

**Basalt Regional Library District Board of Trustees Meeting**  
**Monday, October 16, 2023, 5:15 PM**  
**Basalt Library Conference Room and**  
**Zoom Meeting, see [BRLD Website Calendar for Link](#)**

All meetings of the Basalt Regional Library District are open meetings.  
Members of the public are most welcome.

**Board of Trustees:** Elaine Nagey, President; Carolyn Kane, Vice president; Eric Pelander, Treasurer; Margaret Simmons, Secretary; Enid Ritchy, Trustee; Jim Albert, Trustee; Deborah Smith, Trustee

**AGENDA**

1. Call to order
2. Public Comments
3. Board Comments
4. Staff Comments
5. Approval Items
  - a. Minutes of September 18, 2023, Board Meeting (page 1)
  - b. September 2023 Accounts Payable (page 17)
6. Library Trust Update, Amy Shipley
7. Strategic Planning, Sharon Morris, Public Library Leadership Consultant at State Library of Colorado
8. SWAP, *Laura Baumgarten, Patron Services and Youth Services Manager*
9. "Full" Capital Replacement Plan, Deb Smith (page 24)
10. Director's Report, *Amy Shipley* (page 5)
11. Committee Reports:
  - a. Bylaws Committee: *Carolyn Kane, chair*
  - b. Facilities Committee: *Jim Albert, chair*
    - i. Roof
  - c. Finance Committee: *Eric Pelander, chair*
    - i. September 2023 Financials (page 7)
    - ii. 2024 Budgets
  - d. Personnel Committee: *Enid Ritchy*
    - i. Director Evaluation
  - e. Policy Committee: *Elaine Nagey, chair*

## **ACTION ITEMS**

12. Discussion and possible vote to approve posting RFP for roof contractors (page 115)
13. Discussion and possible vote on Resolution 2023-02 In Opposition to the Statewide Proposal, Proposition HH (page 205)
14. Discussion and possible vote to approve Closure Policy (page 208)
15. Discussion and possible vote to eliminate Pandemic and Emergency Policy (page 213)
16. Executive Session to discuss Executive Director Contract
17. Vote on Executive Director Contract
18. Adjourn Meeting

# Basalt Regional Library District Board of Trustees Meeting Minutes

## Monday, September 18, 2023, 5:15 PM

**Board Trustees Present:** Elaine Nagey, President; Carolyn Kane, Vice president; Eric Pelander, Treasurer; Margaret Simmons, Secretary; Enid Ritchy, Trustee; Jim Albert, Trustee; Deborah Smith, Trustee

**Staff Members Present:** Amy Shipley, Executive Director; Sandra Dexter, Executive Administrative Assistant

**Community Members Present:**  
None

**Call to order**  
Elaine called the meeting to order at 5:15 PM

**Public Comments**  
None

**Board Comment**

- The HR (Human Resources) report will be rescheduled at a later meeting.
- Elaine reminded everyone to complete the committee evaluations and return them to her mailbox. The Finance Committee will get their forms at their next meeting.

**Staff Comments**  
None

**Approval Items**

- Minutes of August 21, 2023, Board Meeting
- August 2023 Accounts Payable

Carolyn moved and Jim seconded the motion to approve the approval items. The motion carried unanimously.

**Debrief of Board Retreat, *Elaine Nagey***

- Takeaways from the Board Retreat
  - The Trustees enjoyed the tour of the physical plant and would like to include it in the orientation for new Board members.
  - Deborah will give an overview of the Capital Reserve replacement plan at a later meeting.
  - The “Understanding Our Financial Statements” document that Amy created is a good reference. The Trustees would like it to be included in the Board Manual.
  - SWOT analysis was a lot of how the Board thinks. Board advocacy, education, and interaction with the community will be incorporated into the Strategic Plan process.
  - At the October Board meeting, Sharon Morris from the State Library will talk about the Strategic Planning process, the structure, the Board role and how to find the right balance.

### **Draft Board Recruitment plan, Carolyn Kane**

Carolyn reported that a bigger pool of candidates is needed and spoke to why it's important to recruit new people. She and Amy determined it would be great to set up a one-day meeting sometime in November to invite community members who might be interested in becoming a trustee and speak to them about how they can get involved. Board Trustees were asked to think about who to invite to the meeting and to bring the list to the next Board meeting.

### **Director's Report, Amy Shipley**

Items not covered in the written Director Report

- Proposition HH: Amy handed out informational materials on Proposition HH. She explained how passage of HH would affect the library's budget. There was discussion about what changes may need to be made to the proposed 2024 budget if proposition HH passes. She asked, if Proposition HH passes might the budget hearing be included in the November Board meeting. Everyone agreed. This will be added to the November Board meeting agenda.
- Amy attended the Special District's Association conference online last week. The Special District Association is a support organization for all Special Districts in Colorado. She talked about the various sessions she attended including budgeting, ballot measures, how to request mill levy credits, and Proposition HH.  
She learned about a new online learning resource for library trustees. The State Library paid for all trustees to have access to this resource. Amy attended an introductory session and will be learning more about it and will provide the Board Trustees with information on how to register for these videos that are called "Short Takes for Trustees."
- The October Board meeting will be held in the Conference Room due to "Swap it Like it's Hot" being held in the Community Room.

### **Committee Reports:**

- Bylaws Committee: *Carolyn Kane, chair*
  - Jim, Amy, and Carolyn met to go over the changes to the Bylaws that were suggested by the attorney. The draft final form of the Bylaws is being presented tonight. It will be discussed and voted on later in this meeting.
- Facilities Committee: *Jim Albert, chair*
  - Jim has nothing to report.
  - Amy reported she will have a set of roof drawings and a draft Request for Proposal (RFP) by the end of this week. The Trustees will review the RFP at the next Board meeting prior to posting.
- Finance Committee: *Eric Pelander, chair*
  - August 2023 Financials
    - We are where we should be. We won't be in a deficit position at the end of the year, as planned, due to underspend on payroll. Current financials look good.
  - 2024 Budgets
    - Preliminary certifications came in from Pitkin and Eagle Counties. The expected revenue came down a little from what had been budgeted. Pitkin may come down more. more once it gets through the equalization process.
  - Amy noted that the new Finance Manager, Karen Frye, is on board and receiving training from Meghan. She and Amy will meet weekly. Amy will have one final meeting with

Meghan and Karen together to finalize details and thank Meghan. Karen will work solely remotely.

- Personnel Committee: *Enid Ritchy, chair*  
Director survey materials were received and condensed showing positives and areas of potential growth. These were given to Amy who shared some of her thoughts. Amy will share additional goals at the Executive Session. The 2024 Director contract will also be looked at during the Executive Session.
- Policy Committee: *Elaine Nagey, chair*  
The Open Records Policy will be voted on during Action Items. Other policies the Committee is considering are Firearms, Pandemic and Emergency, Holiday and Closure, and Photography and Videography.

## **ACTION ITEMS**

### **Discussion and possible vote to add board email addresses to library website**

After discussion Eric moved and Margaret seconded the motion to add board email addresses to the library website. The motion passed unanimously.

### **Discussion and possible vote to approve Bylaws**

- There was discussion on whether to add the word “may” to the sentence “The BRLD Trustees wish to maintain objectivity in the selection of Board members, and therefore request participation of the Legislative Bodies in trustee interviews and selection.” in Article 4, Section 2, on page 2. The word “may” to precede the word “request.” A vote followed. Margaret moved and Deborah seconded the motion to include the word May. The motion failed with a vote of 2 ayes and 5 nays.
- After further discussion, Eric moved and Jim seconded the motion to approve the Bylaws with the suggested adjustments. The motion passed unanimously.

### **Discussion and possible vote to approve Financial Management Manual**

Eric moved and Jim seconded the motion to accept the Financial Management Manual with the adjustments suggested. The motion passed unanimously.

