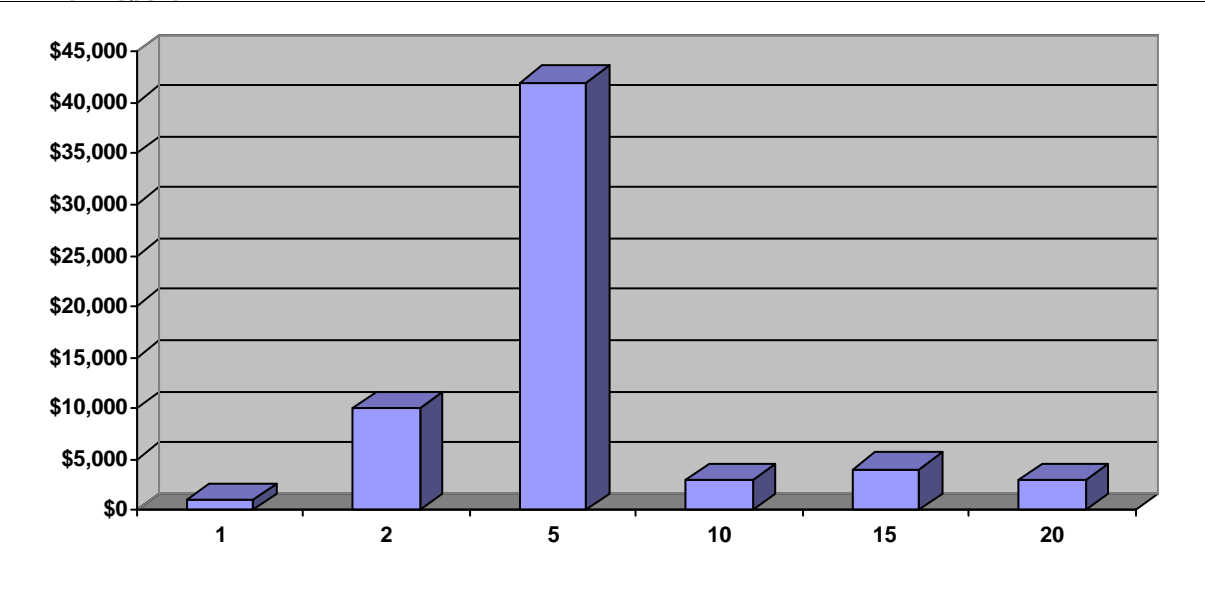
Sub System	B.9.1	Electrical Service and Distribution	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.1.2.3	Building Electrical Service & Distribution - Switchboar	Grade	C	Priority	3	ERL	05
Description	Corroded		Photo ID					
Memo	Square D, QO Plug-in load center inside NEMA 3R fiberglass enclosure. Slight rusting.		Cost Range	\$1,000 to \$2,000				
Component	B.9.1.3.3	Interior Electrical Distribution - Wires and Cables	Grade	B	Priority	2	ERL	10
Description	No Deficiency		Photo ID					
Memo	Duplex outlets inside PVC boxes. Wiring in PVC conduit.		Cost Range	\$2,000 to \$3,000				
Sub System	B.9.2	Lighting and Branch Wiring	Grade	<input type="checkbox"/>	Priority	<input type="checkbox"/>	ERL	<input type="checkbox"/>
Description								
Memo								
Component	B.9.2.2.1	Interior Lighting - Lamp & Ballast	Grade	B	Priority	2	ERL	15
Description	No Deficiency		Photo ID					
Memo	Ceiling mounted HID lighting fixture, plug-in receptacle		Cost Range	\$3,000 to \$4,000				
System	C.1	Civil - Site Work	% of CRV	5%		CRV Amt	\$5,950.00	
Sub System	C.1.1	Drives / Roads / Curbs	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving							
Memo								

Building Report

Component	C.1.1.1.1	Surface Deterioration - Perimeter of Building	Grade	C	Priority	2	ERL	05
Description	Asphalt Paving		Photo ID					
Memo	Alligator cracking; 9ft X 9ft area of surface course missing on north side; remove and replace asphalt		Cost Range	\$30,000 to \$40,000				

Component	C.1.1.1.5	Settling or Uplift - South Side Ramp to Garage Door	Grade	C	Priority	2	ERL	20
Description	Concrete Paving		Photo ID					
Memo	2 inch lift in concrete joint		Cost Range	\$2,000 to \$3,000				

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report

Building Report

Building	31	ILEAS Garage 1	Year Built	2007	CRV		
Address	1707 E Main St		Grade	A	\$72,000	DMB	FCI
	Urbana	IL	61802	Priority	1	0-1 Year	\$2,000 2.78%
Construction Type	Steel		Total SqFt	1,440	0-5 Year	\$5,000	6.94%
			Annual Maintenance Cost	\$2,160	5-25 Year	\$67,000	93.06%

System	B.2	Architectural - Exterior Wall System	% of CRV	12%	CRV Amt	\$8,640.00
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Sub System	B.2.4	Metal	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Metal Panels							
Memo	Metal panel façade.							

Component	B.2.4.5	Other	Grade	B	Priority	1	ERL	10
Description	Metal Panels		Photo ID	<input type="text"/>				
Memo			Cost Range	\$3,000 to \$4,000				

Sub System	B.2.8	Door and Frame	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	Steel Frame							
Memo	Metal frame on overhead door.							

Component	B.2.8.7	Other	Grade	B	Priority	1	ERL	10
Description	<input type="text"/>		Photo ID	<input type="text"/>				
Memo			Cost Range	\$2,000 to \$3,000				

System	B.3	Architectural - Roofing System	% of CRV	5%	CRV Amt	\$3,600.00
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Building Report

Sub System Grade Priority ERL
 Description
 Memo

Component Grade Priority ERL
 Description
 Memo Photo ID
 Cost Range

Sub System Grade Priority ERL
 Description
 Memo

Component Grade Priority ERL
 Description
 Memo Photo ID
 Cost Range

Sub System Grade Priority ERL
 Description
 Memo

Component Grade Priority ERL
 Description
 Memo Photo ID
 Cost Range

System % of CRV CRV Amt

Sub System Grade Priority ERL
 Description
 Memo

Building Report

Component	<input type="text" value="B.4.1.10"/> <input type="text" value="Other"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text"/>	Photo ID	<input type="text"/>				
Memo			Cost Range	<input type="text"/>			

Sub System	<input type="text" value="B.4.3"/> <input type="text" value="Interior Walls"/>	Grade	<input type="text" value="B"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="20"/>
Description	<input type="text" value="Exposed Structure"/>						
Memo	<input type="text" value="Exposed structural interior walls."/>						

Component	<input type="text" value="B.4.3.6"/> <input type="text" value="Other"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description			Photo ID	<input type="text"/>			
Memo			Cost Range	<input type="text"/>			

Sub System	<input type="text" value="B.4.4"/> <input type="text" value="Finishes & Wall Coverings"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description	<input type="text" value="Paint"/>						
Memo	<input type="text"/>						

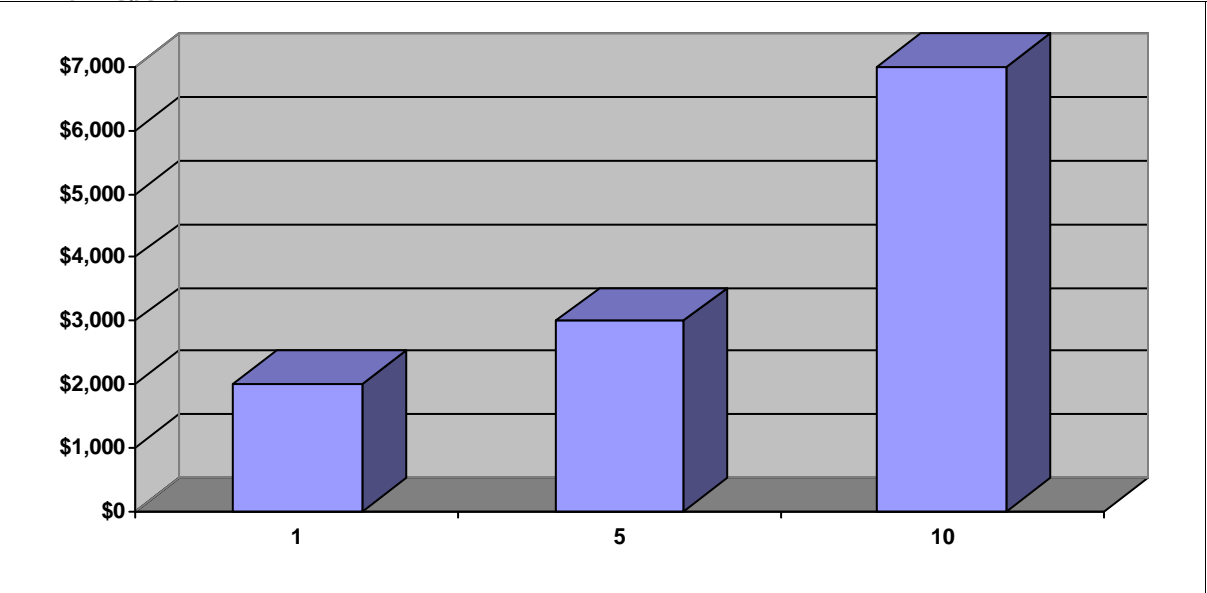
Component	<input type="text" value="B.4.4.8"/> <input type="text" value="Other"/>	Grade	<input type="text" value="B"/>	Priority	<input type="text" value="2"/>	ERL	<input type="text" value="01"/>
Description			Photo ID	<input type="text"/>			
Memo			Cost Range	<input type="text" value="\$1,000 to \$2,000"/>			

Sub System	<input type="text" value="B.4.5"/> <input type="text" value="Ceilings"/>	Grade	<input type="text" value="B"/>	Priority	<input type="text" value="1"/>	ERL	<input type="text" value="20"/>
Description	<input type="text" value="Exposed Structure"/>						
Memo	<input type="text" value="Exposed structural ceiling."/>						

Component	<input type="text" value="B.4.5.9"/> <input type="text" value="Other"/>	Grade	<input type="text"/>	Priority	<input type="text"/>	ERL	<input type="text"/>
Description			Photo ID	<input type="text"/>			
Memo			Cost Range	<input type="text"/>			

Building Report

ERL Bar Report:



Bar Chart: Probable Replacement Cost vs Estimated Remaining Life (ERL)

Building Report



Appendices

Appendix A: Environmental Assessment - ILEAS Building

Appendix B: Asbestos Report - ILEAS Building
OEHS

Appendix C: County Buildings Roof Inspection

Appendix D: Adult Detention Center: Satellite Jail Report
Gorski Reifsteck

Appendix E: Nursing Home Mechanical Report
GHR

Appendix F: Sheriff's Office / Downtown Jail Report
Gorski Reifsteck

Appendix G: Champaign Courthouse Controls
ALPHA Control



County of Champaign, Illinois

Facilities Assessment Report

Appendix A

Environmental Assessment - ILEAS Building



ENVIRONMENTAL ASSESSMENT ILEAS BUILDING

Reliable Environmental Solutions, Inc., RES, has developed this environmental assessment report based on site visits, previous asbestos inspection report, and information provided to us from the building owner's representative.

This assessment is for environmental abatement of the ILEAS Original Building and the 1970 ILEAS Building areas that have not been renovated. The newly renovated areas of the building, currently occupied for The ILEAS Training Center is not included in this assessment.

ILEAS Original Building

This assessment refers to the "Former Nursing Home" as the ILEAS Original Building. An asbestos inspection was performed in a portion of the "Former Nursing Home" by OEHS, Inc. on December 23, 2013. This portion of the building was torn down in the spring of 2014. For the basis of this assessment, the asbestos inspection report by OEHS will be used to identify asbestos containing materials in the remaining "Former Nursing Home". OEHS identified the window caulk and drywall compound in one room as asbestos containing. The floor tile, resilient sheeting, and associated mastics were assumed to be asbestos containing by OEHS. This assessment will also assume these materials to be asbestos containing as well as the fire doors. The following materials were tested by OEHS and did not contain asbestos: plaster, pipe insulation, hand rail mastics, base cove mastics, ceramic tile grouts, roofing, roof flashing, sink caulking, ceiling tiles, and brick mortar.

The flooring in the ILEAS Original Building is in poor condition and will need to be addressed regardless if the building will be renovated or demolished. The window caulking and drywall compound would most likely be affected by a renovation or demolition as well. This assessment also includes the proper handling and disposal of any PCB ballasts, mercury in light bulbs and thermostats during abatement.

The cost estimate for the ILEAS Original Building has been broken down into two scenarios. One scenario is for the renovation, which would require the removal of all asbestos containing materials. The second scenario is for the demolition of the building, which allows the asbestos containing floor tile and mastic to remain in the building.

The following is a cost estimate for the environmental abatement work in the ILEAS Original Building. This cost estimate assumes that all materials will be abated in one containment and the project would not be phased.

Renovation

Floor tile and mastic	\$215,700.00
Resilient sheeting and mastics	\$28,600.00
Window caulk	\$32,000.00
Fire doors	\$10,800.00
Renovation Total	\$287,100.00

Demolition

Resilient sheeting and mastics	\$28,600.00
Window caulk	\$32,000.00
Fire doors	\$10,800.00
Demolition Total	\$71,400.00

1970 ILEAS Building

No previous asbestos inspection reports have been provided for this portion of the building. The pipe fitting insulation, floor tile, resilient sheeting, and flooring mastics were assumed to be asbestos containing for this assessment. Some asbestos abatement has been completed in this portion of the facility on the pipe fitting insulation. Most of the fitting insulation is above the suspended ceiling system and needs replaced or repaired. The straight runs of pipe insulation were identified as fiberglass pipe insulation.

The following is a cost estimate for the environmental abatement work in the 1970 ILEAS Building. This cost estimate assumes that all materials will be abated in one containment and the project would not be phased.

Renovation

Pipe fitting insulation	\$48,000.00
Floor tile and mastic	\$37,600.00
Resilient sheeting and mastics	\$56,400.00
Total	\$142,000.00

Prior to any renovation or demolition, additional asbestos testing should be completed in order to identify if the assumed materials are asbestos containing.



County of Champaign, Illinois

Facilities Assessment Report

Appendix B

Asbestos Report - ILEAS Building
OEHS

January 20, 2014

Kirk Kirkland
Building & Grounds Manager
Champaign County Physical Plant
1776 Washington Street
Urbana, Illinois 60148

Re: Industrial Hygiene & Safety Services
Asbestos Survey Report
Former Nursing Home
1701 East Main Street
Urbana, Illinois

Dear Mr. Kirkland:

Occupational Environmental Health Solutions, Inc. (OEHS, Inc.) was retained by your firm to conduct an Industrial Hygiene asbestos bulk survey at the above captioned address on December 23, 2013. The asbestos survey was performed by OEHS, Inc. personnel licensed by the State of Illinois as Asbestos Inspectors, to identify suspect asbestos containing materials at the above captioned location.

Asbestos Investigation

Background

Asbestos is a naturally occurring mineral. It is distinguished from all other minerals by the fact that its crystals form into long, thin fibers. Asbestos has been used in hundreds of products. As an insulator, it was widely used for thermal insulation and condensation control. Asbestos was added to a variety of building products such as asphalt, vinyl roofing felts, exterior siding, floor tile, joint compounds, and adhesives (mastic) to enhance strength.

The three main health effects associated with exposure to asbestos are lung cancer, asbestosis, and mesothelioma. All three health effects have long latency periods (time from exposure to disease onset) ranging from 20 to 40 years. Lung cancer is the most common affliction and mesothelioma the least common.

An asbestos-containing material (ACM) is defined by the EPA National Emission Standard for Hazardous Air Pollutants (NESHAPS) as any material containing more than 1 percent asbestos, as determined by Polarizing Light Microscopy (PLM).

When buildings are being demolished or renovated, the asbestos NESHAP must be followed. This standard defines work practices to be used for demolition and renovation activities and regulates asbestos-containing materials based on their type. The asbestos

NESHAP divides asbestos-containing material into two types based on the structural integrity (friability) of the asbestos. These two types of ACM are friable and non-friable. Friable ACM is any material containing more than one percent asbestos that, when dry, can be crumbled to powder by hand pressure. Non-friable ACM is any material containing more than one percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. The asbestos NESHAP further delineates non-friable ACM by dividing it into two categories. Category I non-friable ACM are asbestos-containing resilient floor coverings (commonly known as vinyl asbestos tile), asphalt roofing products, packings and gaskets. These materials rarely become friable. All other non-friable ACM are considered Category II non-friable ACM. Since friable ACM can be crumbled to powder by hand pressure, it can release fibers into the air more readily than non-friable ACM. Therefore, greater care has to be taken when working with friable ACM. However, many types of non-friable ACM can also release fibers if disturbed (i.e., abrasive waxing and buffing asbestos floor tile). Prior to the commencement of a demolition or renovation project a building must be thoroughly inspected for the presence of friable and non-friable ACM's.

The asbestos NESHAP applies to the removal of regulated asbestos-containing material (RACM) during demolition or renovation projects. These regulated asbestos-containing materials are defined as follows:

- Friable asbestos material;
- Category I non-friable ACM that has become friable;
- Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading; and
- Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of the demolition or renovation operations.

Some of the requirements of the asbestos NESHAPS include notification of applicable regulation agencies and specific procedures for asbestos removal. To determine which requirement of the asbestos NESHAPS apply to demolition or renovation activity, the amount of asbestos in the building must be quantified. For example, only certain parts of the NESHAPS notification requirement must be followed for building demolition if the combined amount of regulated asbestos-containing material (RACM) is less than 260 linear feet on pipes, less than 160 square feet on other facility components, contains less than 35 cubic feet of facility components where the length or area could not be measured previously, or there is no asbestos.

Asbestos Bulk Sampling Strategy

The purpose of the asbestos survey was to identify suspect asbestos-containing material (ACM) through observations, sampling and laboratory analysis. The Asbestos Hazardous Emergency Response Act (AHERA) protocol 40 CFR Part 763 was used to determine sampling locations through the identification of homogeneous areas of suspect ACM. A

homogeneous area consists of materials in a given building that are identical in appearance, color, and presumed installation date.

The asbestos assessment survey was conducted on December 23, 2013 by OEHS Inc. The indicated numbers of bulk samples were collected in a random manner from the following 32 homogeneous areas.

- | | |
|---|---|
| 1. Crawl Space – Pipe Wrap
(7 Samples) | 16. Grout – Floor Tile
(3 Samples) |
| 2. Hand Rail Mastic A
(3 Samples) | 17. Grout – Grey Floor Tile
(3 Samples) |
| 3. Hand Rail Mastic B
(3 Samples) | 18. Grout – Wall Tile
(3 Samples) |
| 4. Hand Rail Mastic C
(3 Samples) | 19. Grout - Floor Tile
(3 Samples) |
| 5. Base Cove – Large Brown
(3 Samples) | 20. Grout – Pink Floor Tile
(3 Samples) |
| 6. Base Cove Mastic – Large
Brown (3 Samples) | 21. Grout – Grey Floor Tile
(3 Samples) |
| 7. Base Cove – Black
(3 Samples) | 22. Grout – Beige Wall Tile
(3 Samples) |
| 8. Base Cove Mastic – Black
(3 Samples) | 23. Roof Material (5 Samples) |
| 9. Base Cove – Large Beige
(3 Samples) | 24. Flashing Material
(5 Samples) |
| 10. Base Cove Mastic – Large
Beige (3 Samples) | 25. Sink Caulking Material
(3 Samples) |
| 11. Base Cove – Small Beige
(3 Samples) | 26. Plaster (5 Samples) |
| 12. Base Cove Mastic – Small
Beige (3 Samples) | 27. Lower Ceiling Tile
(5 Samples) |
| 13. Base Cove – Grey
(3 Samples) | 28. Upper Ceiling Tile
(5 Samples) |
| 14. Base Cove Mastic – Grey
(3 Samples) | 29. Brick Mortar (3 Samples) |
| 15. Grout – Pink Wall Tile
(3 Samples) | 30. Window Caulking Material
(3 Samples) |
| | 31. Drywall Joint (3 Samples) |
| | 32. Pipe Wrap (1 Sample) |

These samples were collected in accordance with the Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910.1001, 29 CFR 1926.1101, and the AHERA Standard, 40 CFR Part 763.

Asbestos-Containing Material Analytical Analysis

The samples were analyzed by Polarized Light Microscopy (PLM). PLM is the EPA required method for analyzing bulk material for asbestos. PLM utilized a light microscope equipped with polarizing filters. The identification of asbestos fiber bundles is determined by the visual properties displayed when the samples is treated with various dispersion staining liquids. Identification is substantiated by the actual structure of the

fiber and the effect of polarized light on the fiber, all of which are viewed by the certified technician. The technician is also trained to give visual estimation of the percentage of asbestos in a sample. The limit of detection of asbestos by PLM is about one percent (1%) by area. Samples containing lower levels of asbestos are not reliably detected by this technique.

The analytical laboratory is certified by the American Industrial Hygiene Association Bulk Asbestos Proficiency Analytical Testing Program.

Asbestos-Containing Materials Survey Findings

The asbestos survey results are located in Table 1 which lists the sample number, sample locations, sample type, type of material and the asbestos content. A total of 32 distinct homogenous areas of potential ACM were identified, and 110 samples were collected and submitted for analysis.

Analysis of the 110 samples revealed that 2 homogeneous areas (i.e. Drywall Joint Material & the Window Calking Material) of the building did contain asbestos-containing material (i.e. greater than 1% asbestos). The asbestos sample results are summarized in Table 1. The analytical laboratory report is presented in Appendix A.

At the request of the client in an effort to reduce overall fees the all of the floor tile, sheet goods and associated mastics were presumed to be asbestos containing material. This area consisted of an additional 22 homogenous areas and approximately 4,425 ft² of flooring and 4,425 ft² of associated mastics.

The samples collected from the other thirty (30) homogeneous areas did not contain asbestos in concentrations greater than 1%. The asbestos sample results are summarized in Table 1. The analytical laboratory report is presented in Appendix A.

Conclusions

The asbestos assessment survey revealed that two (2) of the homogeneous areas and two (2) presumed that twenty-two (22) homogeneous at the site contained greater than 1 percent asbestos. The other thirty (30) homogeneous areas are, therefore, classified as a non-asbestos-containing material.

The window calking contained about 10 ft² of asbestos containing material.

The drywall joint compound in the room south west corner of the space to be demolished contained about 2 ft² of asbestos containing material on the east wall.

The flooring material contained about 4,425 ft² of presumed asbestos containing material.

The mastic associated with the flooring contained about 4,425 ft² of presumed asbestos containing material.

The remainder of the sampled areas at the site were negative for asbestos containing material.