### **Discussion and possible vote to approve Open Records Policy**

Jim moved and Margaret seconded the motion to approve the Open Records Policy as written. The motion passed unanimously,

### **Discussion and possible vote on a Resolution Adopting the Colorado Retention Manual for the Basalt Regional Library District**

- Amy presented the Colorado Retention Manual to the Board and proposed adopting the Manual instead of producing our own retention policy.
- Jim moved and Carolyn seconded the motion to accept the Resolution Adopting the Colorado Retention Manual for the Basalt Regional Library District. The motion passed unanimously.

### **Executive Session to discuss Executive Director Evaluation**

- Elaine asked for a motion to go into Executive Session. All Trustees agreed and Elaine adjourned the regular meeting at 6:59 PM.
- The Executive Session ended at 8:12 PM
- The Regular meeting began at 8:12 PM
- The Regular meeting adjourned at 8:12PM

Respectfully submitted,

\_\_\_\_\_  
Margaret Simmons

\_\_\_\_\_  
Date



**BASALT REGIONAL LIBRARY DISTRICT  
EXECUTIVE DIRECTOR MONTHLY REPORT  
OCTOBER 2023**

**Administration and Personnel**

CURRENT STAFF				
Total Staff Count	Total FTE	Total Staff Hours per Week	Count of Staff Eligible for Benefits (over 20 hours)	Count of Staff Not Eligible for Benefits (under 20 hours)
19	16.43	633	16	3

STAFF VACANCIES			
Position	Scheduled Hours per Week	FTE	Benefits Eligible? (Y/N)
Youth Services Associate	40	1	Yes
Patron Services Associate	30	.75	Yes
Adult Programming Coordinator	40	1	Yes
<b>Total</b>	110	2.75	N/A

This month, we welcomed our new Teen Librarian and hired our new Page who started in October. We have also interviewed for and filled the Community Engagement Manager position. The HR department has also scheduled interviews for the Patron Services, Youth Services Associate, and Adult Programming Coordinator positions.

**Board**

The Board recruiting meet and greet sessions have been set for Thursday, November 9 at noon and 6pm.

**Finances**

The 2023 budget is on track to come in over budget on revenue and under budget on expenses. This month, an analysis of the potential impact on our 2024 budget if Proposition HH passes resulted in a projected \$88,000 reduction to revenue in 2024 if the measure passes.

**Collection**

The cataloging librarian created a new Library of Things check in guide to help staff with these items. The Library of Things had many requested items added this month, including CD players, DVD players, microscopes, and a metal detector. The cataloging librarian also worked with the circulation manager to design and order supplies for “Backpacking Kits” as part of the Colorado Parks and Wildlife equity grant.

The cataloging librarian and adult collection manager trained the new teen librarian on ordering procedures. The technical services associate has kept up with copy-cataloging new orders. The adult collection manager has continued book review club programs and has finished redistributing the fiction collection after heavily weeding it over the past two months. The technical services associate is working together with the Spanish outreach coordinator to create the October book display celebrating Hispanic heritage month. The children's librarian and the youth services assistant have been hard at work removing books from juvenile nonfiction and juvenile picture books that are 10 years old or older from our collection and have been ordering new titles to relate to our current generation. We have reevaluated the youth services collection budget and have created a new timeline and expectations to keep on track for the rest of the year and heading into 2024.

### **Programs**

The Wednesday afternoon program for tweens, WHATLOW, is well attended and is something they look forward to. Storytimes and baby gym are still going strong, with a local preschool attending when they can.

### **Outreach**

In partnership with the Community Engagement department, the Youth Services team has been building our connection with the local schools. We were present at most back to school nights where we had contact with over 300 students and their parents. We are ending this month on a high with a partnership with Basalt Elementary School Parent Teacher Association with an outdoor movie.

### **Technology**

The IT & Marketing Manager is working on getting bids for updating the AV equipment in the Community room and for replacing the security camera system in the building. The IT & Marketing Associate encountered a broken disc tray on a public computer and has sent it to Marmot to get repaired.

### **Facility**

Fiber internet should be connected to our building in mid-November, resulting in higher speed internet for staff and our customers. This will also result in a slight increase in our internet costs, which we have budgeted for. Staff are working on scheduling interior painting and hope to have that completed by the end of the year.

### **Community Relations**

The technical services associate, Spanish language outreach coordinator, and cataloging librarian met with English in Action and updated the literacy reference cart and collection with labeling that works for both library staff and English in Action participants.

The marketing theme continues to focus on Community. Radio and newspaper marketing for the coming month will focus on the upcoming Swap and getting donations for it throughout the month.



**Basalt Regional Library District  
Balance Sheet  
as of September 2023**

	<b>General Operating</b>	<b>Bond Repayment</b>	<b>Capital Reserve</b>	<b>Total</b>	<b>Adjustments</b>	<b>Statement of</b>
	<b>Fund</b>	<b>Fund</b>	<b>Fund</b>	<b>Balance</b>	<b>(Conversion Fund)</b>	<b>Net Position</b>
<b>ASSETS</b>						
Cash in Banks						
Alpine Bank #0127	45,652			45,652		45,652
Colo Trust - Tabor Reserve #8003	54,347			54,347		54,347
Colo Trust - Operating Fund #8004	2,087,172			2,087,172		2,087,172
Colo Trust - Bond Repayment #8002		217,855		217,855		217,855
Colo Trust - Capital Rsv Fund #8005			1,392,638	1,392,638		1,392,638
Cash with County Treasurer	-			-		-
Employee Ski Pass Repayment Program	-			-		-
Prepaid Expense	6,412			6,412		6,412
Property Tax Receivable	43,027			43,027		43,027
Pooled Cash (Interfund Transfers)	(434,393)	666,562	(232,169)	(0)		(0)
Capital Assets, net of depreciation	-	-	-	-	8,778,049	8,778,049
<b>Total Assets</b>	<b>1,802,217</b>	<b>884,416</b>	<b>1,160,469</b>	<b>3,847,103</b>	<b>8,778,049</b>	<b>12,625,151</b>
<b>LIABILITIES</b>						
<b>Current Liabilities</b>						
Accounts Payable & Accrued Liabilities	43,734	-	-	43,734		43,734
<b>Other Current Liabilities</b>						
Accrued Interest				-	12,899	12,899
Deferred Property Tax	42,937			42,937		42,937
Current Bonds Payable, 2012				-	780,000	780,000
<b>Total Current Liabilities</b>	<b>86,672</b>	<b>-</b>	<b>-</b>	<b>86,672</b>	<b>792,899</b>	<b>879,570</b>
<b>Long Term Liabilities</b>						
Bonds Payable, 2012		-		-	2,475,000	2,475,000
Accrued Compensated Absences				-	33,385	33,385
<b>Total Long Term Liabilities</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,508,385</b>	<b>2,508,385</b>
<b>Total Liabilities</b>	<b>86,672</b>	<b>-</b>	<b>-</b>	<b>86,672</b>	<b>3,301,283</b>	<b>3,387,955</b>
<b>Fund Balance / Net Position</b>						
Net Investment in Capital Assets	-	-	-	-	5,523,049	5,523,049
Non Spendable	6,412	-	-	6,412	(6,412)	-
Restricted for:						
Tabor	78,000			78,000	-	78,000
Debt Service		884,416		884,416	-	884,416
Committed for Future Projects			1,160,469	1,160,469	(1,160,469)	-
Unassigned / Unrestricted	1,631,133	-	-	1,631,133	1,120,598	2,751,731
<b>Current Year Fund Balance / Net Position</b>	<b>1,715,545</b>	<b>884,416</b>	<b>1,160,469</b>	<b>3,760,431</b>	<b>5,476,765</b>	<b>9,237,196</b>
<b>Total Liabilities and Fund Balance / Net Position</b>	<b>1,802,217</b>	<b>884,416</b>	<b>1,160,469</b>	<b>3,847,103</b>	<b>8,778,049</b>	<b>12,625,151</b>

Prepare for Internal Use Only

**Basalt Regional Library District  
General Fund  
September 2023**

			2022 Year End Actuals	2023 Budget	YTD Actuals 09/30/23	Actuals vs Budget YTD %	2024 Preliminary Budget - No on HH	Budget Assumptions	2024 Preliminary Budget - Yes on HH	Budget Assumptions
<b>General Operating Beginning Fund Balance</b>			1,728,500	1,761,053	1,828,174	67,121	1,618,160		1,618,160	
<b>Eagle County</b>										
	<b>Assessed Value</b>		271,560,910	273,153,790			433,516,750	preliminary	416,971,257	preliminary
	% Increase		12%	0.59%			59%		53%	
	<b>Operating Mill Levy Rate</b>		3.363	3.360			2.610		2.610	
<b>Pitkin County</b>										
	<b>Assessed Value</b>		192,808,360	193,543,290			322,736,504	preliminary	305,972,451	preliminary
	% Increase		4%	0.38%			67%		58%	
	<b>Operating Mill Levy Rate</b>		3.363	3.360			2.610		2.610	
<b>REVENUES</b>										
4005	General Operating Mill Levy									
4010	Eagle County		702,200	712,931	706,932	99.16%	1,131,479	AV x mill levy (2.61)	1,088,295	AV x mill levy (2.61)
4020	Pitkin County		498,072	505,148	498,631	98.71%	842,342	AV x mill levy (2.61)	798,588	AV x mill levy (2.61)
4030	Mill Levy Supplement		348,618	350,023	345,361	98.67%	-		-	
4040	Tax Abatement - Prior Year		-	-	-	0.00%	-		-	
	<b>Total General Operating Mill Levy</b>		1,548,890	1,568,102	1,550,924	98.90%	1,973,821	126%	1,886,883	120%
4100	MVSO - General Operating									
4110	Eagle County		83,759	89,737	56,942	63.45%	70,000		70,000	
4120	Pitkin County		39,343	42,475	25,373	59.74%	30,000		30,000	
	<b>Total MVSO - General Operating</b>		123,102	132,212	82,315	62.26%	100,000	76%	100,000	76%
4200	Fines & Fees									
4205	Coffee Purchase		421	500	110	22.00%	500		500	
4210	Copies		4,758	3,500	882	25.21%	750	over-budgeted in 2023	750	over-budgeted in 2023
4215	Earbuds		39	50	17	34.00%	50		50	
4220	Faxing		422	-	5	Not Budgeted	-		-	
4230	Fines		1,023	1,000	117	11.70%	100	over-budgeted in 2023	100	over-budgeted in 2023
4240	Guest Passes		-	-	-	0.00%	-		-	
4250	Meeting Room Rental		1,321	1,000	663	66.25%	-		-	
4255	Reading Glasses		33	50	3	6.00%	50		50	
4260	Replacement Books		1,143	1,500	224	14.94%	100	over-budgeted in 2023	100	over-budgeted in 2023
	Replacement Library Cards		2	-	-	0.00%	-		-	
4280	Test Proctoring		-	-	-	0.00%	-		-	
4285	Health Insurance Dividend - CEBT		-	-	6,780	Not Budgeted	-		-	
4290	Holy Cross Deposit Return/Member Equity		90	100	-	0.00%	-		-	
4261	Miscellaneous		-	-	7,179	Not Budgeted	-		-	
	<b>Total Fines &amp; Fees</b>		9,252	7,700	15,980	207.53%	1,550	20%	1,550	20%
4300	Earnings on investments									
4310	Colotrust Int Op Acct		37,579	36,768	84,724	230.43%	80,000		80,000	
4320	Mill Levy Interest		4,897	6,234	2,753	44.16%	6,234	Flat to 2023 Forecast	3,481	Flat to 2023 Forecast
	<b>Total Earnings on investments</b>		42,475	43,002	87,477	203.43%	86,234	201%	83,481	194%
4400	Contributions *see detail									
4410	Contributions- Non-Restricted		7,947	5,000	779	15.59%	5,000		5,000	
4412	Contributions- Restricted		1,294	1,000	22,671	2267.09%	1,000		1,000	
	Contributions- Music		2,000	-	-	0.00%	-		-	
	<b>Total Contributions</b>		11,241	6,000	23,450	390.84%	6,000	100%	6,000	100%
4500	Grants - Non-Restricted									
4505	Grants - General Operating Grants		1,266	-	4,000	Not Budgeted	5,000		5,000	
	Grants - Alpine Bank		2,500	-	-	0.00%	-		-	
	Grants - Kahle Foundation		1,000	-	-	0.00%	-		-	
	Colo Spec District - COVID-19		-	-	-	0.00%	-		-	
	<b>Total Grants - Non-Restricted</b>		4,766	-	4,000	0.00%	5,000		5,000	
4600	Grants - Restricted									
4602	Restricted - Library Foundation		1,250	5,000	2,311	46.23%	5,000		5,000	
	Restricted - American Library Association		10,000	-	-	0.00%	-		-	
4604	Restricted - Library Friends		2,423	5,000	3,430	68.60%	5,000		5,000	