Table 1
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
1	Crawl Space Pipe Wrap	Bulk	NA	Not Detected	No
2	Crawl Space Pipe Wrap	Bulk	NA	Not Detected	No
3	Crawl Space Pipe Wrap	Bulk	NA	Not Detected	No
4	Crawl Space Pipe Wrap	Bulk	NA	Not Detected	No
5	Crawl Space Pipe Wrap	Bulk	NA	Not Detected	No
6	Crawl Space Pipe Wrap	Bulk	NA	Not Detected	No
7	Crawl Space Pipe Wrap	Bulk	NA	Not Detected	No
8	Hand Rail Mastic A	Bulk	NA	Not Detected	No
9	Hand Rail Mastic A	Bulk	NA	Not Detected	No
10	Hand Rail Mastic A	Bulk	NA	Not Detected	No
11	Hand Rail Mastic B	Bulk	NA	Not Detected	No
12	Hand Rail Mastic B	Bulk	NA	Not Detected	No
13	Hand Rail Mastic B	Bulk	NA	Not Detected	No

**Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013**

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
14	Hand Rail Mastic C	Bulk	NA	Not Detected	No
15	Hand Rail Mastic C	Bulk	NA	Not Detected	No
16	Hand Rail Mastic C	Bulk	NA	Not Detected	No
17	Base Cove Large Brown	Bulk	NA	Not Detected	No
18	Base Cove Large Brown Mastic	Bulk	NA	Not Detected	No
19	Base Cove Large Brown	Bulk	NA	Not Detected	No
20	Base Cove Large Brown Mastic	Bulk	NA	Not Detected	No
21	Base Cove Large Brown	Bulk	NA	Not Detected	No
22	Base Cove Large Brown Mastic	Bulk	NA	Not Detected	No
23	Base Cove Black	Bulk	NA	Not Detected	No

**Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013**

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
24	Base Cove Black Mastic	Bulk	NA	Not Detected	No
25	Base Cove Black	Bulk	NA	Not Detected	No
26	Base Cove Black Mastic	Bulk	NA	Not Detected	No
27	Base Cove Black	Bulk	NA	Not Detected	No
28	Base Cove Black Mastic	Bulk	NA	Not Detected	No
29	Base Cove Large Beige	Bulk	NA	Not Detected	No
30	Base Cove Large Beige Mastic	Bulk	NA	Not Detected	No
31	Base Cove Large Beige	Bulk	NA	Not Detected	No

**Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013**

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
32	Base Cove Large Beige Mastic	Bulk	NA	Not Detected	No
33	Base Cove Large Beige	Bulk	NA	Not Detected	No
34	Base Cove Large Beige Mastic	Bulk	NA	Not Detected	No
35	Base Cove Small Beige	Bulk	NA	Not Detected	No
36	Base Cove Small Beige Mastic	Bulk	NA	Not Detected	No
37	Base Cove Small Beige	Bulk	NA	Not Detected	No
38	Base Cove Small Beige Mastic	Bulk	NA	Not Detected	No

Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
39	Base Cove Small Beige	Bulk	NA	Not Detected	No
40	Base Cove Small Beige Mastic	Bulk	NA	Not Detected	No
41	Base Cove Grey	Bulk	NA	Not Detected	No
42	Base Cove Grey Mastic	Bulk	NA	Not Detected	No
43	Base Cove Grey	Bulk	NA	Not Detected	No
44	Base Cove Grey Mastic	Bulk	NA	Not Detected	No
45	Base Cove Grey	Bulk	NA	Not Detected	No
46	Base Cove Grey Mastic	Bulk	NA	Not Detected	No
47	Grout Pink Wall Tile	Bulk	NA	Not Detected	No

Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
48	Grout Pink Wall Tile	Bulk	NA	Not Detected	No
49	Grout Pink Wall Tile	Bulk	NA	Not Detected	No
50	Grout Floor Tile	Bulk	NA	Not Detected	No
51	Grout Floor Tile	Bulk	NA	Not Detected	No
52	Grout Floor Tile	Bulk	NA	Not Detected	No
53	Grout Grey Floor Tile	Bulk	NA	Not Detected	No
54	Grout Grey Floor Tile	Bulk	NA	Not Detected	No
55	Grout Grey Floor Tile	Bulk	NA	Not Detected	No
56	Grout Wall Tile	Bulk	NA	Not Detected	No
57	Grout Wall Tile	Bulk	NA	Not Detected	No
58	Grout Wall Tile	Bulk	NA	Not Detected	No

Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
59	Grout Floor Tile	Bulk	NA	Not Detected	No
60	Grout Floor Tile	Bulk	NA	Not Detected	No
61	Grout Floor Tile	Bulk	NA	Not Detected	No
62	Grout Pink Floor Tile	Bulk	NA	Not Detected	No
63	Grout Pink Floor Tile	Bulk	NA	Not Detected	No
64	Grout Pink Floor Tile	Bulk	NA	Not Detected	No
65	Grout Grey Floor Tile	Bulk	NA	Not Detected	No
66	Grout Grey Floor Tile	Bulk	NA	Not Detected	No
67	Grout Grey Floor Tile	Bulk	NA	Not Detected	No
68	Grout Beige Wall Tile	Bulk	NA	Not Detected	No
69	Grout Beige Wall Tile	Bulk	NA	Not Detected	No

**Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013**

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
70	Grout Beige Wall Tile	Bulk	NA	Not Detected	No
71	Roofing Material	Bulk	NA	Not Detected	No
72	Roofing Material	Bulk	NA	Not Detected	No
73	Roofing Material	Bulk	NA	Not Detected	No
74	Roofing Material	Bulk	NA	Not Detected	No
75	Roofing Material	Bulk	NA	Not Detected	No
76	Flashing Material	Bulk	NA	Not Detected	No
77	Flashing Material	Bulk	NA	Not Detected	No
78	Flashing Material	Bulk	NA	Not Detected	No
79	Flashing Material	Bulk	NA	Not Detected	No
80	Flashing Material	Bulk	NA	Not Detected	No

Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
81	Sink Caulking Material	Bulk	NA	Not Detected	No
82	Sink Caulking Material	Bulk	NA	Not Detected	No
83	Sink Caulking Material	Bulk	NA	Not Detected	No
84	Plaster	Bulk	NA	Not Detected	No
85	Plaster	Bulk	NA	Not Detected	No
86	Plaster	Bulk	NA	Not Detected	No
87	Plaster	Bulk	NA	Not Detected	No
88	Plaster	Bulk	NA	Not Detected	No
89	Plaster	Bulk	NA	Not Detected	No
90	Plaster	Bulk	NA	Not Detected	No
91	Lower Ceiling Tile	Bulk	NA	Not Detected	No

Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
92	Lower Ceiling Tile	Bulk	NA	Not Detected	No
93	Lower Ceiling Tile	Bulk	NA	Not Detected	No
94	Lower Ceiling Tile	Bulk	NA	Not Detected	No
95	Lower Ceiling Tile	Bulk	NA	Not Detected	No
96	Upper Ceiling Tile	Bulk	NA	Not Detected	No
97	Upper Ceiling Tile	Bulk	NA	Not Detected	No
98	Upper Ceiling Tile	Bulk	NA	Not Detected	No
99	Upper Ceiling Tile	Bulk	NA	Not Detected	No
100	Upper Ceiling Tile	Bulk	NA	Not Detected	No
101	Brick Mortar	Bulk	NA	Not Detected	No
102	Brick Mortar	Bulk	NA	Not Detected	No

**Table 1 (Cont.)
Asbestos Survey
Bulk Sample Analytical Results
Nursing Home East Annex
1701 E. Main Street
Urbana, Illinois
Samples Collected December 23, 2013**

Sample Number	Sample Location	Sample Type	Asbestos Type	Asbestos Percent (%)	Contains Asbestos
103	Brick Mortar	Bulk	NA	Not Detected	No
104	Window Caulk	Bulk	NA	1-2	Yes
105	Window Caulk	Bulk	NA	1-2	Yes
106	Window Caulk	Bulk	NA	2-3	Yes
107	Drywall Joint Compound	Bulk	NA	1-2	Yes
108	Drywall Joint Compound	Bulk	NA	Trace	No
109	Drywall Joint Compound	Bulk	NA	Trace	No
110	Pipe Wrap	Bulk	NA	Not Detected	No

Recommendations

Illinois Environmental Protection Agency (IEPA)

Projects of at least 160 sq./ft. or 260 linear ft. or 1 cubic meter and all demolition projects shall be submitted to IEPA.

Illinois Department of Public Health (IDPH)

Abatement projects greater than 3 sq./ft. and or 3 linear ft. up to 160 sq. ft. or 260 linear feet and all school projects shall be submitted to IDPH.

Project Design

A licensed Asbestos Project Designer shall plan the abatement project in accordance with all federal and State rules governing such actions (i.e. 40 CFR 61; 29 CFR 1910 and 1929 and the Illinois Administrative Code Title 77 Chapter I Subchapter p Part 855 Section 855.150) and the response action recommendations of the management plan, if a plan is utilized.

U.S. Environmental Protection Agency (EPA)

NESHAP requires notification of demolition activities at least 10 working days before demolition begins. This notification must be sent to the Illinois Environmental Protection Agency, and it must include the following:

- An indication of whether the notice is an original or a revised notification.
- Name, address, and telephone number of both the facility owner and operator and the asbestos removal contractor owner or operator.
- Type of operation: demolition or renovation.
- Description of the facility or affected part of the facility including the size (sq. ft.) and number of floors, age, and present and prior use of the facility.
- Procedure, including analytical methods employed to detect the presence of RACM and Category I and Category II not-friable ACM.
- Estimate of the approximate amount of RACM to be removed from the facility in terms of length of pipe in lin. ft., surface area in sq. ft. on other facility components, or volume in cubic feet (cu. ft.) from the facility components. Also, estimate the approximate amount of Category I and Category II non-friable ACM in the affected part of the facility that will not be removed before demolition.
- Location and street address (including building number or name and floor or room number, if appropriate), city, county, and state, of the facility being demolished or renovated.

- Scheduled starting and completion dates of demolition or renovation.
- Description of procedures to be followed in the event that unexpected RACM is found or Category II non-friable ACM becomes crumbled, pulverized, or reduced to powder.

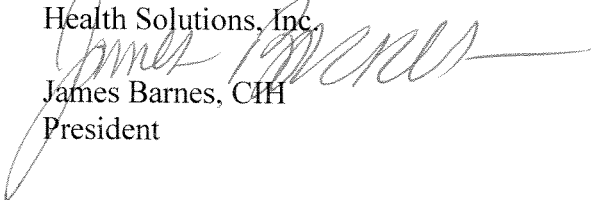
An updated notice must also be provided at least 10 days before commencement of demolition if there are any changes to the start date.

Data on site conditions may vary depending on where and when data were obtained, resulting in possible uncertainty with respect to the interpretation of actual site conditions. OEHS can offer no assurances and assumes no responsibility for site conditions or activities beyond the scope of the survey requested by the Client. This report presents data collected at the time and place of testing. No warranty or guarantee is intended or implied. Any alteration, editing, or characterization of this report without express written permission of OEHS is prohibited.

If you have any questions concerning this survey, please contact me at your earliest convenience at (217) 483-9296.

Sincerely,

Occupational Environmental
Health Solutions, Inc.


James Barnes, CIH
President

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE** NVLAP LAB ID 101130-0

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
01 Crawl Space Pipe Wrap	232044	Yellow	N/D	Chrysotile		Cellulose	5-10		0-10
				Amosite		Glass	85-90		
02 Crawl Space Pipe Wrap	232045	Yellow	N/D	Chrysotile		Cellulose	3-5		5-12
				Amosite		Glass	85-90		
03 Crawl Space Pipe Wrap	232046	Yellow	N/D	Chrysotile		Cellulose	3-5		5-12
				Amosite		Glass	85-90		
04 Crawl Space Pipe Wrap	232047	Yellow	N/D	Chrysotile		Cellulose	1-2		3-9
				Amosite		Glass	90-95		
05 Crawl Space Pipe Wrap	232048	Yellow	N/D	Chrysotile		Cellulose	15-20		5-15
				Amosite		Glass	70-75		

Samples were analyzed following the procedures contained in the EPA Method 600/R-93/116, July 1993. This report applies only to samples tested.
 SLM: The optical resolution of polarized light microscopy limits the size of fibers that are visible. In samples where very small fibers may be present, the asbestos fibers may be smaller than the resolution limit of a polarized light microscope. In those cases, the result of the PLM analysis is not conclusive where the sample is reported as non-asbestos. Samples that are expected to contain small fibers (such as floor tile samples and vermiculite) and that are reported as non-asbestos by PLM should be further analyzed by transmission electron microscopy.
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Key: ACM = Asbestos Containing Material as defined in USEPA NESHAP Regulation; TR = Trace; N/D = None Detected
 Page 1 of 22


 Report Approved by:

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
06 Crawl Space Pipe Wrap	232049	Yellow	N/D	Chrysotile Amosite		Cellulose Glass		15-20 70-75	5-15
07 Crawl Space Pipe Wrap	232050	Yellow	N/D	Chrysotile Amosite		Cellulose Glass		15-20 70-75	5-15
08 Hand Rail Mastic A	232051	Tan	N/D	Chrysotile Amosite		Cellulose Glass		Trace	90-100
09 Hand Rail Mastic A	232052	Tan	N/D	Chrysotile Amosite		Cellulose Glass		Trace	90-100
10 Hand Rail Mastic A	232053	Tan	N/D	Chrysotile Amosite		Cellulose Glass		Trace	90-100

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Report Approved by: 

TEM, Incorporated

BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE NVLAP LAB ID 101130-0

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
11 Hand Rail Mastic B	232054	White	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
12 Hand Rail Mastic B	232055	White	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
13 Hand Rail Mastic B	232056	White	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
14 Hand Rail Mastic C	232057	White	N/D	Chrysotile Amosite		Cellulose Glass	Trace	90-100	
15 Hand Rail Mastic C	232058	White	N/D	Chrysotile Amosite		Cellulose Glass		90-100	


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Report Approved by: 

TEM, Incorporated

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

NVLAP LAB ID 101130-0

B-21

Company Name: Occupational Environ. Health Solutions		Client Project Ref: Champaign Co. Nursing Home				
Contact: Doug Barnes		Project Location:				
Address: 346 Williams Lane, P.O. Box 252		TEM Project: 46688				
Chatham IL 62629-		Analyzed by: Lori Boersma				
		Date Analyzed: 1/8/2014				
Sample Information		Fibrous Materials		Non-Fibrous Materials		
Client Sample ID	TEM ID.	ACM	Asbestos Fibers Type	Non-Asbestos Fibers Type	Filler Binder	Comments
16	232059	White	N/D Chrysotile Amosite	Cellulose Glass		90-100
17	232060	Brown	N/D Chrysotile Amosite	Cellulose Glass		90-100
18	232061	Yellow	N/D Chrysotile Amosite	Cellulose Glass		90-100
19	232062	Brown	N/D Chrysotile Amosite	Cellulose Glass		90-100
20	232063	Yellow	N/D Chrysotile Amosite	Cellulose Glass	Trace	90-100


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Report Approved by: 

443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

TEM, Incorporated

BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE NVLAP LAB ID 101130-0

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials			
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent	Filler Binder	Comments
21 Base Cove Big Brown	232064	Brown	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
22 Mastic Big Brown	232065	Yellow	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
23 Base Cove Black	232066	Black	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
24 Mastic Black	232067	Brown	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
25 Base Cove Black	232068	Black	N/D	Chrysotile Amosite		Cellulose Glass		90-100	

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 Page 5 of 22

Report Approved by: 

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE** NVLAP LAB ID 101130-0


Company Name: Occupational Environ. Health Solutions	Client Project Ref: Champaign Co. Nursing Home
Contact: Doug Barnes	Project Location:
Address: 346 Williams Lane, P.O. Box 252	TEM Project: 46688
Chatham IL 62629-	Analyzed by: Lori Boersma
	Date Analyzed: 1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
26 Mastic Black	232069	Brown	N/D	Chrysotile		Cellulose		Glass	90-100
27 Base Cove Black	232070	Black	N/D	Chrysotile		Cellulose		Glass	90-100
28 Mastic Black	232071	Brown	N/D	Chrysotile		Cellulose		Glass	90-100
29 Base Cove Big Beige	232072	Light Brown	N/D	Chrysotile		Cellulose		Glass	90-100
30 Mastic Big Beige	232073	Beige	N/D	Chrysotile		Cellulose		Glass	90-100

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 Page 6 of 22

443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

Report Approved by: 

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE** NVLAP LAB ID 101130-0

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type Percent	Non-Asbestos Fibers Type Percent				
31 Base Cove Big Beige	232074	Light Brown	N/D	Chrysotile Amosite	Cellulose Glass			90-100	
32 Mastic Big Beige	232075	Beige	N/D	Chrysotile Amosite	Cellulose Glass		Trace	90-100	
33 Base Cove Big Beige	232076	Light Brown	N/D	Chrysotile Amosite	Cellulose Glass			90-100	
34 Mastic Big Beige	232077	Beige	N/D	Chrysotile Amosite	Cellulose Glass			90-100	
35 Base Cove Short Beige	232078	Beige	N/D	Chrysotile Amosite	Cellulose Glass			90-100	

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Report Approved by: 

TEM, Incorporated

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

B-25


Sample Information		Fibrous Materials		Non-Fibrous Materials					
Client Sample ID Description	TEM ID.	COLOR	ACM	Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent	Filler Binder	Comments
36 Mastic Short Beige	232079	Brown	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
37 Base Cove Short Beige	232080	Beige	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
38 Mastic Short Beige	232081	Brown	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
39 Base Cove Short Beige	232082	Beige	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
40 Mastic Short Beige	232083	Brown	N/D	Chrysotile Amosite		Cellulose Glass		90-100	

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Page 8 of 22

Report Approved by: 

443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

TEM, Incorporated

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

NVLAP LAB ID 101130-0

B-26

Company Name: Occupational Environ. Health Solutions		Client Project Ref: Champaign Co. Nursing Home							
Contact: Doug Barnes		Project Location:							
Address: 346 Williams Lane, P.O. Box 252		TEM Project: 46688							
Chatham IL 62629-		Analyzed by: Lori Boersma							
		Date Analyzed: 1/8/2014							
Sample Information		Fibrous Materials		Non-Fibrous Materials					
Client Sample ID	TEM ID	COLOR	ACM	Asbestos Fibers		Non-Asbestos Fibers		Filler	Comments
Description	ID			Type	Percent	Type	Percent	Binder	
41	232084	Gray	N/D	Chrysotile		Cellulose		Glass	90-100
Base Cove Gray				Amosite					
42	232085	Beige	N/D	Chrysotile		Cellulose	Trace		90-100
Mastic Gray				Amosite		Glass			
43	232086	Gray	N/D	Chrysotile		Cellulose		Glass	90-100
Base Cove Gray				Amosite					
44	232087	Beige	N/D	Chrysotile		Cellulose	Trace		90-100
Mastic Gray				Amosite		Glass			
45	232088	Gray	N/D	Chrysotile		Cellulose		Glass	90-100
Base Cove Gray				Amosite					

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443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**


Company Name: Occupational Environ. Health Solutions	Client Project Ref: Champaign Co. Nursing Home
Contact: Doug Barnes	Project Location:
Address: 346 Williams Lane, P.O. Box 252	TEM Project: 46688
Chatham IL 62629-	Analyzed by: Lori Boersma
	Date Analyzed: 1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials.		Non-Fibrous Materials			
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent	Filler Binder	Comments
46 Mastic Gray	232089	Beige	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
47 Grout from Pink Wall Tile	232090	White	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
48 Grout from Pink Wall Tile	232091	White	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
49 Grout from Pink Wall Tile	232092	White	N/D	Chrysotile Amosite		Cellulose Glass	Trace	90-100	
50 Grout from Floor Tile	232093	Gray	N/D	Chrysotile Amosite		Cellulose Glass	Trace	90-100	

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**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

Company Name: Occupational Environ. Health Solutions	Client Project Ref: Champaign Co. Nursing Home
Contact: Doug Barnes	Project Location:
Address: 346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project: 46688
	Analyzed by: Lori Boersma
	Date Analyzed: 1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
51 Grout from Floor Tile	232094	Gray	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
52 Grout from Floor Tile	232095	Gray	N/D	Chrysotile Amosite		Cellulose Glass	Trace	90-100	
53 Grout from Gray Floor Tile	232096	Gray	N/D	Chrysotile Amosite		Cellulose Glass	1-2	98-99	
54 Grout from Gray Floor Tile	232097	Gray	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
55 Grout from Gray Floor Tile	232098	Gray	N/D	Chrysotile Amosite		Cellulose Glass	2-3	97-98	

Samples were analyzed following the procedures contained in the EPA Method 600/R-93/116, July 1993. This report applies only to samples tested.

SLM: The optical resolution of polarized light microscopy limits the size of fibers that are visible. In samples where very small fibers may be present, the asbestos fibers may be smaller than the resolution limit of a polarized light microscope. In those cases, the result of the PLM analysis is not conclusive where the sample is reported as non-asbestos. Samples that are expected to contain small fibers (such as floor tile samples and vermiculite) and that are reported as non-asbestos by PLM should be further analyzed by transmission electron microscopy. This report may not be reproduced except in full and with the approval of the Laboratory. This report may not be used by the client to claim product endorsement by NVLAP or any agency of the US government. An estimate of the laboratory uncertainty is available upon request.