**Basalt Regional Library District  
General Fund  
September 2023**

			2022 Year End Actuals	2023 Budget	YTD Actuals 09/30/23	Actuals vs Budget YTD %	2024 Preliminary Budget - No on HH	Budget Assumptions	2024 Preliminary Budget - Yes on HH	Budget Assumptions
		Restricted - State of Colorado Grant	5,943	-	-	0.00%	-		-	
		Restricted - Legends Event	-	-	-	0.00%	-		-	
		Restricted - Association of Science	6,000	-	-	0.00%	-		-	
		Restricted - Rotary Grant	1,000	-	-	0.00%	-		-	
		Restricted - Cares Grant - Tmobile Data	-	-	-	0.00%	-		-	
		Restricted - Cares Grant - TOB Art Camp	-	-	-	0.00%	-		-	
		Restricted - LSTA Grant	-	-	-	0.00%	-		-	
		Restricted - Humanities	-	-	-	0.00%	-		-	
		Restricted - Outdoor Equity	5,000	-	-	0.00%	-		-	
		Restricted - Charge Ahead	5,000	-	-	0.00%	-		-	
		Restricted - ARP Grant	6,478	-	-	0.00%	-		-	
		Restricted - GRT	5,225	-	-	0.00%	-		-	
		Restricted- Aspen Thrift Shop	2,500	-	-	0.00%	-		-	
4620.14		Restricted - Library Trust	-	5,000	3,900	78.00%	5,000		5,000	
4620.15		Restricted - Other Misc	-	30,000	33,116	110.39%	30,000		30,000	
		<b>Total Restricted Fund Income - Foundation/Friends</b>	<b>50,819</b>	<b>45,000</b>	<b>42,758</b>	<b>95.02%</b>	<b>45,000</b>	<b>100%</b>	<b>45,000</b>	<b>100%</b>
		<b>TOTAL REVENUES</b>	<b>1,790,546</b>	<b>1,802,016</b>	<b>1,806,903</b>	<b>100.27%</b>	<b>2,217,605</b>	<b>123%</b>	<b>2,127,914</b>	<b>118%</b>
		<b>OPERATING:</b>								
		<b>Administration</b>								
		Contract Services								
5010		Accounting	11,261	1,920	4,011	208.88%	45,000	under-budgeted in 2023, and move Finance Manager from payroll to contract	45,000	under-budgeted in 2023, and move Finance Manager from payroll to contract
5020		Audit - Annual	14,000	13,250	13,250	100.00%	14,045	6% Inflation Increase	14,045	6% Inflation Increase
5030		Courier	2,847	11,500	8,541	74.27%	9,000	quote from vendor - 12% decrease due to increased state funding	9,000	quote from vendor - 12% decrease due to increased state funding
5040		Legal	13,156	15,000	1,296	8.64%	5,000		5,000	
		Miscellaneous Contracts					20,000	Strategic Planning - \$2,000, Furniture Consultant - \$3000, Updated Capital Reserve Plan - \$5,000, new website - \$10,000	20,000	Strategic Planning - \$2,000, Furniture Consultant - \$3000, Updated Capital Reserve Plan - \$5,000, new website - \$10,000
		<b>Total Contract Services</b>	<b>41,264</b>	<b>41,670</b>	<b>27,098</b>	<b>65.03%</b>	<b>93,045</b>	<b>223%</b>	<b>93,045</b>	<b>223%</b>
		Insurance								
5100		Property & Liability Insur	300	23,650	36,329	153.61%	38,509	6% Inflation Increase	38,509	6% Inflation Increase
5120		Worker's compensation	176	2,376	1,484	62.46%	2,519	6% Inflation Increase	2,519	6% Inflation Increase
		<b>Total Insurance</b>	<b>476</b>	<b>26,026</b>	<b>37,813</b>	<b>145.29%</b>	<b>41,027</b>	<b>158%</b>	<b>41,027</b>	<b>158%</b>
		Professional Dev. & Memberships								
5230		Board	494	1,600	535	33.44%	750	over budgeted in 2023	750	over budgeted in 2023
5235		Employers Council	1,383	3,300	3,417	103.55%	3,600	new price quoted by vendor	3,600	new price quoted by vendor
5240		Library Association Dues	760	1,000	860	86.00%	1,000	flat	1,000	flat
5250		Spec District Ass'n Due	1,481	1,599	1,196	74.74%	1,695	6% Inflation Increase	1,695	6% Inflation Increase
5260		Staff	9,305	10,000	5,841	58.41%	12,000	Public Library Association Conference is every other year	10,000	Public Library Association Conference is every other year
5284		Developmental	-	-	-	0.00%	-		-	
5275		Volunteer Appreciation	-	275	453	164.65%	1,000		1,000	
5276		Staff Appreciation	-	275	1,232	448.05%	2,000		2,000	
5270		Travel expenses	7,226	4,000	5,144	128.61%	9,000	Public Library Association Conference is every other year	8,000	Public Library Association Conference is every other year
		<b>Total Professional Dev. &amp; Memberships</b>	<b>20,649</b>	<b>22,049</b>	<b>18,678</b>	<b>84.71%</b>	<b>31,045</b>	<b>141%</b>	<b>28,045</b>	<b>127%</b>
5280		Publicity								
5290		Advertising - General	223	6,000	1,386	23.10%	6,000		6,000	
5283		Anniversary Celebration	10,116	-	(755)	0.00%	-		-	
5285		Radio	13,329	16,000	16,055	100.34%	16,500		16,500	
5293		Signage	319	1,000	972	97.19%	1,500		1,500	
5295		Social Media Ads	559	1,500	627	41.78%	1,500		1,500	
5297		Targeted Newspaper Ads	4,131	6,000	3,655	60.92%	7,000		7,000	
5286		Spanish Language Interpretation/Translating	-	5,000	1,006	20.13%	6,000		6,000	
5287		Job Ads	-	2,000	1,199	59.95%	2,000		1,000	

**Basalt Regional Library District  
General Fund  
September 2023**

		2022 Year End Actuals	2023 Budget	YTD Actuals 09/30/23	Actuals vs Budget YTD %	2024 Preliminary Budget - No on HH	Budget Assumptions	2024 Preliminary Budget - Yes on HH	Budget Assumptions
	Total Publicity	28,677	37,500	24,145	64.39%	40,500	108%	39,500	105%
5300	Supplies								
5310	Office Supplies	11,348	8,640	8,344	96.57%	14,000	underbudgeted in 2021, 2022, 2023	12,000	underbudgeted in 2021, 2022, 2023
5320	Technical Cataloging & Service	5,295	8,500	7,344	86.40%	8,500	includes copier supplies 5750	8,500	includes copier supplies 5750
5330	Postage & Shipping	292	1,000	4	0.39%	500		500	
	Total Supplies	16,934	18,140	15,692	86.50%	23,000	127%	21,000	116%
5350	Treasurer's fees								
5360	Eagle fees	27,334	29,188	27,293	93.51%	33,944	3% of Property Tax	32,649	3% of Property Tax
5370	Pitkin fees	31,015	29,918	30,707	102.64%	42,117	5% of Property Tax	39,929	5% of Property Tax
	Total Treasurer's fees	58,348	59,106	58,000	98.13%	76,061	129%	72,578	123%
	<b>Total Administration</b>	<b>166,349</b>	<b>204,491</b>	<b>181,425</b>	<b>88.72%</b>	<b>304,679</b>	<b>149%</b>	<b>295,196</b>	<b>144%</b>
	<b>Facility Expenses</b>								
5410	Janitorial	53,337	54,913	37,734	68.72%	55,000	flat	55,000	flat
5420	Janitorial Supplies	2,613	6,480	6,076	93.77%	9,000	underbudgeted in 2023	9,000	underbudgeted in 2023
5430	Landscaping	10,394	10,800	10,191	94.36%	11,448	6% Inflation Increase	11,448	6% Inflation Increase
5440	Maintenance *Detailed List Attached	52,249	30,000	20,887	69.62%	20,000	decrease	20,000	decrease
5450	Mat Cleaning	828	-	-	0.00%	-		-	
5460	Snow Removal	5,705	4,620	-	0.00%	4,897	6% Inflation Increase	4,897	6% Inflation Increase
	Total Facility Expenses (Maintenance)	125,125	106,813	74,888	70.11%	100,345	94%	100,345	94%
5500	Utilities								
5510	Electric	7,938	15,290	5,381	35.19%	8,000	over budgeted in 2023	8,000	over budgeted in 2023
5515	Compost Collection System	791	864	838	96.99%	916	6% Inflation Increase	916	6% Inflation Increase
5520	Gas	10,966	10,506	11,444	108.93%	13,215	6% Inflation Increase	13,215	6% Inflation Increase
5575	Hot Spots	8,194	-	-	0.00%	-		-	
5530	Internet Connectivity	1,239	14,904	6,239	41.86%	15,000		15,000	
5540	Sanitation	3,278	3,359	2,523	75.10%	3,561	6% Inflation Increase	3,561	6% Inflation Increase
5550	Telephone	5,754	8,424	4,145	49.21%	8,929	6% Inflation Increase	8,929	6% Inflation Increase
5560	Trash	7,543	6,221	6,154	98.93%	6,594	6% Inflation Increase	6,594	6% Inflation Increase
5570	Water	4,647	4,763	1,609	33.78%	5,049	6% Inflation Increase	5,049	6% Inflation Increase
	Total Utilities	50,350	64,331	38,333	59.59%	61,263	95%	61,263	95%
	<b>Total Facility Expenses</b>	<b>175,475</b>	<b>171,143</b>	<b>113,221</b>	<b>66.16%</b>	<b>161,609</b>	<b>94%</b>	<b>161,608</b>	<b>94%</b>
	<b>Library Programs</b>								
5610	Adult Program	10,306	9,000	11,000	122.22%	11,000		11,000	
5612	Adult Materials	1,559	-	(35)	Not Budgeted	-		-	
5615	Art	-	-	-	0.00%	-		-	
5620	Children's	10,676	4,000	6,339	158.48%	5,500		5,500	
5625	Children's Materials	2,126	-	84	Not Budgeted	-		-	
5630	Community	-	-	-	0.00%	-		-	
5634	Liquor License	500	375	-	0.00%	400		400	
5633	Movie License	-	550	173	31.45%	550	moved from 5835	550	moved from 5835
5640	Music	15,973	15,000	19,643	130.95%	17,000		16,000	
5650	Spanish Language	832	3,000	2,461	82.04%	4,000	increase	4,000	
5635	Volunteers	96	-	-	0.00%	-		-	
5660	Teens	6,473	4,000	3,845	96.13%	3,500	decrease	3,500	
5601	Summer Reading								
5601.01	Adult Summer Reading	-	1,000	2,133	213.34%	1,000		1,000	
5601.02	Teen Summer Reading	-	2,000	2,147	107.34%	2,500	increase	2,500	
5601.03	Children's Summer Reading	-	5,000	5,893	117.87%	5,500	increase	5,500	
5601.04	Spanish Language Summer Reading	-	2,000	941	47.05%	2,000		2,000	
5602	Community Events	1,413	10,000	7,974	79.74%	15,000		12,000	
5675	Next Gen / Millennials	-	-	-	0.00%	-		-	
	<b>Total Library Programs</b>	<b>49,953</b>	<b>55,925</b>	<b>62,599</b>	<b>111.93%</b>	<b>67,950</b>	<b>122%</b>	<b>63,950</b>	<b>114%</b>
	<b>Technology &amp; Equipment</b>								
	Copiers & Equipment								
5730	Lease	3,933	-	353	Not Budgeted	-		-	
5740	Service Agreement / Copy Usage	5,276	5,000	946	18.92%	2,500	over-budgeted in 2023	2,500	over-budgeted in 2023
5750	Copier Supplies	511	-	124	Not Budgeted	-	Moved to Technical Cataloging & Service 5320	-	Moved to Technical Cataloging & Service 5320
	Total Copiers & Equipment	9,720	5,000	1,422	28.45%	2,500	50%	2,500	50%
5760	Marmot ILS System	92,349	97,000	70,144	72.31%	99,910	vendor quoted 3% increase	99,910	vendor quoted 3% increase