Key: ACM = Asbestos Containing Material as defined in USEPA NESHAP Regulation; TR = Trace; N/D = None Detected

Report Approved by: 

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

NVLAP LAB ID 101130-0

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014


Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type Percent	Non-Asbestos Fibers Type Percent	Cellulose Glass	Trace		
56 Grout from Wall Tile	232099	White	N/D	Chrysotile Amosite	Cellulose Glass			90-100	
57 Grout from Wall Tile	232100	White	N/D	Chrysotile Amosite	Cellulose Glass	1-2		98-99	
58 Grout from Wall Tile	232101	White	N/D	Chrysotile Amosite	Cellulose Glass			90-100	
59 Grout from Floor Tile	232102	Gray	N/D	Chrysotile Amosite	Cellulose Glass			90-100	
60 Grout from Floor Tile	232103	Gray	N/D	Chrysotile Amosite	Cellulose Glass	Trace		90-100	

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**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014


Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
61 Grout from Floor Tile	232104	Gray	N/D	Chrysotile Amosite		Cellulose Glass	1-2	98-99	
62 Grout from Pink Floor Tile	232105	Gray	No	Chrysotile Amosite	Trace	Cellulose Glass		90-100	
63 Grout from Pink Floor Tile	232106	Gray	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
64 Grout from Pink Floor Tile	232107	Gray	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
65 Grout from Gray Floor Tile	232108	Gray	N/D	Chrysotile Amosite		Cellulose Glass	1-2	98-99	

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443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

Report Approved by: 

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014


Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
66 Grout from Gray Floor Tile	232109	Gray	N/D	Chrysotile		Cellulose Glass			90-100
67 Grout from Gray Floor Tile	232110	Gray	N/D	Chrysotile Amosite		Cellulose Glass		Trace	90-100
68 Grout from Beige Wall Tile	232111	Gray	N/D	Chrysotile Amosite		Cellulose Glass			90-100
69 Grout from Beige Wall Tile	232112	Gray	N/D	Chrysotile Amosite		Cellulose Glass		Trace	90-100
70 Grout from Beige Wall Tile	232113	Gray	N/D	Chrysotile Amosite		Cellulose Glass			90-100

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443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

Report Approved by: 

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

B-32

Company Name: Occupational Environ. Health Solutions	Client Project Ref: Champaign Co. Nursing Home
Contact: Doug Barnes	Project Location:
Address: 346 Williams Lane, P.O. Box 252	TEM Project: 46688
Chatham IL 62629-	Analyzed by: Lori Boersma
	Date Analyzed: 1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type Percent	Non-Asbestos Fibers Type Percent				
71 Roof	232114	Black	N/D	Chrysotile Amosite	Cellulose Glass	5-10	90-95		
72 Roof	232115	Black	N/D	Chrysotile Amosite	Cellulose Glass	5-10	90-95		
73 Roof	232116	Black	N/D	Chrysotile Amosite	Cellulose Glass	5-10	90-95		
74 Roof	232117	Black	N/D	Chrysotile Amosite	Cellulose Glass	5-10	90-95		
75 Roof	232118	Black	N/D	Chrysotile Amosite	Cellulose Glass	5-10	90-95		


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Report Approved by: 

TEM, Incorporated

BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE NVLAP LAB ID 101130-0

B-33

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
76 Flashing	232119	Black	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
77 Flashing	232120	Black	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
78 Flashing	232121	Black	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
79 Flashing	232122	Black	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
80 Flashing	232123	Black	N/D	Chrysotile Amosite		Cellulose Glass		90-100	

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Report Approved by:



**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

Company Name: Occupational Environ. Health Solutions	Client Project Ref: Champaign Co. Nursing Home
Contact: Doug Barnes	Project Location:
Address: 346 Williams Lane, P.O. Box 252	TEM Project: 46688
Chatham IL 62629-	Analyzed by: Lori Boersma
	Date Analyzed: 1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials	
				Asbestos Fibers Type Percent	Non-Asbestos Fibers Type Percent	Filler Type Percent	Comments
81 Sink Caulk	232124	White	N/D	Chrysotile Amosite	Cellulose Glass	1-2	90-100
82 Sink Caulk	232125	White	N/D	Chrysotile Amosite	Cellulose Glass	Trace	90-100
83 Sink Caulk	232126	White	N/D	Chrysotile Amosite	Cellulose Glass		90-100
84 Plaster	232127	Gray	N/D	Chrysotile Amosite	Cellulose Glass	Trace	90-100
85 Plaster	232128	Gray	N/D	Chrysotile Amosite	Cellulose Glass	1-2	98-99

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443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

Report Approved by: 

TEM, Incorporated

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

B-35

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
86 Plaster	232129	Grav	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
87 Plaster	232130	Grav	N/D	Chrysotile Amosite		Cellulose Glass	Trace	90-100	
88 Plaster	232131	Grav	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
89 Plaster	232132	Grav	N/D	Chrysotile Amosite		Cellulose Glass	Trace	90-100	
90 Plaster	232133	Grav	N/D	Chrysotile Amosite		Cellulose Glass		90-100	

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Report Approved by: 

443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

Company Name: Occupational Environ. Health Solutions	Client Project Ref: Champaign Co. Nursing Home
Contact: Doug Barnes	Project Location:
Address: 346 Williams Lane, P.O. Box 252	TEM Project: 46688
Chatham IL 62629-	Analyzed by: Lori Boersma
	Date Analyzed: 1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
91 Lower Ceiling Tile	232134	GRAY	N/D	Chrysotile		Cellulose		25-30	0-10
				Amosite		Glass		65-70	
92 Lower Ceiling Tile	232135	GRAY	N/D	Chrysotile		Cellulose		25-30	0-10
				Amosite		Glass		65-70	
93 Lower Ceiling Tile	232136	GRAY	N/D	Chrysotile		Cellulose		25-30	0-10
				Amosite		Glass		65-70	
94 Lower Ceiling Tile	232137	GRAY	N/D	Chrysotile		Cellulose		25-30	0-10
				Amosite		Glass		65-70	
95 Lower Ceiling Tile	232138	GRAY	N/D	Chrysotile		Cellulose		25-30	0-10
				Amosite		Glass		65-70	

Samples were analyzed following the procedures contained in the EPA Method 600/R-93/116, July 1993. This report applies only to samples tested.

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Report Approved by: 

TEM, Incorporated

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

NVLAP LAB ID 101130-0

B-37

Company Name:		Occupational Environ. Health Solutions				Client Project Ref:		Champaign Co. Nursing Home	
Contact:		Doug Barnes				Project Location:			
Address:		346 Williams Lane, P.O. Box 252 Chatham IL 62629-				TEM Project:		46688	
						Analyzed by:		Lori Boersma	
						Date Analyzed:		1/8/2014	
Sample Information		Fibrous Materials				Non-Fibrous Materials			
Client Sample ID Description	TEM ID.	COLOR	ACM	Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent	Filler Binder	Comments
96 Upper Ceiling Tile	232139	Gray	N/D	Chrysotile Amosite		Cellulose Glass	10-15 80-85		0-10
97 Upper Ceiling Tile	232140	Gray	N/D	Chrysotile Amosite		Cellulose Glass	5-10 85-90		0-10
98 Upper Ceiling Tile	232141	Gray	N/D	Chrysotile Amosite		Cellulose Glass	5-10 85-90		0-10
99 Upper Ceiling Tile	232142	Gray	N/D	Chrysotile Amosite		Cellulose Glass	5-10 85-90		0-10
100 Upper Ceiling Tile	232143	Gray	N/D	Chrysotile Amosite		Cellulose Glass	Trace 90-100		

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Report Approved by:

443 Duane Street, Glen Ellyn, Illinois 60137 Phone (630) 790-0880 Fax (630) 790-0882

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

B-38

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursing Home
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014

Client Sample ID Description	TEM ID.	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
101 Brick Mortar	232144	Grav	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
102 Brick Mortar	232145	Grav	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
103 Brick Mortar	232146	Grav	N/D	Chrysotile Amosite		Cellulose Glass		90-100	
104 Window Caulk	232147	Grav	Yes	Chrysotile Amosite	1-2	Cellulose Glass		98-99	
105 Window Caulk	232148	Grav	Yes	Chrysotile Amosite	1-2	Cellulose Glass		98-99	

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Report Approved by: 

**BULK ASBESTOS SAMPLE EVALUATION
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE**

NVLAP LAB ID 101130-0

Company Name:	Occupational Environ. Health Solutions	Client Project Ref:	Champaign Co. Nursi
Contact:	Doug Barnes	Project Location:	
Address:	346 Williams Lane, P.O. Box 252 Chatham IL 62629-	TEM Project:	46688
		Analyzed by:	Lori Boersma
		Date Analyzed:	1/8/2014


Client Sample ID Description	TEM ID	COLOR	ACM	Fibrous Materials		Non-Fibrous Materials		Filler Binder	Comments
				Asbestos Fibers Type	Percent	Non-Asbestos Fibers Type	Percent		
106 Window Caulk	232149	Gray	Yes	Chrysotile Amosite	2-3	Cellulose Glass		97-98	
107 Drywall Joint	232150	White	Yes	Chrysotile Amosite	1-2	Cellulose Glass		91-94	Trace
108 Drywall Joint	232151	White	No	Chrysotile Amosite	Trace	Cellulose Glass		88-94	1-2 5-10
109 Drywall Joint	232152	White	No	Chrysotile Amosite	Trace	Cellulose Glass		93-95	5-7
110 Pipe Wrap	232153	White/Yellow	N/D	Chrysotile Amosite		Cellulose Glass		45-50	50-55

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Report Approved by: 



**ASBESTOS
PROFESSIONAL
LICENSE**

ID NUMBER
100 - 10387

ISSUED
6/5/2013

EXPIRES
05/15/2014

J. DOUGLAS BARNES
105 GRIZZLY
CHATHAM, IL 62629



Environmental Health



County of Champaign, Illinois

Facilities Assessment Report

Appendix C

County Buildings Roof Inspection

**Champaign County Physical Plant
Building Roof Inspection
May 2014**

Animal Control – 210 Art Bartell Road

- Metal Roof (6,644 SF) installed in 1989 – Life expectancy 5 years

Brookens Administrative Center – 1776 E. Washington

- POD 100 – Adhered EPDM installed in 1996 – life expectancy 2 years
- POD 200 – Adhered EPDM installed in 1993 – Life expectancy 1 year
- POD 300 – Adhered EPDM installed in 2003 – Life expectancy 9 years
- POD 400 – Adhered EPDM installed in 2003 – Life expectancy 9 years

Coroner's Office/Physical Plant/Election Storage – 202 Art Bartell Road

- Metal Roof (25,657 SF) installed in 2011 - Life expectancy 30 – 35 years

County Courthouse – 101 E. Main

- Existing Courthouse – ½ shingle installed in 2009 – Life expectancy 25 years – ½ Adhered EPDM installed in 1989, re-seamed and coated in 2010 – Life expectancy 1 year
- Courthouse Addition – Ballasted EPDM installed in 2002 – Life expectancy 7 years, Shingled Wind Screens installed in 2002 – Life expectancy 40 years

County Highway – 1605 E. Main

- Standing Seam Metal installed in 2008 – Life expectancy 24 years
- Storage Building Metal Roof (6,363 SF) installed in 1981 – Life expectancy 2 years

Emergency Operation Center – 1905 E. Main

- Adhered EPDM installed in 2002 – Life expectancy 3 years

ESDA Garage – 1709 E. Main

- Metal installed in 1970 – Life expectancy 1 year

ILEAS – 1701 E. Main

- 1971 Annex Shingled (60,000 SF) installed in 2011 – Life expectancy 27 years
- Original 2-story Shingled (12,500 SF) installed in ? – Life expectancy 0 years
- Annex's Adhered EPDM Roof (16,600) installed in ? – Life expectancy 0 years
- Boiler Shed Shingle roof installed in ? – Life expectancy 0 years

Juvenile Detention Center – 400 S. Art Bartell Road

- Ballasted EPDM installed in 1999 – Life expectancy 1 year

Nursing Home – 500 South Art Bartell Road

- Shingle/EPDM installed in 2006 – Life expectancy 17 years

Salt Dome

- Shingle (12,024 SF) installed in 2011 – Life expectancy 30 years

Sheriff/ILEAS Garage – 1701 E. Main

- Metal Roof (7,350 SF) installed in 1969 – Life expectancy 1 year

Satellite Jail – 502 South Lierman

- Ballasted EPDM Roof installed in 1996 – Life expectancy 2 years

Sheriff's Office/Downtown Jail – 204 E. Main

- Ballasted EPDM installed in 1995 – Life expectancy 1 years



County of Champaign, Illinois

Facilities Assessment Report

Appendix D

Adult Detention Center – Satellite Jail Report
Gorski Reifsteck



GORSKI REIFSTECK

ARCHITECTURE • CONSTRUCTION MANAGEMENT • INTERIORS

OPINION OF PROBABLE COST

Champaign County Sheriffs Office Masterplanning
FINAL REPORT - 01/29/15

CHAMPAIGN COUNTY JAIL & LAW ENFORCEMENT MASTER PLAN PROJECT COST ESTIMATE

CONSTRUCTION COSTS:	Option 1	Option 2
SATELLITE JAIL		
New Addition & Parking	\$19,419,400	\$19,419,400
Renovations*	\$1,675,412	\$1,781,596
Sub-total Jail Construction Costs	\$21,094,812	\$21,200,996
LAW ENFORCEMENT		
Renovation	\$4,117,845	
Temporary Relocation & Improvements**	\$1,607,000	
New Addition & Parking		\$6,180,950
TOTAL BASE CONSTRUCTION COST	\$26,819,657	\$27,381,946
ADDITIONAL PROJECT COSTS:		
<i>(Soil tests, site surveys, architectural-engineering fees, testing, furniture/fixtures/equipment, and so forth.)</i>	OPTION 1	OPTION 2
	\$3,478,400	\$3,419,200
TOTAL ADDITIONAL PROJECT COSTS	\$3,478,400	\$3,419,200
TOTAL BASE PROJECT COSTS	\$30,298,057	\$30,801,146
INFLATION - 2 years @ 3%/yr to 2017	\$1,845,152	\$1,875,790
TOTAL PROJECT COST WITH INFLATION	\$32,143,208	\$32,676,936
Cost Range***		
LOW Cost Estimate (-10%)	\$28,928,888	\$29,409,242
HIGH Cost Estimate (+15%)	\$36,964,690	\$37,578,476
3 YEAR MAINTENANCE REPAIRS		
Construction Costs - Downtown	\$52,313	
Construction Costs - Jail	\$2,426,504	
Additional Project Costs:	\$286,400	
TOTAL 3 YEAR MAINTENANCE REPAIR PROJECT COSTS	\$2,765,217	

* Pod A, Pod B, Admin/visiting/intake, building services areas for both Options; kitchen/locker for Option 2.

** Costs for temporary rental space can vary widely and must be determined at the time.

*** Costs depend upon market conditions at the time of bidding and can vary widely.

General Notes:

- Costs have not been included for hazardous material abatement.
- 3yr Maintenance costs for the Downtown Facility are intended to be minimal repairs and include patching leaks in existing roof system & rebuilding the existing backup generator.
- 3yr Maintenance costs for the Satellite Facility include replacement of the existing roof system, crack repair & re-coating of exterior pre-cast wall panels and replacement of overhead doors on the sally port. HVAC repairs include work to lower energy consumption, improve comfort & reduce maintenance costs. Replacement of existing failing intercom/ interlocking security system is also included in this cost.
- The Costs of financing the project are not included.

OPINION OF PROBABLE COST

Champaign County Sheriffs Office Masterplanning
DRAFT COSTS - 01/29/15

S0.0 - 3 Year Maintenance Repairs**GENERAL CONDITIONS**

Item Description	Quantity	Unit	Cost/Unit	Total
DISPOSAL	524	CY	\$30.00	\$15,705
			SUBTOTAL	\$15,705

EXISTING CONDITIONS

Item Description	Quantity	Unit	Cost/Unit	Total
DEMO EXISTING BALLUSTED EPDM ROOF SYSTEM	42,404	SF	\$2.00	\$84,808
DEMO EXISTING OVERHEAD DOOR AT SALLY PORT	1	EA	\$500.00	\$500
			SUBTOTAL	\$85,308

CONCRETE

Item Description	Quantity	Unit	Cost/Unit	Total
EXTR PANEL REPAIR (WJE REPORT) - ELASTOMERIC COATING	32,373	SF	\$3.60	\$116,543
EXTR PANEL REPAIR (WJE REPORT) - ROUTING & SEALING CRACKS OVER 1/8" (APPROX 50% OF TOTAL CRACKING)	863	LF	\$4.50	\$3,881
EXTR PANEL REPAIR (WJE REPORT) - SEALANT AT PANEL JOINTS	4,351	LF	\$8.50	\$36,984
			SUBTOTAL	\$157,408

METALS

Item Description	Quantity	Unit	Cost/Unit	Total
EXTR PANEL REPAIR (WJE REPORT) - METAL CAP	72	LF	\$22.00	\$1,584
			SUBTOTAL	\$1,584

THERMAL & MOISTURE PROTECTION

Item Description	Quantity	Unit	Cost/Unit	Total
60MIL EPDM ROOF SYSTEM, 1/4 PROTECTION BD., 4.5" INSUL BD. FULLY AHERERED	42,404	SF	\$12.00	\$508,848
FLASHING & SUMP AT NEW ROOF DRAIN LOCATION	8	EA	\$250.00	\$2,000
			SUBTOTAL	\$510,848

OPENINGS

Item Description	Quantity	Unit	Cost/Unit	Total
MOTORIZED INSULATED OVERHEAD DOOR	1	EA	\$15,000.00	\$15,000
			SUBTOTAL	\$15,000

GENERAL CONTRACTOR WORK SUBTOTAL	\$785,853
G. CONTRACTOR - OVERHEAD & PROFIT (10%)	\$78,585
G. CONTRACTOR - COORD OF SUBS (2%)	\$29,520
G. CONTRACTOR - BONDS & INS. (2.5%)	\$56,546
GENERAL SUBTOTAL	\$950,504

CONSULTANTS

Item Description	Quantity	Unit	Cost/Unit	Total
PLUMBING (GHR)	1	LS	\$101,000.00	\$101,000
HVAC (GHR)	1	LS	\$692,000.00	\$692,000
ELECTRICAL (GHR)	1	LS	\$683,000.00	\$683,000
			CONSULTANTS SUBTOTAL	\$1,476,000

TOTAL \$2,426,504



County of Champaign, Illinois

Facilities Assessment Report

Appendix E

Nursing Home Mechanical Report
GHR

May 11, 2006

Mr. Denny Inman (E-mail)
County Administrator
Champaign County Administrative Services
1776 East Washington
Urbana, IL 61802-4578

SUBJECT: 6148 New Nursing Home
Champaign County

Dear Denny:

Per your request we have analyzed a portion of the ventilation system on this project. It's our understanding there is and has been some concern about the performance of the "Magic Aire" air handling units. As we understand the situation several of these systems are straining to deliver rated airflow, are operating at high negative pressures on the return side and are drawing fan motor amperages that approach or exceed nameplate ratings.

We discussed this situation with the CM, the Vent Contractor and the Temperature Control Subcontractor. We focused our efforts on a single system (AHU-6A) somewhat randomly selected by us as typifying the project. We have copies of the original vent drawings as well as the shop drawings for the ductwork and the Magic Aire units.

We have visited the site and observed deviations in duct layout from the vent shop drawings that were apparently necessitated by structural conflicts. We calculated air pressure drops through the duct system in question and then checked the calculations by actual field measurements of static pressure drops.

Please note we have not reviewed the design for adequacy in terms of heating and / or cooling nor have we reviewed the design for compliance with IDPH standards. We've taken the contract documents as a given and analyzed them for performance up to the parameters listed.

We found a number of issues that deserve further scrutiny. The unit is below its specified air delivery. There is significant negative pressure on the unit. The motor is quite near overload. The stability of the fan is suspect. We strongly suspect the freezestat on this unit will trip during periods of cold weather. The unit does not have free cooling capability.

Mr. Denny Inman

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May 11, 2006

Below is a discussion of the above issues. Note that the discussion is largely limited to the AHU-6A system.

Discharge Conditions

The Magic Aire unit employs a double wheel fan. The two fan wheels are on the same shaft and are driven by a single motor. I believe AHU-6A is a 180 BMW size with 15-12 wheels (meaning the wheels are 12" wide and 15" in diameter).

All fans are sensitive to the configuration and size of the discharge duct immediately off the fan discharge. AMCA fan ratings are typically based on specific lengths of straight duct the same dimensions as the fan collar. This straight duct allows the optimum distance for pressure and airflow to be established with minimal losses in efficiency.

This condition is difficult to achieve in the real world due to space limitations. Consequently the performance of a fan with non-AMCA discharge needs to be derated to recognize the inevitable loss in performance. A procedure to calculate the drop in fan performance is identified in the SMACNA (Sheet Metal and Air Conditioning Contractors National Association) HVAC Duct System Design Manual.

So the size and configuration of fan discharge ducts is critical to their performance. This phenomenon is made immensely more complicated when the assembly has two fan wheels. These fans are essentially operating in parallel since they are on the same shaft. There are very specific provisions that need to be made in these instances to provide a fan discharge duct configuration that will allow the fans to develop listed performance and stable operation.

Copies of both Carrier Corporation's and the Trane Company's recommendations on discharge duct connections for two-wheel fans are attached. Similar material is contained in the SMACNA manual. Note that all recommendations have the two fans eventually discharging into a common supply duct. This is essential to develop stable parallel fan operation.

The AHU-6A discharge ducts are not installed per good practice or per fan manufacturer recommendations. The supply ducts off the two fan discharge collars go in two different directions and are not joined in any way. One fan is moving around 65% of the total air with the other fan moving 35%.

In our opinion these discharge conditions are creating a loss in fan performance as well as undesirable non-parallel fan performance. In reality one fan wheel is being underutilized while the other is straining at its limits.

Filters

The Magic Aire units were specified with “80% efficiency” filters. Magic Aire’s catalog lists these blower coils as having 2” thick disposable filters with 85% arrestance. Please note that “arrestance” and efficiency are vastly different parameters. Loosely, arrestance is a measure of the percentage of “standard” dust that is captured by a given filter. “Efficiency” measures the “ability of a given filter to remove particles from an airstream”. There’s a scholarly discussion of all this in the ASHRAE Systems Manual but the upshot is that the two terms are not equivalent.

“Arrestance is particularly suited to distinguish between the many types of low-to medium-efficiency air filters that are common in recirculating systems with air handlers and fan coils having minimal external static pressure capability.”

Industry practice in nursing homes is to use 30% efficiency pleated paper filters. (These would have an arrestance of 90%.) The IDPH codes do not require any specific filtration levels. It’s not clear what, if any, level of filtration will be required by future code / standards.

There are a number of issues raised by the use of 80% filters specified for this project.

The first is related to air pressure drop. Filters have a unique “clean” (i.e. initial) air pressure drop with higher efficiency filters having higher pressure drops than lower efficiency filters. The pressure drop of all filters increases as the filters “load”. Selection of the supply fan must take the “loaded” pressure drop into account since airflow cannot be allowed to gradually decrease as the filters load and filter pressure drop increases. The “loaded” filter pressure drop at which the filters should be changed is typically denoted as the final pressure drop. That parameter is somewhat arbitrary and represents concern for a combination of airflow resistance and filter cost.

The initial and final pressure drops of system filters are parameters that can be manipulated by the designer and must be considered in fan selection. Representative figures at 375 feet per minute face velocity are:

	<u>2" – 30% Efficiency</u>	<u>2" – 80% Efficiency (Per Shop Drawings)</u>
Initial	.19" WC	.45" WC
Dirty	.30" WC	.90" WC

The point is that high efficiency filters have dramatically higher pressure drops that increase as they load. It does not appear that AHU-6A fan selection recognizes this phenomenon.

A second point related to filters is their cost. High efficiency filters cost more than low efficiency filters. Further, there is a manpower cost associated with physically changing the filters. For this reason high efficiency filters are typically selected in thicknesses approaching 12". The increased depth allows more filter surface area and extends the life of the filter. The 2" filters employed on AHU-6A will load quickly and require frequent changing.

The final point on 80% filters is that they generally are employed in concert with lower (e.g. 30%) efficiency prefilters. In this scenario the (cheaper) lower efficiency prefilters strain out the big stuff before it can be deposited on the (more expensive) high efficiency filters. This arrangement generates higher pressure drops while minimizing ownership costs.

The 80% filters are creating more pressure drop clean than the fan can handle. When they get dirty the airflow will diminish. These filters are expensive and will require expensive manpower to change. If the position is that 80% filters are required by IDPH then we recommend written guidance be obtained from IDPH on this subject.

Ductwork

The ductwork is a reflection of the space designed into the building to contain it. The ductwork in this system has an abnormal amount of fittings as it wends its way through the structure. An ideal duct layout (rarely achieved) is predominantly straight duct runs, all at the same elevation, and with as few fittings (such as elbows and tees) as possible.