Prepare for Internal Use Only

**Basalt Regional Library District  
General Fund  
September 2023**

			2022 Year End Actuals	2023 Budget	YTD Actuals 09/30/23	Actuals vs Budget YTD %	2024 Preliminary Budget - No on HH	Budget Assumptions	2024 Preliminary Budget - Yes on HH	Budget Assumptions
5770		Miscellaneous Parts	3,153	2,000	780	38.98%	2,000	flat	2,000	flat
5780		Support & Service Agreements								
5782		Adobe	915	972	870	89.50%	-		-	
5784		Appointment Booking	147	120	144	119.90%	-		-	
5793		Canva	-	-	-	0.00%	-		-	
5788		Domain / Network Solutions	228	250	154	61.58%	-		-	
5795		Emma	662	1,500	1,356	90.40%	-		-	
5800		Envisionware	-	-	-	0.00%	-		-	
5802		Google Cloud G Suite	2,313	2,900	2,256	77.80%	-		-	
5830		Livechat Website	192	240	240	100.00%	-		-	
5835		Movie License	494	-	-	0.00%	-	already moved to programming budget 5633	-	already moved to programming budget 5633
5820		Planning Center / Tockify	249	264	252	95.45%	-		-	
5824		Scheduling / When I Work	896	540	-	0.00%	-		-	
5825		Webpage Builder	233	250	90	35.96%	-		-	
5828		Zoom	162	150	150	99.93%	-		-	
		Marketing & Graphic Design					2,500	Adobe, Emma, canva	2,500	Adobe, Emma, canva
		Website Tools					2,500	Domain, Google Cloud, Livechat, Webpage builder,	2,500	Domain, Google Cloud, Livechat, Webpage builder,
		Communication & Time Management					4,500	Zoom, planning center, scheduling.	4,500	Zoom, planning center, scheduling.
		Total Support & Service Agreements	6,490	7,186	5,512	76.70%	9,500	132% eliminate, will use 5440, Maintenance in the future	9,500	132% eliminate, will use 5440, Maintenance in the future
5840		Tech Labor & Repair	-	2,000	-	0.00%				
		<b>Total Technology</b>	<b>111,711</b>	<b>113,186</b>	<b>77,858</b>	<b>68.79%</b>	<b>113,910</b>	101%	<b>113,910</b>	101%
		<b>Collections</b>								
		Audio								
5910		Adult BCD	3,598	3,000	2,179	72.65%	3,000		3,000	
5922		Spanish Audio Adult	255	750	490	65.32%	500		500	
5924		Spanish Audio Youth	-	500	321	64.14%	500		500	
5930		Youth Audio	284	2,200	1,255	57.02%	3,000		3,000	
		Total Audio	4,137	6,450	4,245	65.81%	7,000	109%	7,000	109%
6000		Books & Magazines								
6010		Adult fiction books	10,899	12,000	6,715	55.96%	12,000		12,000	
6020		Adult non-fiction books	9,606	12,000	6,307	52.55%	12,000		12,000	
6025		Board Games	475	500	398	79.65%	500		500	
6030		Juvenile Fiction	4,586	7,000	4,644	66.35%	9,100	increase	9,100	increase
6040		Juvenile Non-Fiction	3,943	3,000	1,909	63.64%	4,000	increase	4,000	increase
6045		Large Print	1,756	2,000	1,506	75.31%	2,000		2,000	
6050		Print Subscriptions	6,994	4,500	779	17.30%	4,500		4,500	
6055		Replacement Books - Purchased	2,434	1,500	1,062	70.81%	1,500		1,500	
6060		Spanish Adult fiction	1,371	2,000	783	39.13%	2,000		2,000	
6070		Spanish adult non-fiction	959	1,000	559	55.90%	1,500		1,500	
6080		Spanish children's books	2,616	4,500	1,955	43.44%	5,000		5,000	
6100		YA Fiction	5,373	1,600	3,307	206.67%	3,500		3,500	increase
6110		YA Non-Fiction	1,499	5,400	996	18.44%	1,700		1,700	decrease
6120		Special Items	779	2,000	1,362	68.10%	2,000		2,000	
		Total Books	53,290	59,000	32,281	54.71%	61,300	104%	61,300	104%
6200		Digital Resources								
6210		Annual Subscriptions:								
6220		Ancestry.com	-	-	-	0.00%	-		-	
6230		Culturegrams	2,692	1,840	-	0.00%	-		-	
6235		Creative Bug	-	-	-	0.00%	-		-	
6240		Ency Britannica	-	-	493	Not Budgeted	-		-	
6245		Gale Student Resources	-	1,475	-	0.00%	-		-	
6250		Gale Public	536	2,205	2,035	92.27%	-		-	
6253		Learning Express Library	-	2,800	-	0.00%	-		-	
6270		Mango Languages	3,916	-	-	0.00%	4,000		4,000	
6275		New York Times	100	100	100	100.00%	-		-	
6280		Tumblebooks	52	665	(52)	-7.89%	-		-	
6285		Wallstreet Journal	488	465	434	93.35%	-		-	
6295		Pebble Go	1,679	1,500	1,469	97.91%	-		-	
6300		Downloadable Titles:								
6305		Kanopy	3,287	6,000	3,752	62.53%	6,000		6,000	

**Basalt Regional Library District  
General Fund  
September 2023**

			2022 Year End Actuals	2023 Budget	YTD Actuals 09/30/23	Actuals vs Budget YTD %	2024 Preliminary Budget - No on HH	Budget Assumptions	2024 Preliminary Budget - Yes on HH	Budget Assumptions
6308		OCLC World Share	-	-	-	0.00%	-		-	
6320		Overdrive	15,272	21,750	13,371	61.48%	25,000		25,000	
6330		RB Digital	-	-	-	0.00%	-		-	
		Online Databases					7,500	Gale Public, Pebble Go, Tumblebooks, encyclopedia britannica, Peterson's Test Prep	7,500	Gale Public, Pebble Go, Tumblebooks, encyclopedia britannica, Peterson's Test Prep
		Online Newspaper Subscriptions					2,000	New York Times, Wall Street Journal, Washington Post	2,000	New York Times, Wall Street Journal, Washington Post
		<b>Total Digital Resources</b>	<b>28,021</b>	<b>42,790</b>	<b>21,601</b>	<b>50.48%</b>	<b>44,500</b>	<b>104%</b>	<b>44,500</b>	<b>104%</b>
6400		Media								
6410		Adult Music	-	300	-	0.00%		eliminate		eliminate
6420		Juvenile Music	89	200	66	33.11%		eliminate		eliminate
6430		Adult Movies	5,445	6,000	3,928	65.47%	6,000	flat	6,000	flat
6440		Juvenile Movies	273	1,000	650	65.05%	1,000	flat	1,000	flat
6460		Video / Games	522	800	606	75.77%	800	flat	800	flat
		<b>Total Media</b>	<b>6,330</b>	<b>8,300</b>	<b>5,251</b>	<b>63.26%</b>	<b>7,800</b>	<b>94%</b>	<b>7,800</b>	<b>94%</b>
		<b>Total Collections</b>	<b>91,778</b>	<b>116,540</b>	<b>63,377</b>	<b>54.38%</b>	<b>120,600</b>	<b>103%</b>	<b>120,600</b>	<b>103%</b>
6800		<b>Restricted Funds</b>								
6802		Restricted Exp - Library Foundation	2,871	-	-	0.00%	-		-	
6804		Restricted Exp - Library Friends	2,064	-	-	0.00%	-		-	
6806		Restricted Exp - State of Colorado Grant	1,731	-	-	0.00%	-		-	
6808		Restricted Exp - Humanities Grant	2,700	-	-	0.00%	-		-	
6810		Restricted Exp - CO SHARP	800	-	-	0.00%	-		-	
6812		Restricted Exp - Growing Readers Together	5,584	-	-	0.00%	-		-	
6820.04		Restricted Exp - TOB Art Camp	-	-	-	0.00%	-		-	
6803.00		Restricted Exp - ARP Grant	21,251	-	-	0.00%	-		-	
6814.00		Restricted Exp - Outdoor Equity	2,975	-	-	0.00%	-		-	
6820.10		Restricted Exp - Special Programs	-	-	-	0.00%	-		-	
6801		Restricted Exp - Misc	-	40,000	-	0.00%	40,000	flat	40,000	flat
		<b>Total Restricted Funds</b>	<b>39,976</b>	<b>40,000</b>	<b>-</b>	<b>0.00%</b>	<b>40,000</b>	<b>100%</b>	<b>40,000</b>	<b>100%</b>
		<b>Total Operating expenses</b>	<b>635,243</b>	<b>701,286</b>	<b>498,479</b>	<b>71.08%</b>	<b>848,748</b>	<b>121%</b>	<b>835,264</b>	<b>119%</b>
6900		<b>Payroll Expenses</b>								
6910		Payroll	822,530	991,647	654,260	65.98%	1,090,000	110%	1,021,000	103%
6920		Payroll Service	6,178	8,100	4,612	56.94%	8,000	99%	8,000	99%
6930		Payroll Taxes	63,147	80,906	51,689	63.89%	87,901	109%	82,585	102%
6940		Retirement Plan	18,444	29,363	20,407	69.50%	28,369	97%	27,951	95%
6950		Health Insurance	55,253	138,168	84,142	60.90%	137,160	99%	137,160	99%
6960		Life Insurance	-	713	-	0.00%	784	110%	784	110%
6965		STD/LTD	-	9,285	-	0.00%	3,683	40%	3,461	37%
6970		FAMLI	-	8,000	3,702	46.27%	9,792	122%	9,190	115%
6953		COVID - Weekly Testing	-	-	-	0.00%	1,000		1,000	
6957		Background Check	1,343	500	2,242	448.40%	1,000	200%	1,000	200%
6980		Director Search	-	-	-	0.00%	-		-	
6985		HR Assessment	1,735	-	-	0.00%	-		-	
6955		Wellness / Health - CEBT Dividend Pmts	-	-	-	0.00%	-		-	
		<b>Total Payroll Expenses</b>	<b>968,629</b>	<b>1,266,682</b>	<b>821,053</b>	<b>64.82%</b>	<b>1,367,689</b>	<b>108%</b>	<b>1,292,131</b>	<b>102%</b>
		<b>TOTAL EXPENDITURES</b>	<b>1,603,872</b>	<b>1,967,968</b>	<b>1,319,532</b>	<b>67.05%</b>	<b>2,216,437</b>	<b>113%</b>	<b>2,127,395</b>	<b>108%</b>
		<b>Net General Fund Income/(Loss)</b>	<b>186,674</b>	<b>(165,952)</b>	<b>487,371</b>		<b>1,168</b>	<b>-1%</b>	<b>519</b>	<b>0%</b>
		Allocation to Capital Reserve Outlay	87,000	600,000	600,000	100.00%	90,000		90,000	
		Allocation to Bond Repayment					2025 budget \$31070.00			2025 budget \$31070.00
		<b>General Fund Balance</b>	<b>1,828,174</b>	<b>995,101</b>	<b>1,715,545</b>	<b>172.40%</b>	<b>1,529,327</b>	<b>69%</b>	<b>1,528,678</b>	<b>72%</b>

**Basalt Regional Library District  
Bond Repayment Fund  
September 2023**

	2022 Year End Actuals	2023 Budget	YTD Actuals 09/30/23	Actuals vs Budget YTD %	2024 Preliminary Budget - No on HH	Budget Assumptions	2024 Preliminary Budget - Yes on HH	Budget Assumptions	2025 Prelim Budget	Budget Assumptions
<b>Bond Repayment Beginning Fund Balance</b>	799,713	837,168	835,076	(2,092)	910,615		910,615		960,390	
<b>Eagle County</b>										
Assessed Value	271,560,910	273,153,790			433,516,750	Estimate	410,495,155	416971257	433,516,750	Estimate
% Increase	12%	0.59%			58.71%		50.28%		0.00%	
Bond Mill Levy Rate	3.363	1.992			1.229		1.302		1.026	
<b>Pitkin County</b>										
Assessed Value	192,808,360	193,543,290			322,736,504	Estimate	303,274,026	305972451	322,736,504	Estimate
% Increase	4%	0.38%			66.75%		56.70%		0.00%	
Bond Mill Levy Rate	3.363	1.992			1.229		1.302		1.020	
<b>REVENUES</b>										
Interest Earned - Bond Repayment	16,189	16,000	25,795	161.22%	16,000		16,000		16,000	
Mill Levy Debt Repayment										
Eagle County	541,176	544,122	536,984	98.69%	532,792	AV x mill levy (1.209)	534,465	AV x mill levy (1.209)	444,788	AV x mill levy (1.026)
Pitkin County	384,762	385,538	380,521	98.70%	396,643	AV x mill levy (1.209)	394,863	AV x mill levy (1.209)	329,191	AV x mill levy (1.026)
Total Mill Levy Debt Repayment	925,937	929,661	917,504	98.69%	929,435		929,327		773,979	
Transfer from General Fund									16,527	
<b>TOTAL REVENUES</b>	<b>942,126</b>	<b>945,661</b>	<b>943,299</b>	<b>99.75%</b>	<b>945,435</b>		<b>945,327</b>		<b>806,506</b>	
<b>EXPENDITURES</b>										
Bond Interest	94,831	77,394	77,394	100.00%	59,844	Per Bond Documents	59,844	Per Bond Documents	62,094	Per Bond Documents (2025-\$40,844; 2026-\$21,250)
Bond Repayment Principle Loan Payment	775,000	780,000	780,000	100.00%	800,000	Per Bond Documents	800,000	Per Bond Documents	1,675,000	Per Bond Documents (2025-\$825,000; 2026-\$850,000)
Treasurer's Fees										
Eagle County	16,256	16,324	16,122	98.77%	15,984	3% of Property Tax	16,034	3% of Property Tax	13,344	3% of Property Tax
Pitkin County	20,676	11,566	20,443	176.75%	19,832	5% of Property Tax	19,743	5% of Property Tax	16,460	5% of Property Tax
Total Treasurer's Fees	36,932	27,890	36,565	131.11%	35,816		35,777		29,803	
<b>TOTAL EXPENDITURES</b>	<b>906,764</b>	<b>885,284</b>	<b>893,959</b>	<b>100.98%</b>	<b>895,660</b>		<b>895,621</b>		<b>1,766,897</b>	
<b>Net Fund Income/(Loss)</b>	<b>35,363</b>	<b>60,377</b>	<b>49,340</b>	<b>81.72%</b>	<b>49,775</b>		<b>49,706</b>		<b>(960,391)</b>	
<b>Bond Repayment Fund Balance</b>	<b>835,076</b>	<b>897,545</b>	<b>884,416</b>	<b>98.54%</b>	<b>960,390</b>		<b>960,322</b>		<b>(0)</b>	
<b>**Bond Repayment Schedule:</b>										
May 1 - Series 2012 Interest		38,697			29,922.00				31,047.00	
November 1 - Series 2012 Interest		38,697			29,922.00				31,047.00	
November 1 - Series 2012 Principle		780,000			800,000.00				1,675,000.00	
Series 2012 Bond Matures 11/2026										