The installed duct system is anything but ideal as it features a large number of fittings necessitated by the space available. The layman should be aware that airflow through the ductwork is constrained by the inherent resistance to flow created by physics. Moving a little bit of air through big duct encounters little resistance. Conversely, moving a lot of air through a small duct encounters a high resistance.

Fittings in ductwork involve changes in direction of the airflow that generate

higher resistance than straight duct. This phenomenon requires the designer to consider their effect when calculating the overall duct system pressure drop.

It appears the design is based on the "equal friction" method wherein the ducts are sized to give a specific pressure drop per foot at design airflows. Use of this method requires the designer to accurately account for pressure drops generated by fittings. In this instance the designer calculated the following pressure drops as related in a March 31 e-mail:

$$\begin{array}{rcl} \text{Straight duct} - 166 \text{ feet} \times .1" \text{ drop} / 100 \text{ feet} = & & .17" \text{ WC} \\ \text{Fittings (50\% of straight duct)} - 83 \text{ feet} \times .1" \text{ drop} / 100 \text{ feet} = & & \underline{.08" \text{ WC}} \\ & & .25" \text{ WC} \end{array}$$

This is well shy of the actual pressure drops in this system.

The fittings in this system are creating significantly more pressure drop than what was anticipated. We believe this is because there are more fittings than what was apparently allowed and, perhaps more importantly, because there are numerous locations where fittings are installed adjacent to one another or in close proximity to one another. Pressure drops in those instances should be calculated using procedures outlined in the SMACNA Duct System Design Manual or in the ASHRAE Duct Design chapter of the Fundamentals Handbook.

What should be noted is that fittings next to fittings generate far more pressure drop than the same fittings separated by straight duct. We analyzed the AHU-6A return and supply duct using the above-referenced procedures and calculated overall duct pressure drop at design airflow to be .94" WC (water column). The pressure drop was measured by the project's Test and Balance Subcontractor at .93" WC at something less than design airflow. This is four times the pressure drop that was apparently anticipated.

As an example of the synergistic effect of fitting-to-fitting combinations the pressure drop of one such combination in the return duct was calculated at .32" WC and measured at that same value. That single combination generates more static than was allowed for the entire duct system.

One of the complicating factors seems to be the omission of the return duct in the static pressure calculation contained in the March 31 e-mail. The equal friction calculation seems to imply there is 166 feet of straight duct in the system. We

Mr. Denny Inman

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May 11, 2006

measured 160 feet of straight supply duct and 150 feet of straight return duct for a total of 310 feet. If that figure was used in the pressure drop calculation it would generate a drop of .46" WC or roughly twice what was apparently used (still half of what we calculate and what was measured).

The duct layout features an unusually high number of fittings that create unusually high pressure drops. This is complicated by the apparent omission of the return duct from the calculation.

Duct Location

It appears that space constraints forced part of the ductwork to be installed in the unconditioned attic. This is certainly not desirable but it is not unknown in the industry. We assume the designers calculated the loss in heating and cooling effect that results from passing ductwork through a -10°F attic in the winter and what we estimate will be a 115°F attic in the summer.

Calculations provided to us by the Insulation Subcontractor suggest no problems with condensation assuming there are no breaches in the insulation. The installed R-value of the 1-1/2" Knauf insulation is 4.5 (assumes 25% compression). The uncompressed R-value is 5.6 which compares reasonably well with the 6.0 figure required by recently adopted energy codes.

Fan Selection

The parameters listed in the contract documents define the performance required of the fan. Simply put, they miss the mark.

	<u>Scheduled</u>	T & B Sub March 2006 <u>Measured</u>	<u>Calculated</u>
Airflow (cfm)	5200	4918	4810 (Revised)
Total static pressure (inch WC)	2.5	2.64	3.13" (Dirty filter)
Motor amperage	2.6	5.6	6.6

There is a lot embedded in the above. The first is confusion over the actual airflow requirement for this system. ASI Number 400 reduces the requisite airflow from 5200 cfm to 4810 cfm. We assume this is a simple recalculation of room-by-room airflows. It's not clear to us if the figure of 4810 cfm includes the airflow now dedicated to destratification and / or mechanical room ventilation (discussed below). For analytical purposes we used the 4810 figure.

We note the amp draw is more than double what was apparently anticipated. We surmise this is due to a combination of discharge duct conditions and higher than anticipated duct pressure drops discussed above.

Note the airflows measured by the Test and Balance Subcontractor are for clean filters. Dirty filters will add approximately .45" WC to the static pressure requirement.

Application of the fan laws to calculate performance with dirty filters pushes motor amperage to 6.6 which exceeds the 6.2 amp nameplate rating on the motor. In other words it overloads the 5 horsepower motor. Note that motor voltage was measured at 493 by the Test and Balance Subcontractor. If and when voltage is reduced to the 480 volt nominal figure the amperage will climb a couple percent.

At current conditions we believe the fan is operating in an unstable region of the fan curve. A copy of the Magic Aire fan curve is attached. Also attached is a page from the "Fans" chapter of the ASHRAE Systems Manual. Technically speaking the slope of the fan curve at the point of intersection with the system curve should be of opposite sign. This ensures stable operation and coincides with fan selections to the right of what is frequently referred to as the "surge point".

As the Magic Aire fan curve shows, the design selection is well to the left of the surge point.

We also suspect there is significantly more static pressure on this fan than what is recommended by Magic Aire. These are blower coil units, not air handling units. The Magic Aire catalog is largely silent on this matter in terms of application guidelines. Information from the Carrier Corporation for their line of blower coils using similar, if not identical, forward curved fans recommends total static pressures be kept below 2" WC. We have been unable in this time frame to obtain any design / selection recommendations from Magic Aire.

We believe there is simply too much static pressure on the AHU-6A fan system. The fan is clearly operating in an unstable region of the fan curve. Boosting fan motor size will not change the physics of this system.

In a related vein the negative internal pressure on this unit is so high as to be threatening the structural integrity of the blower coil cabinet. This clearly is an indication that Magic Aire did not design the unit for this duty.

Freezestat

AHU-6A is provided with a freezestat to protect itself and the building from freeze-ups. This is a safety device that measures temperature downstream of the heating coil. If temperature at that point drops below setpoint (usually 35 - 40°F) it will shut the fan system off. The freezestat is an essential safety device. It relies on thorough mixing of fresh air and return air to create a true "mixed air" condition inside the unit. Inadequate mixing is the result of stratification of outside (cold) air with respect to return (warm) air and will cause nuisance trips that take the heating system down. Note that manual reset is required on freezestat outages.

We are somewhat confused by what we see in the mechanical room. On AHU-6A a small supply diffuser has been tapped into one of the discharge ducts (further degrading fan performance). A small grille has been tapped into the fresh air duct immediately adjacent to the unit that is functioning as a return grille. This looks like it was added (by change order?) to ventilate the mechanical room but there are snippets of correspondence suggesting this was intended to promote better mixing.

We see no way cold outside air sucked into one side of the unit will mix with warm return air sucked into the other side of the unit. We've had experience with this over the years with single wheel systems (this is a double wheel) and seen stratification develop across the width of the fan wheel. A double wheel configuration is all the more challenging.

We highly doubt whether the stratification issue has truly been solved. A cold winter will tell the tale. The County should be aware that the only way to keep the unit running when there's freezestat problems is to shut off the outside air. That creates a number of other problems that don't need to be aired in this venue.

As an adjunct to this discussion there is no glycol antifreeze in the chilled water coil. This is a freeze hazard made worse by the packaged chillers sitting outside and being full of water. We note that glycol brings with it penalties in terms of heat transfer and pumping energy. Hopefully this was considered in the design.

Free Cooling

Another reason to introduce glycol to the chilled water system is the need to run the chillers down to low outside air temperatures. The amount of outside air introduced to AHU-6A is limited and fixed at roughly 25%. This is a reheat system that presumably was designed to deliver 55°F air on a design day with a 75°F room temperature. Those conditions yield a room relative humidity of 50% which is normal in the industry.

As a general rule a reheat system would employ “free cooling” when outdoor air temperatures and humidities are appropriate. In its simplest form this would mean use of 100% outdoor air any time the outdoor air temperature was 55°F or below. This generates a huge savings for the building owner and is actually required by model energy codes, including the one recently adopted by our state.

Unfortunately by limiting outside air quantity to 25% the system will need expensive chilled water when low cost outside air could be used instead. In other words the County will have to pay to run chillers when it's cold enough to not need them. Simple mixed air calculations at 55°F mixed air temperature and 75°F room temperature indicate the need to run the chiller down to -5°F outside air temperature. This would require special low ambient controls on the chillers along with glycol.

It appears a decision was made to raise the supply air temperature from 55°F to 65°F. It's not clear if that was a response to the free cooling question. It's not clear if that was meant to be a winter-only setpoint or a year-round setpoint or part of a reset algorithm on the controls. Changing the supply temperature implies that the internal zones in the building can be satisfied by a 10°F rise rather than a 20°F rise at the same airflow. As a general rule a true internal zone doesn't “see” outdoor conditions and needs the same airflow year-round.

Thinking perhaps that a decision was made to operate at 65°F supply air temperature and 80°F room temperature we calculated the need to run the chiller down to 20°F. This creates 60% relative humidity in the space.

We were not privy to the design process or to discussions regarding energy consumption when this system was designed. We do question the lack of free cooling as this will cost the County significant dollars for the life of the building. We further note that control algorithms we received May 4 do not reflect the reality of what the building will require.

Chilled Water System

The chilled water system features a primary-secondary type of approach. There are a pair of “system” pumps, identical in size, that push chilled water out into the system to feed the various air handling units in the complex.

The system pumps are scheduled at 850 gallons per minute (gpm). There is a single Variable Frequency Drive (VFD) feeding power to one or the other system pumps. It appears the intent was to allow only one pump at a time to operate. That shouldn't be a problem with the system pumps as the total connected chilled water load is 825 gpm (which corresponds to 343 tons). The term “connected load” means the scheduled capacity of all the cooling coils in the building summed together and is the theoretical maximum.

It is highly unusual for any system to ever reach the connected load. Load diversity within the building will typically limit the actual load to some percentage of the theoretical maximum. It's extremely difficult to predict what that percentage will be in advance of actual occupancy of the building. Suffice it to say there is plenty of system pump to serve the load as long as it stays below the theoretical maximum.

We have concerns, however, about the chillers in terms of flow and low ambient operation. There are two York air-cooled chillers in the system. These are nominal 230 ton machines with an actual capacity of 203 tons at specified conditions. Each chiller has a pair of screw compressors that can be staged on and off as required by the load. Any given compressor can turn down to about 26 tons.

So a given chiller can function in a stable manner between 203 tons and 26 tons at rated conditions.

At this point we note the absence of free cooling capability on the air handling systems will necessitate chiller operation down to outside temperatures between -5°F and 20°F depending on what combination of room temperature and humidity is required (see “Free Cooling”). We don't have copies of the chiller shop drawings but have been told they can operate down to 30°F. If true, that still leaves a significant problem for the County as chiller operation in low ambient temperatures requires special features on the chiller.

Ideally the County shouldn't have to run mechanical cooling when it's below 55°F outside. The control scheme energizes the chiller system only when outside air temperature is above 55°F as if free cooling was, in fact, provided. Free cooling is not provided. The chillers will need to run most of the winter. Depending on actual winter cooling loads this could well pose a chiller stability problem as well as a utility cost issue.

The chilled water system is currently filled with water. We have been told the intent is to drain the system in the winter. Given the above that is not feasible. Further, draining the system is almost as time consuming as filling it if done properly. We recommend the system be filled year-round with antifreeze to obviate the need for draindown and reduce manpower requirements.

It's not clear if the designers intended the chiller to deliver 42°F water to the system (as specified for the chillers) or to deliver 45°F as specified for the cooling coils. This is a minor issue that we'll neglect in the following discussion. It's cheaper to make 45°F water than to make 42°F water.

The two chillers each have a dedicated chiller pump whose sole function is to take warm water from the system pump discharge and push it through the pertinent chiller where it is cooled ("chilled", if you will). The chilled water is then introduced back into the system piping and sent to the various air handling unit cooling coils.

It's not clear to us if the designer has assumed the actual load on the system would never exceed the capacity of a single chiller. It appears that only one chiller pump can run at a time because of the way they are powered. The control sequence implies this but is somewhat ambivalent. My discussion with the Electrical Contractor reinforced this notion but to state it definitively I'd need to physically check the interior of the motor control center for the various selector switches, contactors, overload devices, bypass switches and wiring downstream of the single VFD that serves the two chiller pumps.

The control sequence includes lead-lag operation of the two chillers with them not operating simultaneously. That's tantamount to saying the chillers are 100% redundant – that a single 203 ton chiller can, in fact, serve the entire building with a connected load of 343 tons. If that's the case then the designer has bet the farm on a diversity factor of 59% (203 / 343). Time will tell if this is realistic. At a total gross square footage of 132,700 this translates to 654 square feet / ton which is closer to an unventilated residence than to similar applications.

Mr. Denny Inman

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May 11, 2006

Perhaps another explanation is the apparent intention to size each chiller at something like 2/3 of the total load. This is not unreasonable but requires both chillers to run at the same time. As currently installed and controlled only one chiller can run at a time.

Now a word about putting VFD's on chiller pumps. All chillers have minimum water flow requirements set by the manufacturer. In this instance the minimum water flow requirement through the York chiller is 272 gpm. This is to be compared with the 501 gpm requirement at specified conditions. In other words the flow can only be reduced from 501 gpm to 272 gpm ($272 / 501 = 54\%$) before the chiller safeties take it off line.

It appears that no control algorithm was included to tell the Temperature Control Subcontractor how to control the chiller pump VFD so they just set it at a fixed frequency corresponding to enough flow to keep the pertinent chiller on line (I don't know if the Test and Balance Subcontractor has determined / listed that flow yet).

If the chiller pumps are going to operate at a fixed speed then the VFD is essentially useless.

We remain very wary of the "one chiller at a time" mode of operation. The chilled water system pump is designed to deliver a maximum flow of 850 gpm while a single chiller can only support it with 500 gpm. If the design intent (albeit not supported by the specified control sequence and the electrical design) was in fact to have both chillers on line at the same time all the time then some revisions would be required to accomplish that goal.

Denny, this is a lot of information. Please advise what, if anything, you want us to do next.

Very truly yours,

GHR ENGINEERS and ASSOCIATES, Inc.

James N. Gleason, P.E.

JNG/jsw

Mr. Denny Inman

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May 11, 2006

Attachments:

- Magic Aire Fan Curve
- Buffalo Forge Pages 268 – 271
- ASHRAE Page 18.7
- Trane Page 22
- Carrier Page 24
- York Performance Rating
- York Temperature and Flows

cc: Corr
Pat Dorsey – PKD (w/Attachments) (E-mail)
Alan Reinhart – Champaign County (w/Attachments) (E-mail)
Larry Kienzler – GHR (w/Attachments)

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GHR Engineers and Associates, Inc.

October 16, 2014 /

Mechanical and Electrical Consulting Engineers

Revised January 19, 2015 / Revised February 17, 2015

6846

Project Name: Champaign County Nursing Home (CCNH)

Meeting Date: July 9, 2014

Meeting Time: 8:30 am

Meeting Location: CCNH

Purpose of Meeting: Review MEP system.

In attendance:

Kirk Kirkland CCAS
 Craig Terven CCAS
 Dana Brenner CCAS (Present for a Portion of this Session)
 Jim Gleason GHR

Topics discussed

1. Smoke dampers and fire dampers are required by IDPH to be tested by the Owner every three or four years.
 - a. Approximately 400 to 500 in the building.
 - b. Many dampers were added during construction.
 - c. Some areas have rated ceilings.
 - d. Companies specialize in this.
 - e. No plan of locations exist.
 - f. Never got as-builts from the A/E.

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The lack of as-builts that document dampers added during the construction phase puts the County at a serious disadvantage when it comes time to test/check them for IDPH compliance.</i>			

<u>Solutions</u>			
<i>Prepare CAD drawings that document the location and size of all fire and smoke dampers using a system reference. This should include the building fire ratings shown on a CAD drawing.</i>		\$8,000 - \$10,000	
<p>2. Sprinklers</p> <p>a. IDPH requires a flow test every three years. An IDPH person opens the “Inspector’s Test” valve and simulates the flow expected from a single sprinkler head. The dry systems are expected to show water “flow” within 60 seconds of initiating the test.</p> <p>b. Failed last time.</p> <p>c. Initially installed by Automatic Fire Sprinkler Company. Then went to Fire Suppression, Inc. for maintenance and testing.</p> <p>d. Different “accelerators” have been installed over the years to increase the speed at which the dry systems fill and flow water. These are intended to allow the air to escape more quickly from the dry systems to make way for the in-rushing water.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The flow response has been unacceptable. This compromises the ability to rapidly extinguish a fire and jeopardizes licensing.</i>			
<u>Solutions</u>			
<i>Hire a sprinkler contractor as a benchmark to properly test all four of the dry systems for flow response times. Test witnessed by Owner.</i>		\$900 - \$900	
<i>If flow response time exceeds 55 seconds then replace the four existing dry valves and accelerators.</i>		\$32,000 - \$32,000	

e. Dry systems except in basement which is wet.			
f. Need yearly maintenance and monthly testing.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
Quarterly testing required by IDPH.			
<u>Solutions</u>			
Hire a qualified Sprinkler Contractor to conduct quarterly tests. \$400 / quarter.		\$1,200 - \$1,200	
<u>Issue</u>			
Yearly testing required by IDPH.			
<u>Solutions</u>			
Hire a qualified Sprinkler Contractor to conduct yearly test. (Note this is in addition to the quarterly tests.)		\$800 - \$800	
<u>Issue</u>			
Flow switch trip testing required every three years by IDPH.			
<u>Solutions</u>			
Hire a qualified Sprinkler Contractor to conduct the three-year tests. (Cost of \$1,200 is annualized for purposes of this report.)		\$400 - \$400	
g. The air compressor that fills the dry systems was too small as-installed and was replaced with a much larger one by the County.			
h. Four dry valve zones (ground floor).			
i. One wet zone (basement).			
j. Pre-action system for elevator.			
k. Could add fire pump to the building to increase water pressure and reduce flow times but they are <u>very</u> costly and would be doubly costly to retrofit.			
l. Very few false alarms.			

- m. The Urbana Fire Department is okay with Fire Department Connection (FDC), knox box, etc. They respond to front desk.
3. Fire Alarm - Edwards EST-2 Network
- a. Installed by Bennet Electronics. (Post-Meeting Note: Bennett informed October 15, 2014 they are no longer selling Edwards products.)
 - b. (Post-Meeting Note: County was told the system was “obsolete”. Discussion with Bennett indicated Edwards set a “sunset date” of July 31, 2014 for the existing EST-2 panel. Technically the system is obsolete in that it is no longer manufactured. This will become an issue if the system malfunctions or is somehow damaged.)
 - c. FE Moran monitors the fire alarm system.
 - d. It is an addressable system.
 - e. FE Moran maintains the system.
 - f. Every two years IDPH requires the Nursing Home to test sensitivity of all the smoke detectors, as well as the overall system itself.
 - g. When constructed, the system had “ground fault” error on main panel. This is a transitory problem that has not been corrected. It comes and goes for no apparent reason.
 - h. There is a drawing of device locations. It’s on an old computer with proprietary software from Edwards. County should have the software and the drawings.

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The inability of the County to access the device drawings complicates maintenance and troubleshooting. Further, it requires the County to depend on a single outdated computer.</i>			
<u>Solutions</u>			
<i>Negotiate with Edwards for purchase of the software. Buy a version that is compatible with typical County-owned computers Cost is estimated. Edwards Representative is Alex Petrovic 630-406-1151, alexander.petrovic@fs.utc.com.</i>			\$5,000 - \$5,000

Replace the Edwards EST-2 fire alarm control panel with a new Edwards control panel. Reprogram. Cost discussed with Alex Petrovic.			\$11,000 - \$14,000
Replace the Edwards system with a Notifier system. Cost is per Bennett October 15, 2014.			\$104,000 - \$104,000
<p>i. Alarm annunciators are located at front desk and each wing by nurses stations.</p> <p>j. The resident rooms have automatic door closers with magnetic hold-opens that release by the fire alarm system. The automatic closers are very expensive. These need to be tested.</p>			
4. Overall training on the various MEP systems never really happened. Turnover negated some of the training that did occur. In other words, individuals were trained but then left County employment which resulted in the training being lost.			
5. Did receive Operation and Maintenance Manuals that cover most of the systems.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
The lack of documentation coupled with turnover precludes any institutional memory.			
<u>Solutions</u>			
Digitize the O & M Manuals if they aren't already digitized. This can be done by an intern.			\$10,000 - \$14,000
Use the O & M Manuals to develop Programmed Maintenance schedules.			\$5,000 - \$7,000
Add notes to the materials developed above that incorporate lessons learned on an ongoing basis.			\$0 - \$0

6. Room numbers changed after completion of the project. The Building Automation System (BAS) graphics shows room numbers that are not the same as the actual numbers. Needs fixed.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Confusion generated by mislabeled room numbers complicates repair efforts, extends response time and opens the door to resident complaints.</i>			
<u>Solutions</u>			
<i>Revise the room names and numbers to correspond exactly with actual designations. (Try to do this at the same time as the fire damper documentation.)</i>			\$2,200 - \$2,200
7. Reduced pressure backflow preventers on the two water services are (domestic and fire) checked every year.			
a. Same for smaller ones.			
8. There is no softener on the water supply to the kitchen equipment. The equipment vendors typically require soft water to warranty their equipment.			
a. City water causing dishwasher and booster heater problems.			
b. The electric booster heater limes up quickly. It cost \$4,000 to \$5,000 to replace it.			
c. The County pays ECO LAB yearly to keep the kitchen equipment functioning. It would cost less if the water was softened.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Failure to soften the hot water supplied to the dishwashing equipment causes premature failure of the booster heater, increased maintenance on the dishwasher and degrades the performance of the dishwasher.</i>			

<u>Solutions</u>			
<i>Install a water softener on the hot water supply piping to the electric booster heater. Price is for 150,000 grains between regeneration, 51 gpm peak. Exact requirements in terms of flow should be determined.</i>			\$7,000 - \$9,000
<p>9. Laundry sanitization.</p> <p>a. Now using ozone to sanitize (this was installed in last six months).</p> <p>b. Bleach is only used on white linens.</p> <p>c. Allows use of cold water which should reduce natural gas consumption. Uses less overall water. Reduces chemical consumption.</p> <p>d. Safety concern - There is no ozone detection in the laundry.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Conversation with Max Redmond indicates he will install ozone detection in the laundry. Ozone exposure is regulated by OHSA. The detector will have dry contacts (1NO and 1NC) that index on alarm.</i>			
<u>Solutions</u>			
<i>Connect the BAS to the alarm and notify maintenance staff of the event.</i>			\$1,000 - \$1,000
<p>e. Using Exceptional Laundry Systems (www.laundrybyozone.com) for the ozone generation system (Max Redmond, 217-398-3710, is the contact).</p>			