**Basalt Regional Library District  
Capital Reserve Fund  
September 2023**

		2022 Year End Actuals	2023 Budget	YTD Actuals 09/30/23	Actuals vs Budget YTD %	2024 Preliminary Budget - No on HH	Budget Assumptions		
<b>Capital Reserve Beginning Fund Balance</b>		<b>607,860</b>	<b>578,104</b>	<b>602,128</b>	24,024	<b>442,958</b>			
<b>REVENUES</b>									
7210	Allocation From General Fund	87,000	600,000	600,000	100.00%	90,000	Per Mgr Estimate		
7230	Interest Earned - Reserve Fund	11,917	8,744	32,600	372.83%	35,000			
<b>TOTAL REVENUES</b>		<b>98,917</b>	<b>608,744</b>	<b>632,600</b>	<b>103.92%</b>	<b>125,000</b>			
<b>EXPENDITURES</b>									
8310	Miscellaneous	11,473	10,000	7,079	70.79%	10,000			
8310.01	HVAC Compressors	9,211	-	-	0.00%	-			
8310.02	Painting - Exterior	32,000	-	-	0.00%	-			
8310.03	Conference Room - A/V Replace	3,532	10,000	631	6.31%	10,000			
8310.04	Computers - Patron	260	12,000	17,630	146.92%	12,000			
8310.05	Computers - Staff	181	12,000	9,932	82.77%	12,000			
8310.06	EV Charging Station	25,163	-	6,042	Not Budgeted	-			
8310.07	Copiers - Staff and Public Purchase	12,943	13,000	-	0.00%	-			
8310.08	Lighting Control System Replacement	9,886	-	6,944	Not Budgeted	-			
8310.09	Fiber Cable	-	5,000	-	0.00%	-			
8310.10	Handrail for Tent Area	-	-	6,000	Not Budgeted	-			
8310.11	Painting - Interior	-	12,000	-	0.00%	-			
8310.12	Pumps / Valves	-	-	-	0.00%	-			
8310.13	Security Cameras	-	-	-	0.00%	10,000			
8310.14	Televisions	-	-	-	0.00%	-			
8310.15	Roof	-	600,000	-	0.00%	700,000			
8310.16	Remove Solar from Roof	-	50,000	-	0.00%	50,000			
8310.17	Consulting Engineer	-	50,000	20,000	40.00%	-			
	Furniture and Fixtures					50,000			
	Replace telephone system					10,000			
	Replace kitchen appliances					2,500			
<b>TOTAL EXPENDITURES</b>		<b>104,648</b>	<b>774,000</b>	<b>74,259</b>	9.59%	<b>866,500</b>			
<b>Net Fund Income/(Loss)</b>		<b>(5,732)</b>	<b>(165,256)</b>	<b>558,341</b>	-337.86%	<b>(741,500)</b>			
<b>Capital Reserve Fund Balance</b>		<b>602,128</b>	<b>412,848</b>	<b>1,160,469</b>	281.09%	<b>(298,542)</b>			

Prepare for Internal Use Only



**Basalt Regional Library District  
Maintenance Detail  
2023**

<b>Date</b>	<b>Name</b>	<b>Category</b>	<b>Memo</b>	<b>Amount</b>
01/05/23	Roto Rooter Plumbing	Plumbing / Heating	Sink Faucet	\$ 1,985.00
01/01/23	Acme Alarm Company	Alarm / Monitoring	1st Qtr 2023 Monitoring	\$ 118.71
01/25/23	Grizzly Creek Enterprises, Inc.	Miscellaneous	Cordless Vacuum	\$ 325.55
01/31/23	Grizzly Electric	Electrical	Misc Repairs and Maintenance	\$ 600.00
01/31/23	Grizzly Electric	Electrical	Lighting Repairs and Maintenance	\$ 312.50
<b>Sub-Total January</b>				<b>\$ 3,341.76</b>
02/13/23	S&S Automatics and Door Services	Building/Interior Maintenance	Key FOB and Key Pad Repairs and Maintenance	\$ 510.00
02/22/23	Storm King Roofing LLC	Miscellaneous	Snow Removal	\$ 750.00
02/24/23	The Glass Guru	Building/Interior Maintenance	Misc Repairs and Maintenance	\$ 115.00
02/28/23	Grizzly Creek Enterprises, Inc.	Building/Interior Maintenance	Carpets/Shelving	\$ 705.00
<b>Sub-Total February</b>				<b>\$ 2,080.00</b>
03/01/23	Johnson Controls Security Solutions	Alarm / Monitoring	Qtrly Billing 03/01 - 05/31/2023	\$ 223.95
03/03/23	Acme Alarm Company	Alarm / Monitoring	Fire Alarm Test and Inspection 2023	\$ 666.45
03/11/23	Rachels Sewing Repair Llc	Miscellaneous	Sewing repair-Canopy Tent	\$ 187.50
03/31/23	Tri County Locksmith	Building/Interior Maintenance	Locksmith	\$ 198.50
03/31/23	Grizzly Creek Enterprises, Inc.	Building/Interior Maintenance	Stainless Steel Shelving/Misc Repairs and Maintenance	\$ 663.90
<b>Sub-Total March</b>				<b>\$ 1,940.30</b>
04/01/23	Acme Alarm Company	Alarm / Monitoring	2nd Qtr 2023 Fire System Monitoring	\$ 118.71
04/13/23	Aspen Floorcovering, Inc	Building/Interior Maintenance	Carpet Repairs and Maintenance	\$ 650.00
04/14/23	The Fireplace Company	Fireplace maintenance	Fireplace Inspection	\$ 250.00
04/15/23	*Divvy	Building/Interior Maintenance	Lighting	\$ 63.25
04/30/23	Grizzly Creek Enterprises, Inc.	Building/Interior Maintenance	Misc Repairs and Maintenance	\$ 1,260.00
<b>Sub-Total April</b>				<b>\$ 2,341.96</b>
05/15/23	*Divvy	Miscellaneous	Misc Repairs and Maintenance	\$ 610.60
05/25/23	Roto Rooter Plumbing	Building/Interior Maintenance	Women's Toilet Auger	\$ 266.35
<b>Sub-Total May</b>				<b>\$ 876.95</b>
06/01/23	Johnson Controls Security Solutions	Alarm / Monitoring	Qtrly Billing 06/01 - 08/31/2023	\$ 240.75
06/05/23	Grizzly Creek Enterprises, Inc.	Miscellaneous	Misc Repair & Maintenance	\$ 899.55
06/08/23	Roto Rooter Plumbing	Plumbing / Heating	Manual Toilet flushmeter replacement	\$ 671.03
06/15/23	*Divvy	Miscellaneous	Misc Repair & Maintenance	\$ 18.41
06/29/23	Aspen Floorcovering, Inc	Building/Interior Maintenance	Ceramic Tile Repair	\$ 125.00
06/30/23	Grizzly Creek Enterprises, Inc.	Miscellaneous	Misc Repair & Maintenance	\$ 61.10
<b>Sub-Total June</b>				<b>\$ 2,015.84</b>
07/01/23	Acme Alarm Company	Alarm / Monitoring	3rd Qtr 2023 Fire System Monitoring	\$ 118.71
07/03/23	Roto Rooter Plumbing	Plumbing / Heating	Toilet Repair	\$ 471.94
07/20/23	Johnson Controls Security Solutions	Alarm / Monitoring	Service Call	\$ 73.04
07/25/23	D'AC Lighting	Building/Interior Maintenance	50% Deposit	\$ 473.00
<b>Sub-Total July</b>				<b>\$ 1,136.69</b>
08/21/23	Roto Rooter Plumbing	Plumbing / Heating	Toilet Repair	\$ 1,020.00
08/27/23	Dexter, Sandra	Building/Interior Maintenance	Paint Chips	\$ 13.75
08/28/23	Integrity Fire Services	Building/Interior Maintenance	Fire safety inspection	\$ 988.00
08/29/23	D'AC Lighting	Building/Interior Maintenance	Final on Light Fixture	\$ 473.09
<b>Sub-Total August</b>				<b>\$ 2,494.84</b>
09/01/2023	Johnson Controls Security Solutions	Alarm / Monitoring	Qtrly Billing 09/01 - 11/30/2023	240.75
09/01/2023	Acme Alarm Company	Alarm / Monitoring	3rd Qtr 2023 Monitoring	118.71
09/04/2023	Grizzly Creek Enterprises, Inc.	Miscellaneous	Misc Repair & Maintenance	612.75
09/04/2023	Grizzly Creek Enterprises, Inc.	Miscellaneous	Misc Repair & Maintenance (lights)	50.00
09/12/2023	Orkin Pest Control	Pest Control	Pest Control	645.08
09/12/2023	Orkin Prepaid 2024	Pest Control	Reclassify Orkin Prepay portion for 01-01-24 through 09-30-24	-483.81
09/14/2023	*Divvy - Amazon	Building/Interior Maintenance	Light Bulbs	20.99
09/14/2023	*Divvy - Amazon	Building/Interior Maintenance	Light Bulbs	157.11
09/18/2023	First Impression Glass Cleaners	Building/Interior Maintenance	window cleaning	2,913.00
09/25/2023	Young Services	Building/Interior Maintenance	Womens Bathroom repairs	384.04
<b>Sub-Total September</b>				<b>\$ 4,658.62</b>
<b>Grand Total</b>				<b>\$ 20,886.96</b>