10. Water heaters.			
a. One gas-fired water heater in each unit.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>In late January 2015 complaints about lack of domestic hot water led to the discovery that two of the five domestic water heaters were failing. The manufacturer's representative visited the site and determined the two in question are at the end of their service life. The other three aren't far behind.</i>			
<u>Solutions</u>			
<i>Remove the failing heaters and install new heaters. The capacity / recovery rate should be established by calculation. An analysis of heater cost versus efficiency should be conducted before final selection based on a reasonable service life projection. Note the BAS work needed to automatically monitor hot water temperatures and control the recirculation pumps should be done at the same time.</i>		\$90,000 - \$105,000	
b. Recently replaced the one in the basement that serves laundry and kitchen. There are two water heaters plus a large storage tank in the basement that feed the laundry and kitchen. One heater serves as back-up.			
c. Considerably less hot water is required following the switch to ozone disinfection in the laundry.			
11. The TMV's (Thermostatic Mixing Valves) are a problem.			
a. The purpose of the TMV's is to prevent scalding. They are required by State Plumbing Code and by the ADA. None of them hold settings on a continuous basis. Staff has to check temperatures twice a day manually.			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Assigning staff to record water temperatures is costly and relies on humans to take measurements and write them down.</i>			
<u>Solutions</u>			
<i>Automate the temperature measurements at all five of the resident wing TMV's. Use the BAS to monitor and record temperatures. Send "out of limits" alarm to building operators if necessary.</i>	\$8,250 - \$8,250		
<p>b. 110°F setting can't be held. Codes consider temperatures in excess of 110°F to be a burn potential. If no one uses hot water at night the temperature will climb past 120°F. Currently addressing this manually. Have reach 130°F in Alzheimer's unit on occasion.</p> <p>c. The high-low TMV's are very tricky to adjust.</p> <p>d. Check valves on return lines may be causing a problem.</p> <p>e. High maintenance. Have replaced five or six. Always using Leonard products.</p> <p>f. Leonard has been on site to help set up the TMV's. The problem persists and needs to be addressed.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Proper temperature regulation hasn't been achievable with the present set-up. This puts the residents at risk.</i>			

<u>Solutions</u>			
<i>Automate operation of the five pertinent domestic hot water recirculation pumps using the BAS.</i>	\$8,000 - \$8,000		
<i>Analyze sizing of all five TMV's with the manufacturer. Check maximum flow rate, pressure drop and minimum flow rate. Review pipe arrangement at the TMV's and revise accordingly.</i>	\$5,500 - \$8,000		
<p>12. Hydro Therapy Tubs (whirlpools).</p> <p>a. Have "Hydrogard" faucet mixing valves that need 120°F water (which is not available in the facility) to function properly. Can't get proper cartridge. (Note: Apparently these tubs and fittings were provided by the County, according to the construction documents. They were salvaged from the old facility.)</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The mixing valves on these tubs mix hot water and cold water to the desired tub temperature. They won't function properly with the ADA-regulated 110°F "hot water". Efforts to rectify this problem has not been successful.</i>			
<u>Solutions</u>			
<i>Replace all five faucet fittings with new fittings intended to work with 110°F "hot" water.</i>	\$3,800 - \$3,800		
<p>13. Plumbing fixtures.</p> <p>a. Sloan fittings.</p> <p>b. Okay in general.</p> <p>14. Sewage ejector in basement (on generator).</p> <p>a. No issues to date.</p> <p>b. These are duplex pumps but are fed by a single electrical circuit (need on different circuit).</p> <p>c. Serves all basement level drains, including the laundry.</p>			

d. Has local alarm. The alarm is visual and audible. It is not tied into the BAS.			
	<u><i>Life Safety</i></u>	<u><i>Code Compliance to Stay Open</i></u>	<u><i>System Efficiency and / or Reliability</i></u>
<u><i>Issue</i></u>			
<i>A local alarm is installed but will be ineffective if the mechanical room is not staffed.</i>			
<u><i>Solutions</i></u>			
<i>Connect the high water alarm to the BAS. Notify appropriate staff on alarm.</i>		<i>\$1,000 - \$1,000</i>	
15. Sump pump in basement (on generator).			
a. No issues to date.			
b. Like the sewage ejectors these are duplex (need on different circuit).			
c. Has local alarm. The alarm is visual and audible. Not tied into the BAS.			
	<u><i>Life Safety</i></u>	<u><i>Code Compliance to Stay Open</i></u>	<u><i>System Efficiency and / or Reliability</i></u>
<u><i>Issue</i></u>			
<i>A local alarm is installed but will be ineffective if the mechanical room is not staffed.</i>			
<u><i>Solutions</i></u>			
<i>Connect the high water alarm to the BAS. Notify appropriate staff on alarm.</i>		<i>\$1,000 - \$1,000</i>	
16. Interceptors.			
a. A single grease interceptor for kitchen (located outside by the dock). This needs cleaned at regular intervals to keep the kitchen functioning. Currently this interceptor is cleaned twice a year by the Berg Company.			
b. Special waste interceptor for dental (located in basement mechanical area).			
c. Lint separator (located in laundry area in the basement).			
17. There is an oil / water separator outside near the dock area.			
a. The need for this needs to be explored. It's causing problems.			

<p>b. Fills with trash that spills from compactor. The loading dock is cleaned periodically by maintenance staff. It is a never-ending job.</p> <p>c. Need basket before the separator or someway to easily remove solids before they reach the separator.</p> <p>d. The dock floods. This is due in part to the separator getting clogged.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Dock flooding has damaged the garbage compactor, spreads loose trash around the area and prevents use of the dock.</i>			
<u>Solutions</u>			
<i>Develop and monitor a program to keep the dock area clean and free of trash and debris.</i>			
			\$0 - \$0
<i>The separator is thought to be not required by the Illinois State Plumbing Code. Verify this with the State Plumbing Inspector. Assuming the separator is not required, it should be removed.</i>			
			\$2,700 - \$2,700
<p>18. Storm water drainage.</p> <p>a. The site is relatively flat. The building floor elevation is only a few inches above ground.</p> <p>b. There are no gutters on the majority of the building. Rainwater runs to grade where it has to find its way to catch basins.</p> <p>c. Surface water runs across sidewalk by generator where it's low. Tried tile. Tried French drain. That didn't work. Creates a dangerous ice problem in winter. Two people fell. Ice gets 2" thick. The sidewalk needs to be elevated and the water problem needs to be addressed.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The low spot in the sidewalk is a safety hazard when its ice-covered.</i>			

<u>Solutions</u>			
<i>Raise the sidewalk enough to keep water off it.</i>		\$2,300 - \$3,500	
<i>Install a properly-sized catch basin on the upstream side of the sidewalk to drain water away before it gets to be a problem.</i>		\$4,000 - \$5,000	
<p>d. Water leaks into control conduit that feeds the chiller and runs into the basement.</p> <p>e. Basement has drainage tile around it. On this day a steady stream of water was flowing from the tile into the sump pump.</p> <p>f. Ground water occasionally seeps into the service conduits and then leaks into the building.</p> <p>g. The utility transformer reportedly stays above water. (Post-Meeting Note: In the very heavy rain of July 12, 2014, this area flooded and water did reach the utility transformer.)</p> <p>h. Try to reduce both surface water groundwater build-up by adding gutters and downspouts that are piped directly to the storm sewer system.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The massive quantity of rainwater coming off the roof onto the ground is creating problems with surface drainage that exacerbate ground water infiltration into electrical conduits.</i>			
<u>Solutions</u>			
<i>Install gutters on the entire building and pipe them directly into the storm sewers. This assumes the existing storm sewers can handle the flow.</i>		\$98,200 - \$127,600	
<p>i. The catch basins on the site are small diameter, pre-fab fiberglass. It is impossible to get in them to clean them or remove anything that might fall in or impede water flow.</p> <p>19. Reportedly this building originally was intended to be LEED-certified. Apparently that fell by the wayside due to cost concerns.</p> <p>20. DWV (Drain Waste and Vent) piping.</p> <p>a. Certain kitchen drains overflow and occasionally flood space below.</p> <p>i. Dishwasher primarily causes this.</p>			

ii. Drains are currently open site per IDPH and health code.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The "open site" drain connections are unable to keep up with the instantaneous flow from the dishwasher and from the three compartment sink.</i>			
<u>Solutions</u>			
<i>Work with the State Plumbing Inspector and local Health Department to review the potential to direct the three compartment sink while using adjacent floor drain to "protect" against sewage back-up.</i>	\$4,100 - \$4,100		
<i>State Plumbing Code specifically prohibits hard-piping a dishwasher. The only solution is a larger floor sink if the discharge rate of the dishwasher can't be slowed.</i>	\$4,900 - \$4,900		
b. Basket strainers need periodic access.			
i. One is inaccessible (at prep table).			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The inaccessible basket strainer gets clogged up and results in sewage running on the floor in the kitchen.</i>			
<u>Solutions</u>			
<i>Remove the inaccessible drain. Direct-connect the prep table and provide a floor drain at the prep table to an easily accessible location. Work with State and Local Plumbing Inspectors and local Health Department in advance.</i>	\$4,100 - \$4,100		

21. Walk-in freezer and cooler.			
a. Light fixtures collect water inside. Lack seals on the conduits to prevent infiltration of humid air.			
	<u><i>Life Safety</i></u>	<u><i>Code Compliance to Stay Open</i></u>	<u><i>System Efficiency and / or Reliability</i></u>
<u><i>Issue</i></u>			
<i>Humid air is drawn into the electrical conduits by the difference in vapor pressure. It then condenses water inside the sealed light fixtures where it can't escape.</i>			
<u><i>Solutions</i></u>			
<i>Seal the conduits outside the coolers to prevent the passage of moisture-laden air.</i>			<i>Fixed 01/15/15</i>
b. The walk-ins both have insulation under them. Had to be added during construction. The insulation prevents frost heaving under the freezer.			
c. The seals on the freezer apparently were not properly re-installed after the freezer was taken apart and then re-assembled following the addition of the insulation.			
d. Polar Refrigeration out of Urbana does maintenance.			
22. Water piping.			
a. There is a domestic water pressure booster system in the basement. It's entirely possible this system is not needed.			
	<u><i>Life Safety</i></u>	<u><i>Code Compliance to Stay Open</i></u>	<u><i>System Efficiency and / or Reliability</i></u>
<u><i>Issue</i></u>			
<i>The booster pressure system represents an investment and energy that may not be necessary.</i>			

<u>Solutions</u>			
<i>As an experiment manipulate the valves to bypass the booster system and turn it off. Operate on utility water pressure only on a temporary basis. Monitor system water pressure. If pressure and flow are acceptable then leave the booster system off and save the energy.</i>			\$0 - \$0
<p>b. "Corrosion" reported at water heater connections.</p> <p>i. Been repiped a couple of times.</p> <p>ii. Plumbers doing the repiping work have suggested a thin wall type of copper pipe was used. Thicker wall pipe is available.</p> <p>iii. Leaks caused by pin hole pitting at elbows. Mostly in Adult Day Care.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Pinhole leaks are generally caused by "erosion corrosion". This is caused by localized high velocities which means too much flow in too small of a pipe.</i>			
<u>Solutions</u>			
<i>Analyze pipe velocities at areas with a history of pinhole leaks. Upsize piping and / or reduce flow to keep velocities low enough to preclude erosion.</i>			\$2,500 - \$6,000
<p>23. Natural gas service is from Ameren.</p> <p>a. Piping is black steel.</p> <p>b. There are no alarms on the system for leaks. Alarms are not typically installed for natural gas as the tracer (mercaptan) is easily detectable by the human nose.</p> <p>24. Boilers</p> <p>a. Have four "Pulse" boilers manufactured by Fulton. Minimum input per boiler is 400,000 Btuh / maximum input per boiler is 2,000,000 Btuh. One is non-functional and can't be repaired due to internal carbon / soot build-up caused by ingesting and burning airborne lint.</p> <p>b. Lint destroyed that boiler completely and is wrecking the remaining three boilers.</p>			

- c. Needed all three of the remaining boilers to heat the building last winter so had no back-up. This is highly undesirable. Another boiler failure will leave the facility without adequate heat.
- d. Boiler panel now communicates with BAS as a monitor point only. Can't adjust remotely.
- e. Currently do not have reset of hot water temperature based on outdoor air temperature. This feature should be added to conserve energy.
- f. Reheat and perimeter heat are the same system.
- g. Combustion air intake pipes, which are intended to draw air from outside the building, have been opened to inside the building to avoid ingesting lint. This totally negates the advantage of closed combustion boilers by using room air for combustion. When the lint problem is solved these pipes should be reconnected to outside to conserve energy.
- h. Pulse boilers are very efficient at lower water temperatures but have proven extremely vulnerable to the lint.
- i. The pulse boilers are noisy and cause noise issues in space above. The noise is detected mostly by staff.
- j. The boiler burner pre-purge control cycle dumps natural gas smells in courtyard. This raises health and safety concerns for people in the courtyard.
- k. The boilers will be more efficient at lower temperatures. (It is believed they operate at a fixed temperature of 180°F. This totally negates the advantage of condensing-type boilers.)
- l. Have local CO (carbon monoxide) alarm in the boiler area. It's not connected to the Building Automation System.

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>While CO is typically not an issue with closed-combustion equipment there is a small potential for problems that is not monitored.</i>			
<u>Solutions</u>			
<i>Install remote carbon monoxide sensors in the boiler room and in the clothes dryer chase. Connect them to the BAS.</i>	\$2,800 - \$2,800		

<u>Issue</u>			
<i>Lack of hot water reset prevents the boilers from ever operating at temperatures lower than 180° F where they are more efficient. Temperature can't be adjusted remotely.</i>			
<u>Solutions</u>			
<i>Install hot water reset on the DDC control system. This will require an interface card between the DDC and the boiler control panel to facilitate.</i>			
			\$7,000 - \$9,000
<u>Issue</u>			
<i>Recent winter weather required all three of the remaining functional boilers to heat the building. There is no spare in the event of an outage.</i>			
<u>Solutions</u>			
<i>Replace the failed boiler with a new, condensing-type boiler. The County will need to decide if they want another Fulton boiler. Note such a boiler will fit in the available space. Boilers made by other manufacturers may not fit. Cost is for one boiler. Note: <u>Must</u> have lint problem fixed.</i>			
			\$80,000 - \$95,000
25. Chemical treatment.			
<ul style="list-style-type: none"> a. Both the heating hot water and the chilled water systems have "pot" feeders to allow chemical treatment. b. Currently there is no treatment of either system. Currently there is no freeze-protective glycol in the chilled water system. c. An effective chemical treatment regimen needs to be established. Evidence at one of the pipeline drains suggests the circulating water is filthy. d. Recommend engaging Garratt Callahan Company to analyze the condition of the water and recommend a treatment program. (Kurt Harper 309-287-1206.) 			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The circulating water systems need to be kept clean for optimum heat transfer. Water chemistry needs to be regulated to minimize corrosion and minimal deposition.</i>			
<u>Solutions</u>			
<i>Flush both systems with fresh, clean water until the systems are clean. This includes pipeline strainers and pump strainers. Once the systems are clean use the pot feeders to implement a chemical treatment regimen with a reputable firm that specializes in that work.</i>			\$14,400 - \$14,400
<p>26. Have two HW (hot water) heating pumps.</p> <ol style="list-style-type: none"> The two pumps share a single VFD (variable frequency drive). It's built into the motor control center. If that single VFD fails the heating pump will be difficult, if not impossible to operate and, if it does operate, will have no running overload protection. Pump HWP-1A had a bearing problem in the motor on day of walkthrough (July 9, 2014). The motor with the bearing problem is a Baldor Super E catalog no. EM2513T. It's not clear if this motor is VFD rated. One pump will carry the heating load. Note: a pump needs to run year-round because the facility employs reheat systems that must have hot water to avoid overcooling in the summer. <p>27. No issues with hot water heating piping now that strainers have removed most of the construction dirt out the system. (See comment above regarding chemical treatment.)</p> <p>28. Not a lot of "spot heating." Mostly forced air.</p> <p>29. VAV / RH (Variable Air Volume with Terminal Re-Heat) systems are employed in the core. This is not a resident room area. It is predominantly offices and program spaces.</p> <ol style="list-style-type: none"> Multiple offices are grouped together on single zones. These types of systems do a good job of conditioning the spaces albeit at a high cost in energy. 			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>High energy costs are typical of VAV / reheat systems.</i>			
<u>Solutions</u>			
<i>The energy costs can be reduced by employing sophisticated control strategies. These include static pressure reset , supply air temperature reset, and demand-controlled ventilation (based on carbon dioxide levels).</i>			\$21,000 - \$21,000
<p>30. Residence rooms each have their own reheat coils.</p> <p>a. Coils are located above the ceilings. They are not inspected or cleaned unless a problem is detected. There are around 170 resident system reheat coils and around 35 reheat coils on VAV boxes.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Proper reheat coil performances cannot be achieved or maintained with dirty coils.</i>			
<u>Solutions</u>			
<i>Implement a Programmed Maintenance schedule to inspect he coils once a year and clean them when necessary. This will improve temperature control and reduce energy consumption.</i>			\$9,000 - \$12,000
<p>b. These coils need cleaned to work properly and allow proper airflow.</p> <p>i. Filtration is a very important factor in keeping downstream components like heating and cooling coils clean.</p> <p>ii. Filters in the Magic Aire air handling units are changed every three months.</p> <p>c. With the exception of a couple rooms the resident rooms heat okay. These two rooms are both at the ends of their respective systems so this is thought to be an airflow / balancing issue.</p>			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>These two rooms need proper temperature control to keep the residents and their families happy.</i>			
<u>Solutions</u>			
<i>Investigate airflow to the pertinent two rooms as well as hot water flow to the pertinent reheat coils. Address any shortfalls accordingly.</i>			\$3,000 - \$7,000
<p>31. The two VAV air handling units have heating coils. No issues reported.</p> <p>32. Chillers</p> <p>a. Two York packaged air-cooled chillers are located on grade at some distance north from the building.</p> <p>b. One compressor is failing and hasn't run "for years". Needs fixed (\$50 K). Reportedly there is copper in crank case oil. Mike Schum Entec.</p> <p>c. There are two compressors / chillers, so if one compressor is non-functional, the chiller operates essentially at 50% of nominal capacity.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>With one compressor out, the system is reduced to 75% capacity. If and when another compressor fails, the system very likely will not be able to cool a building full of old people.</i>			
<u>Solutions</u>			
<i>Repair or replace the failing compressor.</i>		\$53,000 - \$53,000	
<p>d. Have service contract with Entec.</p> <p>e. There is plain water in these chillers and in the chilled water system.</p> <p>i. The lack of glycol (anti-freeze) was a bone of contention with the design A/E who didn't want the modest reduction in system efficiency that results from adding glycol.</p>			

<p>ii. The design A/E added heat tape to the chillers and exposed chilled water piping. They also added a control system to operate the chilled water pump if the exposed piping got too cold and turned on an alarm.</p> <p>f. Froze a chilled water coil in the VAV AHU last winter that cost approximately \$8,000 material only. Labor was expected to be around \$4,000 for a total repair on the order of \$12,000. The outdoor air damper actuator broke and let too much cold air into the unit.</p> <p>g. Used to drain the systems, but had issues with dirty water and with the expense to drain and refill several times a season, so quit draining it and relied on the heat tape to protect the chiller evaporator barrels and piping from freezing.</p> <p>h. The chillers have to run in colder temperatures than normal since MagicAires don't have free cooling. This needs a second look.</p> <p>i. Glycol should be added to the chilled water system to protect against freeze-up. There is a modest performance penalty to operate with glycol but that penalty is offset by the cost to repair accidental freeze-ups.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Chilled water is subject to freezing conditions in the air handling units when controls malfunction. Further, anything that compromises the heat tape exposes the chillers and the piping to freeze-ups that are very costly to repair.</i>			
<u>Solutions</u>			
<i>Flush the entire chilled water system with clean water. When the system is clean, refill it with a 30% solution (by volume) of corrosion-inhibited ethylene glycol. Monitor inhibitor concentrations as part of the chemical treatment program recommended elsewhere.</i>		\$18,000 - \$21,000	
<p>j. The condenser coils on both chillers are packed with dirt and need to be cleaned to develop full capacity at best efficiency. At a minimum these coils should be cleaned twice a year. It's not clear why these aren't being cleaned under the service contract. (Post-Meeting Note: It was subsequently reported that Entec has cleaned the condenser coils.)</p>			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The condenser coils on the chillers exchange heat with the atmosphere. Like the radiator on a car they rely on the free flow of air for that exchange. Coils packed with dirt are seriously compromised. This has a major impact on energy consumption.</i>			
<u>Solutions</u>			
<i>Implement a Program Maintenance program and clean these coils. Use quarterly intervals to begin and adjust according to conditions. Cost is per year.</i>	\$1,300 - \$2,200		
33. AHU-3 (VAV) runs with supply fan on VFD variable speed control, but with the return fan RF-3 on manual speed control. This mode of operation will create airflow and pressure imbalances. The building operators need training on setting up the VFD's.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Airflow imbalance leads to decreased comfort, odor transfers, and increased energy consumption.</i>			
<u>Solutions</u>			
<i>Repair the VFD for RF-3 and troubleshoot the controls to restore automatic controls.</i>		\$3,000 - \$3,000	
34. AHU-5B (MagicAire) was reported to continually blow fuses on one of the three phase conductors. (Post-Meeting Note: Subsequent transformer replacement in the starter coupled with discovery and replacement of a nicked wire appears to have resolved the fuse blowing problem.)			
a. The contactor chatters. The unit only runs on "manual." It won't run under automatic control. 7 amp load, 15 amp fuse.			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The inability to run on "hand" puts the system at the mercy of the "automatic" controls. If the automatic functions fail, then the residents will have no heating or cooling.</i>			
<u>Solutions</u>			
<i>Troubleshoot the electrical aspect of these controls. Check voltage and the coil. Check the contactor, etc.</i>			Completed 01/15/15
35. Kitchen has heating-only MUAU (Make-Up Air Unit) on roof. <ul style="list-style-type: none"> a. Interlocked with range hood and dishwasher. b. Gas-fired. c. This unit ingests lint from the dryers and needs continual attention to the filters. 			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The underlying issue is the lint. See below. Any lint that makes it past the filters gets blown into the kitchen.</i>			
<u>Solutions</u>			
<i>Continue to change filters with properly fitting products. Assume quarterly changes.</i>			\$800 - \$1,100
36. Kitchen has heating / cooling unit on roof (RTU-1). <ul style="list-style-type: none"> a. The condenser fins are shot. They're brittle and have lost proper contact with the tubes. (There is a suggestion that cleaning solution used to remove lint may have caused this damage.) 			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The conditions of the condenser coil fins suggests the ability of this unit to cool the space is seriously compromised.</i>			
<u>Solutions</u>			
<i>Have a competent refrigeration mechanic test heat transfer at the condenser coil. If, as suspected, the coil is shot, then replace the coil (In the alternate, replace the entire unit). Cost is for condenser coil.</i>			\$5,000 - \$6,500
b. This unit has had filter issues. Due to the lint problem the air filters absolutely must fit properly to protect the cooling coil from lint build-up.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Improperly-fitted filters will allow lint to deposit on the cooling coil where it chokes off airflow and reduces efficiency.</i>			
<u>Solutions</u>			
<i>Address the lint problem.</i>			\$0 - \$0
<i>Institute Programmed Maintenance on the filters to ensure properly fitted filters that are clean are in place at all times. Assume quarterly changes.</i>			\$800 - \$1,100
c. Reportedly, getting 40° temperature drop in cooling but that's not enough to keep the kitchen cool when it's 95° OAT (this may be due more to reduced airflow than anything else).			
d. It is assumed that kitchens are hot places and this kitchen will be hot even with this unit performing at its maximum output.			
37. Laundry has its own air handling unit AHU-9. This is a MagicAire unit. No issue reported with this system other than the unsuitability of MagicAire equipment. Proper operation of this unit is particularly important now that the laundry uses ozone.			
38. AHU-8 serves basement. This is a reheat system with duct-mounted coils. The air handling unit is a MagicAire. No issues reported with this system other than the unsuitability of MagicAire equipment.			

<p>39. VAV AHU-3 serves east half of core. The AHU and RF are located in the basement by the laundry.</p> <p>a. Motors that are powered by VFD's need special ratings to prevent premature bearing failure.</p> <p>b. This is the unit that has the chilled water coil freeze-up.</p> <p>40. AHU-2 (VAV / RH) serves dining room and adjacent spaces. The AHU and F are located in the basement northeast corner.</p> <p>a. Just replaced RF-2 motor. Not clear if it was inverter-rated.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Motors powered by Variable Frequency Drives need a special rating to prevent premature bearing failure or winding failure. Motor failure this soon suggests the need for investigation.</i>			
<u>Solutions</u>			
<i>Motor data from the VAV systems should be checked to see if they are "Inventor Rated" or "VFD enabled" or something similar. When existing motors reach the end of their service life, they should be replaced with motors expressly sold as suitable for this use.</i>			
<p>41. Magic Aire air handling units typically serve the resident rooms.</p> <p>a. These units are not suitable for this application. The manufacturer does not warrant them for this application.</p> <p>b. Experienced bowed casing problems due to excessive negative pressure.</p> <p>c. Condensate drains not properly installed because there isn't adequate elevation of the pans above the floor. This causes occasional overflows of the pans.</p> <p>d. Broke bearing brackets on some of the Magic Aire's.</p> <p>e. The original A/E added in-line return fans (RF's) and modified the ductwork as part of a negotiated settlement with the County after the MagicAire units were unable to move required airflows. The "return fans" are more correctly denoted as return air assist fans.</p> <p>f. The Magic Aire systems were then re-balanced to meet IDPH airflow requirements.</p>			

<p>g. Access to the Magic Aire units and to the retrofitted return fans is very difficult (some through shower rooms).</p> <p>h. The air filters in these units are Viskon Corp 16" x 25" x 2" rated for 700 cfm with a MERV rating of 13 (80 to 90% efficiency).</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The MagicAire units are totally unsuitable and are already failing. The booster fans are an unwanted complication.</i>			
<u>Solutions</u>			
<i>Replace the MagicAire air handling units with institutional grade equipment intended for this application. Remove the booster fans. Cost is for construction only. This will be difficult.</i>			\$315,000 - \$360,000
<p>42. Resident room toilet exhaust fans generally okay. There's approximately nineteen of them.</p> <p>a. There is no energy recovery from these fans.</p> <p>b. No issues reported with these fans.</p> <p>43. Range hood exhaust system.</p> <p>a. Hood is exhaust only (i.e., no short-circuit provisions).</p> <p>b. Need grease ducts cleaned every six months (hood as well). Had to add at least one access door to the grease duct to allow cleaning.</p> <p>c. Has Anusl dry chemical fire suppression system.</p> <p>d. Cooking equipment can now be manually shut down. Two emergency stop switches to shut all equipment off were added after a fire in the wall resulted in an unintended release of the Anusl system chemicals.</p> <p>e. Grease filters cleaned when needed by a third party (as opposed to kitchen staff).</p>			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Clean grease filters keep the exhaust duct and exhaust fan cleaner, which increases safety and reduces the cost to clean the duct and fan.</i>			
<u>Solutions</u>			
<i>Task the kitchen staff with removing, cleaning and re-installing (perhaps nightly) the grease filters at regular intervals.</i>			\$0 - \$0
<p>44. Dryers</p> <p>a. Lint screens are cleaned by laundry staff every second or third use. There's a differential pressure switch that senses if the screens are loaded with lint and prevents the dryers from operating until the screens are cleaned.</p> <p>b. Staff keeps the lint screens clean since it takes longer to dry the laundry when screens are dirty.</p> <p>i. Significant quantities of lint get through the screens, go up the vents, and are deposited on the roof.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The lint emissions on the roof have ruined one boiler and are in the process of ruining the other three. The condenser coil on the RTU serving the kitchen was ruined when attempts were made to get the lint off it. Lint deposition on RTU and MUAU filters is costing serious money to address.</i>			
<u>Solutions</u>			
<i>Install an automatic lint filtration device on the roof to capture the lint. Project cost is listed and is based on scope identified in "Lint Remediation Study" dated December 5, 2012.</i>	\$230,000 - \$322,000		

<p>c. Staff cleans the fan wheels manually to keep them from getting out of balance.</p> <p>d. The dryers have provisions to clean the wheels automatically but there is no source of compressed air. This came up during construction and someone made the decision to not buy a compressor for this purpose.</p>			
	<u><i>Life Safety</i></u>	<u><i>Code Compliance to Stay Open</i></u>	<u><i>System Efficiency and / or Reliability</i></u>
<u>Issue</u>			
<i>Lack of an air compressor dedicated to keeping the dryer wheels clean and in balance automatically requires valuable staff time to do it manually.</i>			
<u>Solutions</u>			
<i>Provide a dedicated air compressor (DO NOT use the dry sprinkler system air compressor!). Pipe to the dryers per written instructions.</i>			\$3,000 - \$4,000
<p>e. The dryers have internal sprinkler heads to extinguish a fire in the drum. These were never connected to anything. These heads would not be considered part of the required building sprinkler system.</p>			
	<u><i>Life Safety</i></u>	<u><i>Code Compliance to Stay Open</i></u>	<u><i>System Efficiency and / or Reliability</i></u>
<u>Issue</u>			
<i>The dryer could be damaged if a fire develops in the drums.</i>			
<u>Solutions</u>			
<i>Provide a water connection to the internal sprinkler head per written instructions. Install a single flow switch and wire to the BAS.</i>			\$2,000 - \$2,400
<p>f. Milnor is manufacturer. Loomis Bros out of Peoria does repair and maintenance.</p> <p>g. Can't clean the dryer vent "pipe" that goes through the roof since there's no access into those vents. (This is addressed in "lint filtration" above.)</p> <p>45. Controls</p> <p>a. Originally installed as Honeywell Tridium direct digital control (DDC) system.</p> <p>b. System taken over by Entec (Peoria - Steve O'Crasky).</p>			

<p>c. The front end program hasn't been receiving yearly updates and is several revisions behind.</p> <p>d. There currently is no service agreement between Entec and the County for the DDC system.</p> <p>e. Operators report they don't have a lot of control. This is a training deficiency as Steve O'Crasky reports the operators have access to setpoints.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Inability to change set-points and control variables reduces the effectiveness of the control system and costs the County money to hire Entec to make changes.</i>			
<u>Solutions</u>			
<i>Work with Entec to train qualified County staff how to change set-points and control variables. Training must be documented for the benefit of future County Staff.</i>			\$0 - \$3,000
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The programs driving the control system needed to be upgraded at periodic intervals to remain effective.</i>			
<u>Solutions</u>			
<i>Catch up with the various upgrades that have been deferred since the system went into operation.</i>			\$2,000 - \$5,000
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>The HVAC system employs reheat strategies throughout the building. Such systems produce excellent temperature and</i>			

<i>humidity control but at the cost of high energy consumption for both gas and electricity. Implementing sophisticated control strategies that minimize overcooling and reheating will save considerable dollars.</i>			
<u>Solutions</u>			
<i>Conduct a detailed audit of energy consumption along with all the systems that consume that energy. Identify the costs to implement those strategies. Explore possible incentive payments available from DCEO. Cost listed is for the energy audit.</i>			\$6,000 - \$8,000
f. Entec reported the thermostats in the shower rooms have been problematic. The thermostats contain the circuitry that controls the associated reheat coils. Their location in a humid / wet environment results in corrosion failures and loss of control.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Improperly applied thermostats in the shower rooms fail prematurely in that wet environment.</i>			
<u>Solutions</u>			
<i>Install the controllers in dry areas and use remote bulb sensors in the shower rooms that are suitable for the environment. Seven locations.</i>			\$4,500 - \$6,000
g. Recently lost remote access function. This is thought to be an issue with the County network as opposed to a DDC issue. (Post-Meeting Note: Remote access function has been restored.)			
h. Have good graphics.			
i. There are no pneumatic controls anywhere in this facility (which is good!).			
j. Need training for current staff. This is an ongoing issue. The staff who originally received training are no longer working at the Nursing Home.			
k. Have night setback that is not used. This is only valuable in core / staff areas. The residential wings are not suitable for night setback. It should be implemented as an energy efficiency issue.			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>An opportunity to save energy is being missed by not employing setback in the core/people areas.</i>			
<u>Solutions</u>			
<i>Put the night setback (aka program control) into operation in these areas.</i>			\$200 - \$200
<p>I. Steve O'Crasky is reportedly hard to reach. This results in delays addressing problems. (Post-Meeting Note: This may be due to the lack of service contract with Entec.)</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Delays in response time antagonizes residents and their families. Delays in response time put the facility at risk.</i>			
<u>Solutions</u>			
<i>Discuss the matter with Entec service representatives and explain expectations.</i>			\$0 - \$0
<i>Assuming a satisfactory relationship exists with Entec hire them on a service contract to periodically test and correct defects.</i>			\$8,000 - \$20,000
<p>46. Electric service is from Ameren.</p> <p>a. Underground primary conductors feed a pad-mounted transformer located north of the dock. It's perilously close to an area that routinely floods. Staff reports the transformers have not been flooded to date. It is important that site drainage be addressed to prevent problems.</p> <p>b. Service conductors from the transformers are conduit and wire underground to main switchboard.</p> <p>47. The Main Switchboard (MSB) is in the basement.</p> <p>a. 2500 amp, 277/480 volt, 3 phase, 4 wire</p> <p>b. Has a single main breaker.</p>			

<p>c. All breakers, including the main, have ground fault protection.</p>			
<p>48. Post-Meeting Note: Staff reports lightning damage August 25 - 26, 2014 that involved delayed egress door control circuit boards, nurse call system and fire alarm system door releases. These are all noted as fed from 120 / 208 volt panels.</p>			
<p>a. No building is immune to lightning strikes or lightning-induced failures.</p>			
<p>b. Near-misses or cloud-to-cloud strikes can induce voltages in building wires and systems without ever touching them.</p>			
<p>c. Voltage spikes caused by lightning on incoming power lines are hard to catch / clamp before they travel to vulnerable systems.</p>			
<p>d. The Main Service Board (MSB) distribution panel appears to have a Transient Voltage Surge Suppressor (TVSS) that was intended to intercept surges coming in from the utility.</p>			
<p>e. The sprawling one-story floor plan of the facility guarantees long lengths of electrical feeders downstream of the MSD that are vulnerable to induced over voltage.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Lightning-caused voltage surges cause thousands of dollars in damage.</i>			
<u>Solutions</u>			
<i>Search for a pattern of damage. Make sure stepdown transformers are properly grounded. Make sure the neutrals of the 120 / 208 volt panels are properly bonded. Assuming all is well install high quality TVSS devices on the 120 / 208 volt panels that feed the affected loads. These appear to be the "CCK" panels. The TVSS devices should be high quality similar to Square D "Surelogic". Assume six panels.</i>			\$6,000 - \$9,000
<p>49. There are three open-transition Automatic Transfer Switches (ATS) in the Main Switchboard. These correspond to the three branches of emergency power.</p>			
<p>a. Critical Care branch</p>			
<p>b. Life Safety branch</p>			

c. Equipment power branch			
50. Post-Meeting Note: On September 11, 2014, the generator was started and run under load in a scheduled test. Staff experienced great difficulty transferring back to utility power. GFI-protected main breakers for both the life safety and the critical care branches tripped reportedly before reset could be accomplished successfully. Nurse call system components (transformer in the power supplies) were damaged in this process.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>This is thought to be a problem with the open-transition automatic transfer switches. It appears utility power is re-established slightly out of phase with generator power.</i>			
<u>Solutions</u>			
<i>Involve an electrical engineer and the ATS manufacturer (Asco) to develop a thorough understanding of the problem and how to fix it. Worst-case this would involve replacing the three automatic transfer switches with</i>		\$3,000 - 60,000	
51. When the building was put into operation, Coleman Electric had to reset the sensitivity on the Life Safety ground fault interrupter to prevent nuisance tripping but it didn't solve the problem completely. This needs to be investigated and fixed.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>"Nuisance tripping" means the circuiting takes the life safety power off-line for no apparent reason. This compromises the safety of all the building occupants.</i>			
<u>Solutions</u>			
<i>Hire a qualified electrical contractor to systematically evaluate everything that is fed by the Life Safety panel LSC. Find the offending load and fix it. (It may be a setting issue.)</i>		\$400 - \$2,400	

Perform a gfi coordination study to ensure a problem downstream of the branch switches in the Main Switchboard doesn't take the main switch (i.e. the entire building) off-line.		\$1,200 - \$3,000	
<p>52. 750 KW Generator is located outside, north of the dock.</p> <ul style="list-style-type: none"> a. Diesel with underslung fuel tank. b. Load tested once a year. c. Exercised once a month for thirty minutes. d. ATS indexed to put loads on the generator. e. Need to test batteries monthly. 			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
The lead/acid batteries require maintenance while the gel cell batteries are "maintenance-free."			
<u>Solutions</u>			
Replace the lead/acid batteries with gel cell batteries when the lead/acid batteries reach the end of their life.			Completed 01/15/15
<ul style="list-style-type: none"> f. The engine is reportedly quite loud. <p>53. Kitchen equipment occasionally trips on overload or gfi. This is not thought to be a major problem.</p> <p>54. Need training on VFD's (Variable Frequency Drives). Staff lacks the training to set up, adjust or troubleshoot them.</p> <ul style="list-style-type: none"> a. The drives power numerous pieces of equipment that are essential to building operation. b. The VFD's are tied into Entec DDC system. c. The VFD's are manufactured by GE. It appears most of them are built into motor control centers. d. Bill Heinz from Davis-Houk Mechanical normally does maintenance on the VFD's. 			

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Inability of County staff to troubleshoot the drives increases response time to problems and requires the County to rely on outside vendors.</i>			
<u>Solutions</u>			
<i>Obtain documentation on all the drives. Have a product service representative come to the site and train County staff. Document the training for future use.</i>		\$400 - \$800	
<p>55. Lighting is primarily 277 volt with T8 lamps.</p> <p>a. No occupancy sensors were installed as this building was constructed prior to adoption of energy codes that now require occupancy sensors.</p> <p>56. Emergency lighting is provided by standard light fixtures that are on 24 x 7. These fixtures are powered by the Life Safety branch of the generator.</p> <p>57. CCTV Surveillance Camera system (installed by Bennett Electronics).</p> <p>a. Camera coverage at exterior doors.</p> <p>b. Exterior camera coverage at delayed egress doors.</p> <p>c. Exterior camera coverage in courtyard.</p> <p>d. Camera coverage in kitchen.</p> <p>e. System is currently full (i.e., won't accept new cameras). There are 14 cameras now.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Want 22 new cameras.</i>			
<u>Solutions</u>			
<i>To serve.</i>		\$83,000 - \$90,000	

- f. System is monitored at:
 - i. Front door reception area.
 - ii. Unit 2 nurse desk.
 - iii. Admin area.
 - iv. Maintenance office.
 - v. Control room (not sure where this is).
 - g. Records are kept for twenty-eight days.
 - h. Preparing for wireless.
58. Replace outdated analog CCTV system with new IP-based (Internet Protocol = IP) system that provides better access and ability to add additional cameras. Replace the lead end. Provide an encoder to incorporate some of the existing cameras. Replace the exterior PTZ (Pan Tilt Zoom) cameras with IP-based models. Provide certain new cameras. Cost is based on Bennett October 15, 2014 proposal.
59. Door alarm system (installed by Bennett Electronics).
- a. All exit doors are alarmed.
 - b. Crash bars with microswitches are very expensive.
 - c. Have card key readers on certain doors.
 - d. Craig Terven prints the cards.
 - e. Delayed egress doors tied into this system.
 - f. Certain doors have physical keys.
 - g. The IdentiPass Software is functional, but hasn't been updated. It is now outdated and can't be replaced. (Per Bennett October 15, 2014.)
 - h. The series 9000 door hardware is now obsolete as well according to Bennett October 18, 2014. Apparently the hardware can be used in a new system.
 - i. No back-up at this point. If the system crashes the control function is lost.
 - j. Running on original computer. It is outdated as is the computer operating system.
 - k. The entire door alarm system needs updated with software that allows the system to run on the County network.

	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Outdated software and the inability to run that software puts the system at risk.</i>			
<u>Solutions</u>			
<i>Replace head end controller and field panels with new Premisys system. Re-use all field equipment, locking hardware, power supplies and all existing field cabling. Provide new software with license to the County. Software must be compatible with any "standard" County-owned computer. Provide training. Cost is estimated in the absence of a proposal from Bennett.</i>		\$40,000 - \$60,000	
<p>60. Call buttons (installed by Bennett Electronics).</p> <p>a. It's a Rauland Responder 4000 system.</p> <p>b. Hard to troubleshoot.</p> <p>c. There is no audio capability. The system has the ability to incorporate speakers but speakers were not specified according to Bennett.</p>			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Lack of communication (i.e. speakers) requires staff to physically travel to the call source to respond. Much time is wasted.</i>			
<u>Solutions</u>			
<i>Change out the existing stations for new audio bed stations and change out the corridor lights to allow staff to respond appropriately and effectively. Reprogram the system and provide training. Cost is based on Bennett October 15, 2014 proposal.</i>			\$77,000 - \$77,000

d. Pushbutton in room lights up on corridor wall and at nurse station.			
e. Pullstring in bathroom. Cords can be pulled out of the wall and not replaced properly.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Didn't buy software module to track history of response time. This could be important if a resident or family member brought the County to court over response time allegations.</i>			
<u>Solutions</u>			
<i>Purchase the software module to track response time and keep records. Cost is based on Bennett October 15, 2014 proposal.</i>			\$5,200 - \$5,200
61. Copper system phone okay (Champaign Telephone Company).			
a. E-phone (Emergency Phone) in parking lot needs checked weekly.			
b. Ditto E-phone in elevator.			
c. E-phone needs to go to 911 call center (does it?).			
62. Fiber optic loop okay. The loop communicates with virtually all units of government in Champaign County.			
63. Data network run by County IT (Information Technology) Department (Andy Rhodes).			
a. There is no WiFi in the building.			
b. Want to go wireless. Wheels are in motion.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
WiFi is an expected amenity in facilities like this. Family members will use it as much as the residents.			
<u>Solutions</u>			
Install WiFi in the building.			\$26,000 - \$26,000

64. CATV (installed by Premier Sound) Andy _____ a. Direct TV via dish. b. Forty boxes correspond to forty channels. c. The Direct TV equipment is obsolete. d. Replacing obsolete boxes with obsolete boxes now.			
	<u>Life Safety</u>	<u>Code Compliance to Stay Open</u>	<u>System Efficiency and / or Reliability</u>
<u>Issue</u>			
<i>Obsolete equipment will soon be impossible to obtain. This will take the TV system down station by station.</i>			
<u>Solutions</u>			
<i>Replace the obsolete equipment with new updated equipment. Cost has been represented as approximately \$10,000</i>			\$10,000 - \$10,000
65. Can broadcast building and event schedules. a. Senior Net.			
66. Oxygen is held in individual tanks. a. Third party transfers to small bottles for use by residents.			
Totals	\$272,750 - \$368,150	\$441,800 - \$581,600	\$756,303 - \$867,800

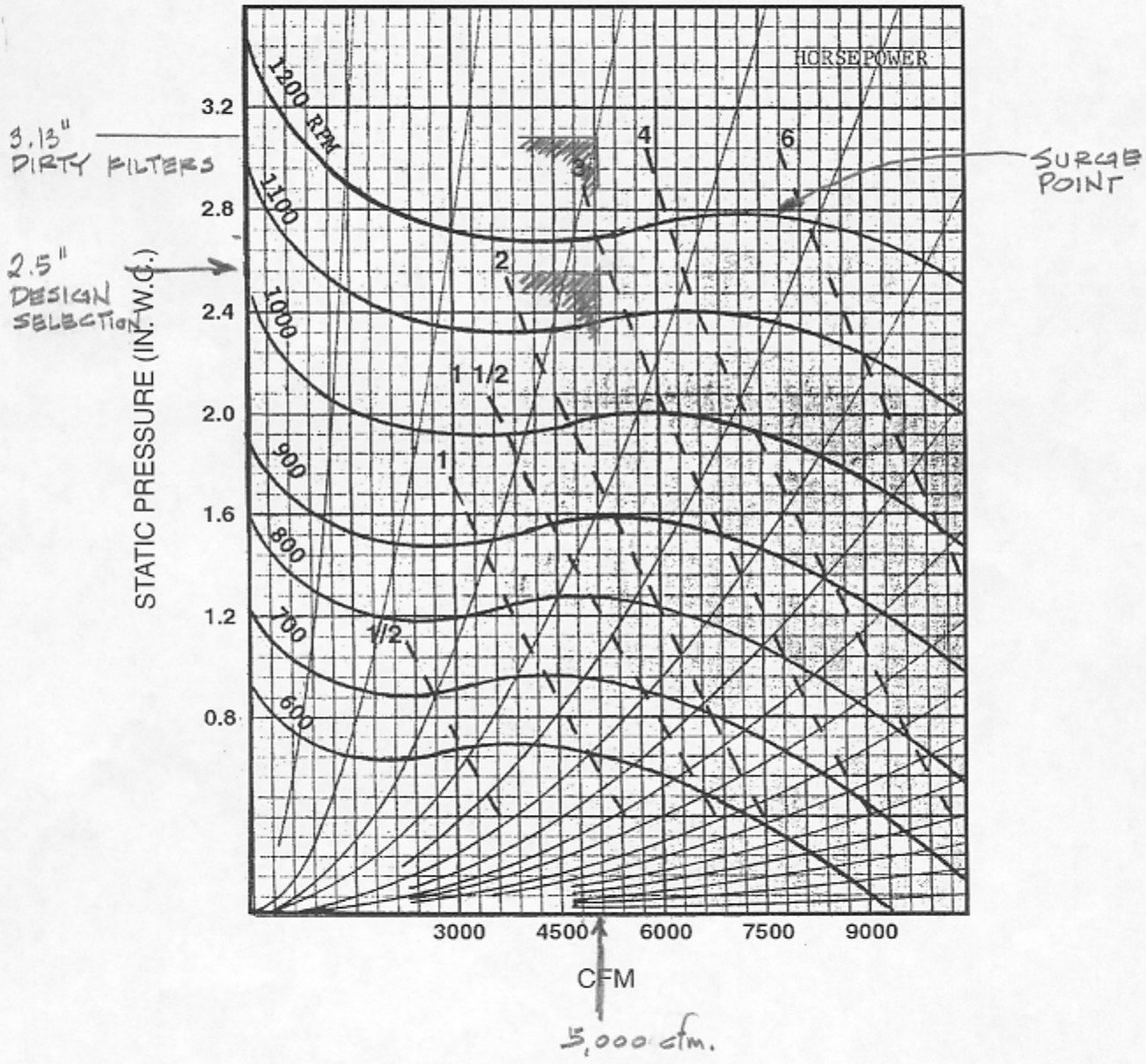
Jim Gleason

JNG/smh

cc: 6846 Corr

Magic Aire® BLOWER PERFORMANCE CURVE

180-HBA/BM • 240-HBA/BM (1512R-DUAL)



damper control since fan efficiency is constant and no elements add resistance to the system.

Figure 112D shows the horsepower relations for all three methods. The curves for damper and vane control are exactly as in Figures 112A and 112B; however, two curves are shown for speed control. The extra curve includes the inefficiency of a hydraulic coupling used as a variable speed transmission. It, therefore, represents the input to the transmission rather than to the fan as for all the other curves. This curve indicates that there is a range of capacities near full load where inlet vane control is superior to speed control on a horsepower input basis. The simplicity of a duct damper gives it the advantage in first cost. Variable inlet vanes are considerably less expensive than most methods of speed control. Speed control does have additional advantages when considerable operation at less than maximum speed is expected. The accompanying reduction in noise and increase in life may also be appreciable.

Stability

The flow through a system and its fan will normally be steady. If the fluctuations occasioned by a temporary disturbance are quickly damped out, the fan system may be described as having a "stable" operating characteristic. If the unsteady flow continues after the disturbance is removed, the operating characteristic is "unstable."

To insure stable operation the slopes of the pressure-capacity curves for the fan and system should be of opposite sign. Almost all systems have a positive slope, i.e., the pressure requirement or resistance increases with capacity. Therefore, for stable operation the fan curve should have a negative slope. Such is the case at or above the design capacity.

When the slopes of the fan and system characteristics are of opposite sign, any disturbance tending to produce a temporary decrease in flow is nullified by the increase in fan pressure. When the slopes are of the same sign, any tendency to decrease flow is strengthened by the resulting decrease in fan pressure. When fan and system curves coincide over a range of capacities, the operating characteristics are extremely unstable. Even if the curves exactly coincide at only one point, the flow may vary over a considerable range.

There may or may not be any obvious indications of unstable operation. The pressure and power fluctuations that accompany unsteady flow may be so small and rapid that they cannot be detected by any but the most sensitive of instruments. Less rapid fluctuations may be detected on the ordinary instruments used in fan testing. The changes in noise which occur with each change in flow rate are easily detected by ear as individual beats if the beat frequency is below about 10 cycles per second. (Refer to Figure 83 for a more precise set of limits on discord.) In any event the over-all noise level will be higher with unsteady flow than with steady flow.

The conditions which accompany unsteady flow are variously described as pulsations, resonant surging, pumping, etc. Since these conditions only occur when the operating point is to the left of maximum pressure on the fan curve, this peak is frequently referred to as the surge point or pumping limit.

The beat frequency or frequency of pulsation can frequently be cal-

culated by considering the system to be a Helmholtz resonator. If the system consists of a large cross section duct connected to a fan by means of a small cross section duct, the frequency f may be computed from

$$f = \frac{c}{2\pi} \sqrt{\frac{S}{LV}} \quad (306)$$

For such a "concentrated" volume system the cross sectional area (S) and length (L) are those of the small cross section connecting duct. This may be likened to the neck of a resonator. The volume (V) of the large cross section duct which may be compared with the main chamber of a resonator must be relatively large. Actually, best results are obtained when the fan wheel's circumference is added to the length of the small duct and any transformation piece to obtain the length (L). The speed of sound (c) in standard dry air is 1125 fps so that $c/2\pi$ is 178 fps for this condition.

If the system consists of an equal "distributed" volume, i.e., the duct work connected to the fan has practically uniform cross section, the neck condition should be based on the fan outlet area (S) and a length (L) equal to the circumference of the wheel plus the length of any transformation piece. In such cases the frequency f will be somewhat greater than that indicated by Equation 305. An increase of up to 57% may be expected depending on how perfectly the volume is distributed.

Pulsation may be prevented by rating the fan to the right of the surge point. Fans are usually selected on this basis but it is sometimes necessary to reduce the volume delivered to a value below that at the surge point.

Volume reduction will not always lead to pulsation. On one series of tests by Heath and Elliot* no pulsations were detected unless the fan pressure exceeded about 9" WG. It is quite probable that incipient pulsations were damped out. Damping effect depends on the system volume.

If the required capacity is less than that at the pumping limit, pulsation can be prevented in various ways all of which in effect provide a negatively sloping fan curve at the actual operating point. To accomplish this effect the required pressure must be less than the fan capabilities at the required capacity. One method is to bleed sufficient air so that actual operation is beyond the pumping limit. Other possible methods are the use of speed or vane control for volume reduction. In either of these cases, the point of operation on the new fan curve must be to the right of the new surge point. Although in the section on "Capacity Control" dampers were considered a part of the system, they may also be considered a part of the fan if located in the right position. Accordingly, pulsations may be eliminated in a supply system if the damper is on the inlet of the blower. Similarly, dampening at the outlet of the exhauster will control pulsation in exhaust systems.

Another condition frequently referred to as instability is associated with flow separation in the blade passages of a rotor and is evidenced by slight discontinuities in the performance curve. There may be a small range of capacities at which two distinctly different pressures may be

*W. R. Heath and W. R. Elliot, Control and Prediction of Pulsation Frequency in a Duct System, *Trans. ASME, J. Appl. Mech.*, Dec. 1946, Vol. 13, No. 4, pp. A291-5.

developed depending on which of the two flow patterns exists. Such a condition usually occurs at capacities just to the left of peak efficiency.

The range of speeds over which a compressor may operate may be limited by choking, that is, the increase in flow rate as predicted by the fan laws cannot be obtained and the slope of the high-speed pressure-capacity characteristic approaches infinity. Choking is not usually a problem with fans.

Mutual Influence of Fan and System

Fan performance data are generally based on tests wherein the air approaches the inlet with a uniform velocity, free of whirl. Duct element losses except where noted otherwise are based on similar flow conditions. The effects of prerotation on fan performance were discussed in Chapters 6 and 7. The effects of one elbow on another were listed briefly in Chapter 3.

Elbows, unless provided with adequate turning vanes or splitters, produce uneven velocity patterns that may persist for considerable distances in subsequent straight ducts. Non-uniform inlet velocities may in themselves alter fan performance since different portions of the impeller will be loaded differently. Non-uniform velocities may produce whirls in the inlet flow which also affect fan performance. To prevent adverse effects every reasonable precaution should be taken to insure uniform flow from all elbows.

Inlet boxes are special elbows which are frequently furnished with fans. Their principal purpose may be to turn the air or to provide a means of excluding the bearings from the air stream. Fan performance should be based on tests with boxes in place if they are to be furnished. This is not always practical. The total inlet box loss which includes the effect on fan performance as well as elbow loss will be of the order of one inlet velocity head. The exact value will depend on both fan and box design. The relative direction of inlet box entry and fan discharge may also have an effect, particularly when forward curved blade designs are involved. The highest loss usually occurs when the air entry is from the direction opposite (180°) the direction of discharge. The least loss usually occurs with the entry from the same direction (0°) as the discharge although an angularity of 90° is not much worse. A rectangular box with an axial depth of approximately 50% of the fan inlet diameter and a width of approximately three times the depth will be quite suitable. A splitter plate in the plane of the shaft extending from the closed end of the box out toward the shaft is recommended to prevent any adverse effects due to whirl. The axial depth may be tapered gradually to minimize effects of uneven velocity.

The velocity pattern at fan discharge will vary with design. Performance data are usually based on tests with a straight discharge duct. If an elbow is located quite close to the discharge, there may be some loss in fan performance due to a reduction in static pressure regain. The loss through the elbow may be affected by an uneven velocity pattern. If the velocity along the inside radius of the elbow is higher than that along the outside radius, the loss will be higher than normal. The loss will be less than normal if velocity is higher along the outside radius than along the inside radius.

CHAPTER 11

FAN MECHANICS

The mechanical design of a fan should provide the various parts with adequate strength and stability to withstand the forces expected during all phases of operation. Both steady state inertial and vibrational forces should be considered as well as fluid forces. The operating conditions and expected life should be clearly defined. Maintenance and manufacturing requirements should be anticipated.

The forces which may act on the various fan parts will be discussed first. Discussions on stress and strength follow. These are followed by short dissertations on balancing and other mechanical considerations.

Torque and Thrust Forces

As noted in Chapter 6 the axial, radial, and tangential components of the forces of the fluid on the rotor lead to axial thrust, radial thrust, and torque, respectively. In some analyses, it is most convenient to consider the corresponding pressure components, but in other cases it is simpler to consider the component forces directly.

The tangential forces react on the blades in the direction opposite rotation. They are transmitted as torque to the driving shaft. The forces may be transmitted through a hub, or through a back plate or spider and hub, to the driving shaft. If the difference in pressure across each portion of blade could be determined, the corresponding tangential forces could be calculated. The total tangential force (F_{tang}) can be determined from the total mass flow (m) and the effective change in tangential velocity through the rotor (ΔV_{tang}):

$$F_{tang} = \frac{m}{g_c} \Delta V_{tang} \quad (307)$$

The force per blade can be determined by simple division. The radius (r) at which this force may be considered to act can be determined from the torque (τ):

$$r = \frac{\tau}{F_{tang}} \quad (308)$$

The torque in inch-pounds may be calculated from the horsepower (HP) and speed (RPM) from

$$\tau = \frac{63030 \text{ HP}}{\text{RPM}} \quad (309)$$

The axial forces react on all parts of the rotor in both directions. Only

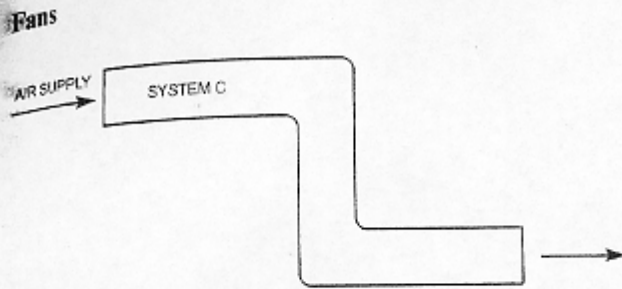


Fig. 12 Resistance Removed from Duct System of Figure 9

curve C of Figure 10. For curve C, a total pressure reduction of 1.00 in. of water has been assumed when 10,000 cfm flows through the system; thus, the point of operation is at 2.00 in. of water, as shown by point C.

These three ΔP curves all follow the relationship expressed in Equation (2). These curves result from changes in the system itself and do not change fan performance. During design, such system total pressure changes may occur because of alternative duct routing, differences in duct sizes, allowance for future duct extensions, or the design safety factor being applied to the system.

In an actual operating system, these three ΔP curves can represent three system characteristic lines caused by three different positions of a throttling control damper. Curve C is the most open position, and curve B is the most closed. A control damper forms a continuous series of these ΔP curves as it moves from wide open to completely closed and covers a much wider range of operation than is illustrated here. Such curves can also represent the clogging of turbulent flow filters in a system.

SYSTEM EFFECTS

Normally, a fan is tested with open inlets, and a section of straight duct is attached to the outlet. This setup results in uniform flow into the fan and efficient static pressure recovery on the fan outlet. If good inlet and outlet conditions are not provided in the actual installation, fan performance suffers. To select and apply the fan properly, these effects must be considered and the pressure requirements of the fan, as calculated by standard duct design procedures, must be increased.

These calculated system effect factors are only an approximation, however. Fans of different types, and even fans of the same type but supplied by different manufacturers, do not necessarily react to a system in the same way. Therefore, judgment based on experience must be applied to any design. Chapter 34 of the 2001 *ASHRAE Handbook—Fundamentals* gives information on calculating the system effect factors and lists loss coefficients for a variety of fittings. Clarke et al. (1978) and *AMCA Publication 201* provide further information.

SELECTION

After the system pressure loss curve of the air distribution system has been defined, a fan can be selected to meet the system requirements (Graham 1966, 1972). Fan manufacturers present performance data in either graphic (curve) (Figure 13) or tabular form (multirating tables). Multirating tables usually provide only performance data within the recommended operating range. The optimum selection range or peak efficiency point is identified in various ways by different manufacturers.

Performance data as tabulated in the usual fan tables are based on arbitrary increments of flow rate and pressure. In these tables, adjacent data, either horizontally or vertically, represent different points of operation (i.e., different points of rating) on the fan performance curve. These points of rating depend solely on the fan's

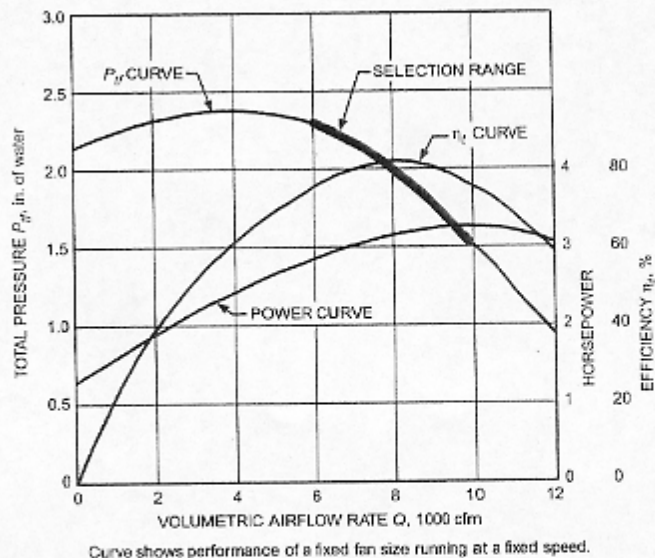


Fig. 13 Conventional Fan Performance Curve Used by Most Manufacturers

characteristics; they cannot be obtained from each other by the fan laws. However, points of operation listed in multirating tables are usually close together, so intermediate points may be interpolated arithmetically with adequate accuracy for fan selection.

Selecting a fan for a particular air distribution system requires that the fan pressure characteristics fit the system pressure characteristics. Thus, the total system must be evaluated and airflow requirements, resistances, and system effect factors at the fan inlet and outlet must be known (see Chapter 34 of the 2001 *ASHRAE Handbook—Fundamentals*). Fan speed and power requirements are then calculated, using multirating tables or single or multispeed performance curves or graphs.

In using curves, it is necessary that the point of operation selected (Figure 14) represent a desirable point on the fan curve, so that maximum efficiency and resistance to stall and pulsation can be attained. In systems where more than one point of operation is encountered during operation, it is necessary to look at the range of performance and evaluate how the selected fan reacts within this complete range. This analysis is particularly necessary for variable-volume systems, where not only the fan undergoes a change in performance, but the entire system deviates from the relationships defined in Equation (2). In these cases, it is necessary to look at actual losses in the system at performance extremes.

PARALLEL FAN OPERATION

The combined performance curve for two fans operating in parallel may be plotted by using the appropriate pressure for the ordinates and the sum of the volumes for the abscissas. When two fans having a pressure reduction to the left of the peak pressure point are operated in parallel, a fluctuating load condition may result if one of the fans operates to the left of the peak static point on its performance curve.

The P_t curves of a single fan and of two identical fans operating in parallel are shown in Figure 15. Curve A-A shows the pressure characteristics of a single fan. Curve C-C is the combined performance of the two fans. The unique figure-8 shape is a plot of all possible combinations of volume airflow at each pressure value for the individual fans. All points to the right of CD are the result of each fan operating at the right of its peak point of rating. Stable performance results for all systems with less obstruction to airflow than is shown on the ΔP curve D-D. At points of operation to the left of CD,

and frequently is not anticipated in the fan selection. Static regain can be explained like this: The fan wheel imparts velocity pressure to the air. Part of it is converted to static pressure by the fan scroll. This is a form of static pressure regain. A discharge duct can be thought of as an extension of the fan scroll in which the regain effect is allowed to continue. It is needed because the air off the scroll is very turbulent and has a pronounced velocity profile. If this turbulent air is discharged directly into a space, the energy in the air is dissipated rather than regained as it is in a discharge duct.

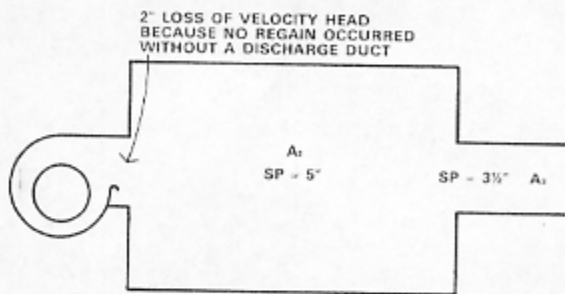


Figure 69—Static Pressure Regain

Figure 70 illustrates the ideal way to deliver air into and out of a plenum. In this case, there is essentially no loss of static pressure. This is equivalent in performance to the fan and duct example used initially. However, it is not very realistic.

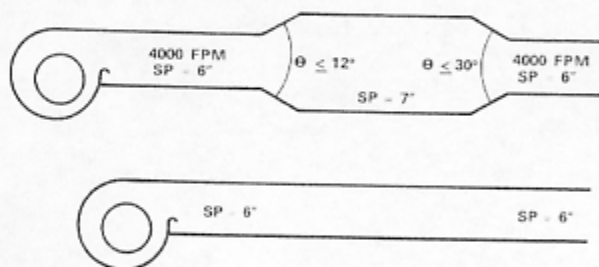


Figure 70—Static Pressure Regain

The amount of reduction is a function of the type and design of the fan and must be determined through tests by the manufacturers. The effect can be expressed in terms of nominal outlet velocity head. This must then be added to the external static pressure required in selecting the fan as shown below. The Associated Air Balance Council publishes the following velocity pressure correction factors which agree quite closely with Trane tests. The appropriate speed effect is also shown here.

Fan Type	# of Velocity Heads To be added to SP	Approximate % Speed & HP Increase	
		RPM	BHP
AF	1.0	3	9
BI	1.5	4	12
FC	1.8	6	20
Compact Model Q	0.8*	3*	6*
Tubular Cents.	2.45	4	12

* Trane tests only

This information can also be used to estimate the effect of improperly constructed discharge ductwork. For example, an improperly designed "pants" connection on a two-fan Climate Changer typically amounts to free discharge into a plenum. Thus, the RPM would have to increase 6% with a corresponding 20% increase in horsepower to compensate. Figure 71 indicates the requirement of a "pants" connection to achieve catalog performance. There should be 1½ fan diameters of straight duct before the transition. The convergence angle should be a maximum of 30° on each side.

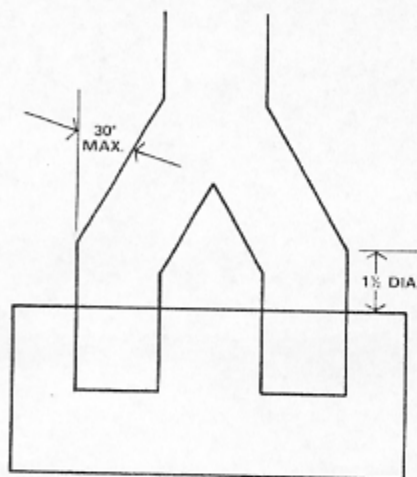


Figure 71—Proper Construction of "Pants" Connection on Two-Fan Unit

In addition to not regaining static pressure, high losses can also occur at the discharge due to the turbulent airflow and high localized velocities. This will cause losses in elbows and tees which are higher than estimated. This is because normal rules for estimating duct and fitting losses are based on fully developed flow.

For example, in the situation illustrated in Figure 72 high losses would occur.

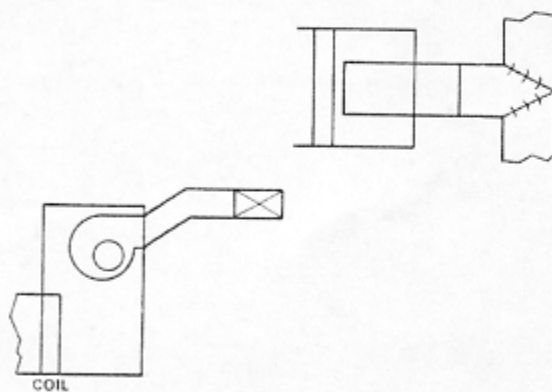
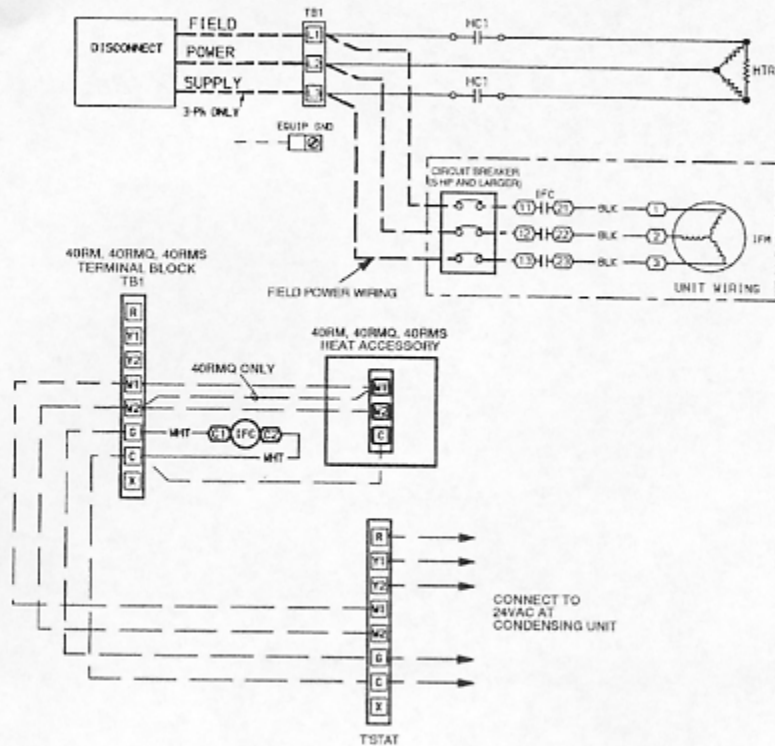


Figure 72—Improper Installation

There are two things wrong with this illustration:

Duct turns immediately out of the fan (should have 1½ diameters as minimum).

The turn in the duct is counter to the rotation of the wheel (should have bottom horizontal discharge). The



LEGEND

EQUIP — Equipment
GND — Ground
HC — Heating Contactor
HTR — Electric Heater
IFC — Indoor-Fan Contactor
IFM — Indoor-Fan Motor
TB — Terminal Block
T'STAT — Thermostat

— Factory Wiring
 - - - Field Control Wiring

NOTE: Use copper conductors only.

Fig. 17 — Unit Wiring

Table 6 — Fan Contactor Coil Data

UNIT 40RM, 40RMO 40RMS	VOLTAGE (vac)	MAXIMUM HOLDING VA
007-034	24	10

Connecting Ductwork — Refer to the Carrier System Design Manual for the recommended design and layout of ductwork. Figure 18 shows recommended duct connection to units with 2 fans.

CAUTION

Do not operate unit without ductwork or discharge plenum unless fan speed has been adjusted for external static pressure of zero in. wg. Failure to do so may result in motor overload.

DISCHARGE CONNECTIONS — Duct flanges are factory-supplied; they are shipped inside the unit attached to the hairpin end of the coil tube sheet for field installation. Using the existing screws, install the duct flanges on the unit's fan deck. Each fan discharge requires 2 flanges; each flange must be bent in the middle to conform to the discharge opening. See Fig. 19. After flanges are installed, connect them to the supply duct using a canvas connection to prevent vibration. It is important that this connection be properly fabricated to prevent high air friction losses and air noise.

RETURN CONNECTION — When using return-air ductwork, route return-air duct to the unit's return air inlet near the filter rack, using a canvas connection to prevent transmission of unit vibration. If the duct blocks off the unit's access panel, provide a slip joint in the ductwork to permit removal for servicing.

OUTDOOR-AIR INLET CONNECTION — Connect outdoor-air inlet to field-installed accessory economizer. Refer to Economizer Installation Instructions.

Return-Air Filters — Type and size of filters are shown in Tables 1A-1F and are factory-supplied and factory-installed. In all units with 2 fans, a filter replacement tool (hook) is shipped inside the unit for field use when replacing filters. See the Service section for instructions on filter element replacement.

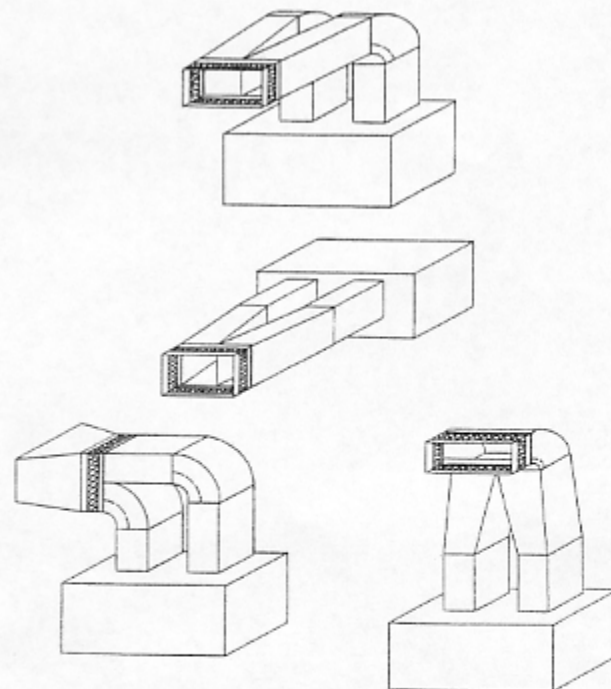


Fig. 18 — Typical Fan Discharge Connections for Multiple Fan Units

6148

Y O R K
A JOHNSON CONTROLS COMPANY
AIR COOLED SCREW CHILLER RATING

DXCHILLF
05/10/06
v5_20

EXCLUSIVELY FOR:

JOB NAME:

MODEL YCAS0230EC46 VOLTAGE 460/3/60 REFRIGERANT R22

CAPACITY 203.2 Tons TOTAL KW = COMPRESSOR 225.8 + FANS 18.0 = 243.8

EFFICIENCY 10.0 EER

EVAPORATOR-TYPE LIQUID: Water

FLOW RATE 501.0 gal/min FOULING FACTOR 0.00010

TEMP ENTERING 51.7 °F LEAVING 42.0 °F PRESSURE DROP 21.6 ft of water

TUBES: COPPER

EVAPORATOR TEMP SYSTEM 1 34.0 °F
SYSTEM 2 34.0 °F

CONDENSER: DESIGN AIR TEMPERATURE 95.0 °F ALTITUDE 0.0 ft

TOTAL AIR FLOW VOLUME 143000 ft³/min

CONDENSER TEMP SYSTEM 1 123.9 °F
SYSTEM 2 123.9 °F

% FULL LOAD DISPL.	CAPACITY Tons	PART LOAD RATING		AMBIENT °F	UNIT EER
		COMPR KW			
100.0	203.2	225.8		95.0	10.0
75.0	152.4	148.0		80.0	11.0
50.0	101.6	72.3		65.0	15.0
25.0	50.8	43.4		55.0	12.5

NPLV: 13.0 EER

RATED IN ACCORDANCE WITH ARI STANDARD 550/590.

Temperatures and Flows

TEMPERATURE AND FLOWS (English Units)

York

MODEL NUMBER YCAS	LEAVING WATER TEMPERATURE (°F)		COOLER FLOW (GPM ³)		AIR ON CONDENSER (°F)	
	MIN. ¹	MAX. ²	MIN.	MAX.	MIN.	MAX
0090EC	40	55	113	600	0	125
0100EC	40	55	122	600	0	125
0110EC	40	55	127	600	0	125
0120EC	40	55	134	600	0	125
0130EC	40	55	147	600	0	125
0140EC	40	55	170	600	0	125
0150EC	40	55	182	700	0	125
0160EC	40	55	188	747	0	125
0170EC	40	55	203	747	0	125
0180EC	40	55	218	747	0	125
0200EC	40	55	228	747	0	125
0210EC	40	55	248	747	0	125
0230EC	40	55	272	747	0	125
0250EC	40	55	225	800	0	125
0270EC	40	55	225	800	0	125
0300EC	40	55	255	800	0	125
0330EC	40	55	255	800	0	125
0360EC	40	55	300	1060	0	125
0400EC	40	55	330	1060	0	125
0440EC	40	55	330	1060	0	125

NOTES:

1. For leaving brine temperature below 40°F (4.4°C), contact your nearest YORK office for application requirements.
2. For leaving water temperature higher than 55°F (12.8°C), contact the nearest YORK office for application guidelines.
3. The evaporator is protected against freezing to -20°F (-28.8°C) with an electric heater as standard.



County of Champaign, Illinois

Facilities Assessment Report

Appendix F

Sheriff's Office / Downtown Jail Report
Gorski Reifsteck

OPINION OF PROBABLE COST

Champaign County Sheriffs Office Masterplanning
DRAFT COSTS - 01/29/15

D1.1 - Building Envelope Repairs**GENERAL CONDITIONS**

Item Description	Quantity	Unit	Cost/Unit	Total
DISPOSAL	441	CY	\$30.00	\$13,222
			SUBTOTAL	\$13,222

EXISTING CONDITIONS

Item Description	Quantity	Unit	Cost/Unit	Total
DEMO BALLSTED EPDM ROOFING SYSTEM	29,527	SF	\$2.00	\$59,054
REMOVE EXISTING SIDEWALK, REGRADE, ADJUST ADJACENT PAVING & PROVIDE NEW RETAINING CURB TO EXPOSE EXISTING WEEPS NEAR WEST SALLY PORT ENTRANCE.	1	AL	\$3,500.00	\$3,500
REMOVE EXTERIOR DOORS	12	EA	\$75.00	\$900
REMOVE DETERIORATED KALWALL WALL SYSTEM	300	SF	\$2.75	\$825
REMOVE PAINT FROM OVERHEAD STRUCTURAL MEMEBERS - OUTDOOR REC	1,000	LF	\$3.50	\$3,500
			SUBTOTAL	\$67,779

CONCRETE

Item Description	Quantity	Unit	Cost/Unit	Total
REMOVE & REPLACE CONCRETE WALK SECTION	50	SF	\$8.95	\$448
MISC CONCRETE WORK FOR ACCESSIBLE ENTRANCE	*	1	LS	\$3,000.00
			SUBTOTAL	\$3,448

MASONRY

Item Description	Quantity	Unit	Cost/Unit	Total
CUT-IN CONTROL JOINTS & REBUILD EXTR. CORNERS	1,000	LF	\$50.00	\$50,000
REMOVAL & REBUILDING OF BRICK PARAPET	50	SF	\$75.00	\$3,750
THROUGH WALL SCUPPERS, LEADERHEAD & DOWNSPOUT AT EACH	1	LS	\$1,750.00	\$1,750
REMOVAL & REBUILDING OF PARAPET WALL ABOVE LINTEL REPAIRS	170	LF	\$400.00	\$68,000
REMOVAL & REBUILDING OF MULTI-WYTHE BRICK SITE WALLS	*	600	SF	\$95.00
RECAULK HORIZONATAL JOINTS AT SHELF ANGLES	*	1,368	LF	\$5.00
REPOINTING POPPED MORTAR JOINTS	*	75	SF	\$10.00
			SUBTOTAL	\$188,090

METALS

Item Description	Quantity	Unit	Cost/Unit	Total
GALV STEEL WINDOW LINTELS	170	LF	\$50.00	\$8,500
SCRAPE & PAINT MISC METAL ITEMS INCLUDED STL LINTELS TO RECAST FRAME & INSTALL NEW TRENCH GRATES (1'X14')	1	LS	\$2,000.00	\$2,000
	1	EA	\$3,000.00	\$3,000
			SUBTOTAL	\$13,500

THERMAL & MOISTURE PROTECTION

Item Description	Quantity	Unit	Cost/Unit	Total
60MIL EPDM ROOF SYSTEM, 1/4 PROTECTION BD., 4.5" INSUL BD. FULLY AHERERED	29,527	SF	\$13.00	\$383,851
			SUBTOTAL	\$383,851

OPENINGS

Item Description	Quantity	Unit	Cost/Unit	Total
DISASSEMBLE, RE-GASKET & REASSEMBLE EXISTING STOREFRONT GLAZING	57,600	SF	\$1.50	\$86,400
KALWALL WALL SYSTEM	300	SF	\$38.50	\$11,550
MOTORIZED INSULATED OVERHEAD DOOR	2	EA	\$15,000.00	\$30,000
EXTERIOR INSULATED HM DOOR, DOOR FRAME & HARDWARE	12	EA	\$2,300.00	\$27,600
			SUBTOTAL	\$155,550

FINISHES

Item Description	Quantity	Unit	Cost/Unit	Total
SUNSHADING @ OUTDOOR REC AREA	1,500	SF	\$2.50	\$3,750
			SUBTOTAL	\$3,750

SITE

Item Description	Quantity	Unit	Cost/Unit	Total
LANDSCAPING	1	LS	\$15,000.00	\$15,000
CONC. HANDRAIL PIERS	*	8	EA	\$400.00
REMOVE & REPLACE CONCRETE WALK	*	50	SF	\$8.95
SEAL EXISTING ASPHALT DRIVE	13,050	SF	\$1.69	\$22,055
			SUBTOTAL	\$40,702

GENERAL CONTRACTOR WORK SUBTOTAL	\$869,892
G. CONTRACTOR - OVERHEAD & PROFIT (10%)	\$86,989
G. CONTRACTOR - COORD OF SUBS (2%)	\$0
G. CONTRACTOR - BONDS & INS. (2.5%)	\$21,747
GENERAL SUBTOTAL	\$978,628

TOTAL \$978,628

OPINION OF PROBABLE COST

Champaign County Sheriffs Office Masterplanning
 DRAFT COSTS - 01/29/15

D0.0 - 3 Year Maintenance Repairs

GENERAL CONDITIONS

Item Description	Quantity	Unit	Cost/Unit	Total
DISPOSAL	76	CY	\$30.00	\$2,278
			SUBTOTAL	\$2,278

THERMAL & MOISTURE PROTECTION

Item Description	Quantity	Unit	Cost/Unit	Total
PATCH EXISTING EPDM ROOF SYSTEM (5% OF ROOF SYSTEM)	1,500	SF	\$14.00	\$21,000
			\$0.00	\$0
			SUBTOTAL	\$21,000

GENERAL CONTRACTOR WORK SUBTOTAL	\$23,278
G. CONTRACTOR - OVERHEAD & PROFIT (10%)	\$2,328
G. CONTRACTOR - COORD OF SUBS (2%)	\$500
G. CONTRACTOR - BONDS & INS. (2.5%)	\$1,207
GENERAL SUBTOTAL	\$27,313

CONSULTANTS

Item Description	Quantity	Unit	Cost/Unit	Total
PLUMBING (GHR)	1	LS	\$3,000.00	\$3,000
HVAC (GHR)	1	LS	\$5,000.00	\$5,000
ELECTRICAL (GHR)	1	LS	\$17,000.00	\$17,000
			CONSULTANTS SUBTOTAL	\$25,000

TOTAL \$52,313



County of Champaign, Illinois

Facilities Assessment Report

Appendix G

Champaign Courthouse Controls
ALPHA Control



Alpha Controls & Services, L.L.C.
 411 Devonshire Dr
 Champaign, Illinois 61820
 Cellular: 217-299-1379
 Email: jasonv@alphaacs.com
 Proposal #: 14JV041

Subject: Champaign County Courthouse

General Scope

- Engineered control drawings
- Startup, checkout, Owner training, commissioning, and 1 year warranty
- Electrical labor for low voltage building automation systems only
- Communications cabling to all DDC controllers and to building Ethernet
- Furnish and install I/A Series network controllers for browser based Building Automation System
- Provide graphics, trends, and alarms for a browser based control system that provides remote access to the building system including the following:
 - Text alarms sent to cell phones and/or email accounts
 - Build a main graphics splash screen that indicates equipment alarm status
 - Provide historical trend data to determine when, where, what, and how the system was operating
 - Provide click and drag scheduling of equipment for week days, holidays, and special events
 - NOTE: Owner to maintain IT system to support browser based graphics

Clarifications:

- All work to be in electrical metallic tubing (EMT) in mechanical rooms and above inaccessible ceilings. Plenum rated cable can be used above accessible ceilings. Wire mold is acceptable on walls.
- Field verify voltage for all motors and VFD's prior to ordering or installing
- Provide shall be defined as Alpha Controls and Services (ACS) shall furnish and install
- Furnish indicates ACS shall supply material
- Install indicates ACS (or a subcontractor) shall have union labor perform the work

The standard terms and conditions of sale are attached and are a part hereof:

Proposed by: Jason Vogelbaugh

 Director of Energy Solutions

 jasonv@alphaacs.com (217) 299-1379

 Date: August 17, 2015

Accepted by:

Signature:

Date:

Title:

NOTWITHSTANDING ANY INCONSISTENT OR ADDITIONAL TERMS THAT MAY BE EMBODIED IN YOUR PURCHASE ORDER, SELLER WILL ACCEPT YOUR ORDER SUBJECT ONLY TO THE TERMS OF THE WRITTEN CONTRACT BETWEEN US UNDER WHICH YOUR ORDER IS PLACED. IF NO SUCH CONTRACT EXISTS SELLER WILL ACCEPT YOUR ORDER ONLY ON THE EXPRESS CONDITION THAT YOU ASSENT TO THE TERMS AND CONDITIONS CONTAINED ABOVE AND ON THE REVERS SIDE HEREOF; AND YOUR ACCEPTANCE AND RECEIPT OF THE GOODS SHIPPED HEREUNDER SHALL CONSTITUTE ASSENT TO SUCH TERMS AND CONDITIONS



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Included in this scope of work is as follows:

- Enhancement of existing Schneider Electric Building Automation System DDC control system
- DDC upgrade to existing LON AHU control systems – qty. 7
- Hot water system add DDC control to boilers
- DDC replacement of VAV box controls and implementation of energy savings sequence of operations – qty. 129
 - Installation of CO2 and occupancy sensors in courtrooms
- Finned tube radiators – Replace controls for FTR and integration into existing building automation system – qty. 88
- Cabinet unit heaters - Replace controls and integration into existing building automation system. Qty. 6

Excluded from our price:

- Test and Balance, including any motors, belts or pulleys
- Descaling the hot water system
- Replacing existing control valves
- Sheet metal labor, test and balance
- Insulation
- Wiring of smoke and fire dampers
- Professional services including A/E fees and ACM abatement
- Providing and/or installation of gauges, thermometers, thermo-wells, balancing valves
- Draining, cleaning, and/or flushing piping systems.
- Fire and/or fire/smoke dampers, life safety products and/or installation.
- Patching and/or painting
- Liquidated damages
- Overtime and/or Shift/Premium Time
- Bonding and Permits
- Federal, State and Local Taxes
- Emergency Power
- Access doors
- Smoke detectors and/or modifications to fire alarm system



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All goods, services, and Firmware furnished by Alpha Controls & Services (“Supplier”) are governed by these standard terms and conditions, and every agreement or other undertaking by Supplier is expressly conditioned on assent hereto by the buyer, and any end user with whom Supplier undertakes to deal, of Supplier’s goods, services, and Firmware (“Customer”). These standard terms and conditions supersede all inconsistent printed terms submitted by Customer prior to Supplier’s order acknowledgment. They may be varied only by a typed or legibly handwritten notation on the face of Supplier’s quotation or order acknowledgment, Customer’s purchase order form, or similar documents. Product and sales policy sheets and the like published from time to time by Supplier shall supplement but not supersede these standard terms and conditions. SUPPLIER IS NOT BOUND TO FURNISH ITS GOODS, SERVICES OR FIRMWARE EXCEPT IN ACCORDANCE WITH THE TERMS OF ITS ORDER ACKNOWLEDGMENT, FIRM QUOTATION, OR OTHER SIMILAR DOCUMENT ISSUED OVER THE SIGNATURE OF AN AUTHORIZED EMPLOYEE OF SUPPLIER. SUPPLIER’S REPRESENTATIVES, DISTRIBUTORS, DEALERS AND OTHER NON-EMPLOYEES HAVE NO AUTHORITY TO BIND SUPPLIER.

1. **Firmware.** The terms “goods” as used herein shall include Firmware which shall mean the set of instructions, consisting of symbolic language, processes, logic, routines, and programmed information in the form of firm or soft media relating to any of the goods and all revisions and modifications thereof.
2. **Price/Delivery Terms.** Unless otherwise provided on Supplier’s order acknowledgment, price and delivery terms are FOB Supplier’s plant and do not include sales, use, or other taxes. Supplier may, at its option, make partial shipments and invoice for same.
3. **Payment/Credit/Security.** Payment terms for buyers with a credit standing deemed adequate by Supplier are net 30 days from date of invoice. Supplier shall be entitled to charge interest thereafter at a rate permitted by law, but in no event to exceed 1-1/2% per month. Whenever Supplier in good faith deems itself insecure, Supplier may cancel any outstanding contracts with Customer, revoke its extension of credit to Customer, reduce any unpaid debt by enforcing its security interest, created hereby, in all goods (and proceeds therefrom) furnished by Supplier to Customer, and take any other steps necessary or desirable to secure Supplier with respect to Customer’s payment for goods and services furnished or to be furnished by Supplier.

In the event Customer for any reason withholds payment of any amount due Supplier, Supplier may declare itself insecure and suspend further shipment to Customer until Customer places the withheld amount in escrow and gives adequate security for further shipment or until Customer satisfies Supplier that Customer was entitled to withhold such amount. Supplier shall be entitled to recover from Customer all costs, including reasonable attorney’s fees, incurred by Supplier in connection with the collection of any amount due Supplier.

4. **Cancellation by Customer.**

(a). Except as provided in sub-paragraph (b) below, Customer’s wrongful non-acceptance or repudiation of a contract to purchase Supplier’s goods or services shall entitle Supplier to recover the price or, where an action for the price is not permitted by law, damages, as provided by law, including Supplier’s lost profits. In this connection all goods purchased and all services furnished by Supplier in complete or partial fulfillment of a special order from Customer shall be deemed identified to the contract between Supplier and Customer.

(b). Customer’s wrongful non-acceptance or repudiation of a contract to purchase from Supplier goods which Supplier generally carries in inventory as stock items (or which are otherwise readily resaleable by Supplier at a reasonable price) shall entitle Supplier to recover damages, as provided by law, including Supplier’s lost profits.

5. **Warranty.** Supplier warrants that all new and unused goods furnished by Supplier are free from defect in workmanship and material as of the time and place of delivery by Supplier. Except for goods and services furnished by Supplier through its employees arising out of orders solicited by Supplier’s Representatives and duly accepted by Supplier,

**Alpha Controls & Services, L.L.C.**

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Email: jasonv@alphaacs.com

Supplier does not warrant, and shall not be liable for, the quality of any goods or services furnished or to be furnished by representatives, distributors, dealers or other non-employees of Supplier.

As a matter of general warranty policy, Supplier honors an original buyer's warranty claim in the event of failure, within 12 months from the day of delivery by Supplier to the site for Alpha Controls & Services equipment and for Building Management Systems goods, which have been installed and operated under normal conditions and in accordance with generally accepted industry practices. This general warranty policy may be expanded or limited for particular categories of products or customers by information sheets published by Supplier from time to time:

The express warranties provided above are in lieu of all other warranties, express or implied. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES ARE EXCLUDED WITH RESPECT TO ANY AND ALL GOODS AND SERVICES FURNISHED BY SUPPLIER.

In case of Supplier's breach of warranty or any other duty with respect to the quality of any goods, the sole and exclusive remedies therefore shall be, at Supplier's option, (1) repair, (2) replacement, or (3) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the non-conforming goods or parts.

Return authorization must be obtained from Supplier prior to the return of any defective material. All unauthorized returns will be sent back, freight collect, to the Customer. All returns must be made with transportation prepaid by the Customer. Supplier's examination of the units must disclose to its satisfaction that defects exist and have not been caused by misuse, neglect, improper installation, repair, alteration or accident before replacement is made or credit issued.

6. **Force Majeur.** Supplier and Customer assume the non-occurrence of the following contingencies which, without limitation, might render performance by Supplier impractical: strike, riots, fires, war, late or non-delivery by suppliers to Supplier, and all other contingencies beyond the reasonable control of supplier.
7. **No Consequential Damages.** Under no circumstances shall Supplier be liable to any person (including distributor) for loss of use, income, or profit or for incidental, special or consequential or other similar damages, arising, directly or indirectly out of or occasioned by the sale, operation, use, installation, repair or replacement of the goods or services, whether such damages are based on a claim of breach of express or implied warranties (including merchantability or fitness for a particular purpose), tortious conduit (including negligence and strict liability) or any other cause of action, except only in the case of personal injury where applicable law requires such liability.
8. **Governing Law.** The law of the State of Illinois shall govern all transactions to which these standard terms and conditions apply.
9. **Prices** in this quotation remain in effect for 45 days from date of issue.