**Basalt Regional Library District  
Maintenance Detail  
2023**

Date	Name	Category	Memo	Amount
		Alarm / Monitoring		\$ 1,919.78
		Electrical		\$ 912.50
		Fireplace maintenance		\$ 250.00
		Building/Interior Maintenance		\$ 9,979.98
		Inspection / Testing		\$ -
		Pest Control		\$ 161.27
		Plumbing / Heating		\$ 4,147.97
		Roof Maintenance		\$ -
		Signage		\$ -
		Telephones		\$ -
		Window Cleaning		\$ -
		Miscellaneous		\$ 3,515.46
				<b>\$ 20,886.96</b>

**BASALT REGIONAL LIBRARY DISTRICT**  
**ACCOUNTS PAYABLE LIST**  
September 9 - October 5

<b>BUDGET DESCRIPTION</b>	<b>PAYEE</b>	<b>AMOUNT</b>
Accounting	*Bill.com	\$ 264.02
Adult	Courtney Keller	\$ 400.00
Adult	Old World Wine Co	\$ 510.00
Adult BCD	Blackstone Publishing	\$ 657.76
Adult Movies	Midwest Tape	\$ 370.29
Background Check	Employers Council Services, Inc.	\$ 58.50
Bond Principal & Interest	Umb Bank N.A.	\$ 818,696.88
Cap Res Exp- Consult Engineer	Wiss, Janney, Elstner Associates, Inc	\$ 6,000.00
Compost Collection System	EverGreen ZeroWaste	\$ 86.00
Gas	*Holy Cross Energy	\$ 887.02
Janitorial	AlSCO	\$ 35.61
Janitorial/Maintenance	Grizzly Creek Enterprises, Inc.	\$ 9,462.75
Landscaping	Daly Property Services, Inc.	\$ 2,208.55
Legal	Garfield & Hecht, P.C.	\$ 400.00
Liquor License	Colorado Department of Revenue	\$ 433.75
Maintenance	Acme Alarm Company	\$ 118.71
Maintenance	D'AC Lighting	\$ 473.09
Maintenance	Dexter, Sandra	\$ 13.75
Maintenance	First Impression Glass Cleaners	\$ 2,913.00
Maintenance	Integrity Fire Safety Services	\$ 988.00
Maintenance	Orkin Pest Control	\$ 645.08
Multiple	*Divvy	\$ 6,837.98
Music	Kevin Kaukl	\$ 800.00
Music	Maria Castillo	\$ 180.00
Music	Swingin Fox Music, Inc.	\$ 750.00
Music	Wayne Wilkinson	\$ 750.00
Mutiple	Ingram Library Services	\$ 1,332.58
Office Supplies	ODP Business Solutions	\$ 418.67
Overdrive	Overdrive, Inc	\$ 4,944.68
Payroll	A-1 Collection Agency LLC	\$ 367.39
Payroll Liabilities	*TIAA-CREF	\$ 6,049.30
Prepaid Expense/Liquor License	Town of Basalt	\$ 141.25
Targeted Newspaper Ads	Aspen Daily News	\$ 334.89
Targeted Newspaper Ads	The Sopris Sun	\$ 630.00
Teen	Aspen Science Center	\$ 195.00
Teen	The Art Base	\$ 200.00
Telephone	Century Link	\$ 490.93
Translation / Interpretation	Dulce Andrea Suarez	\$ 113.75
Trash	Waste Management	\$ 704.15
Travel Expenses	Evelyn Dominguez	\$ 270.50
Wellness/Health Insurance	CEBT Willis of Colorado	\$ 9,667.22
Youth Audio	Playaway Products	\$ 233.96
	<b>Total</b>	<b><u>\$ 881,035.01</u></b>



VISA

Statement: 08/15/2023 -  
09/15/2023

## Monthly statement

VISA

Basalt Library

Account: MQU18040

Pay cycle: Auto once monthly\*

We appreciate you.

Your statement balance as of 09/15/2023 is

**\$6,837.98**

You are set up on automatic payments.

*\*The automatic payment amount that will be pulled  
includes your current balance plus any activity  
before your payment due date.*

## Summary

Previous balance	\$9,561.91
Payments	\$9,561.91
Fees	\$0.00
Adjustments	\$0.00
Transactions	\$6,837.98
<b>Statement balance</b>	<b>\$6,837.98</b>



## Payments

DATE	TYPE	AMOUNT
08/15/2023	Autodraft	\$9,561.91
	<b>Total</b>	<b>\$9,561.91</b>



## Fees

No fees were applied this statement period.

## Adjustments

No adjustments were made this statement period.



## Transactions

DATE	CARD	MERCHANT	AMOUNT	NAME
08/15/2023	**** 7327	JUXTAPOZ.COM	\$29.99	Kristen A Doyle
08/18/2023	**** 4228	AMZN Mktp US*TQ2QX1352	\$143.96	Laura Baumgarten
08/18/2023	**** 5736	CITY-MARKET #0433	\$7.56	Delaney A Meyers
08/18/2023	**** 4338	CITY-MARKET #0433	\$48.70	Charlotte M McLain
08/19/2023	**** 5068	SP ME+MI PUBLISHING,	\$226.21	Elena Marquez
08/21/2023	**** 2151	AMZN Mktp US*TQ9FJ3QZ2	\$25.50	Christy Baumgarten
08/22/2023	**** 4228	AMZN Mktp US*TQ7GJ80A1	\$722.82	Laura Baumgarten
08/22/2023	**** 4228	AMZN Mktp US*TQ7WY7S12	\$39.92	Laura Baumgarten
08/22/2023	**** 4228	AMZN Mktp US*TQ5A68MZO	\$85.96	Laura Baumgarten
08/22/2023	**** 3174	AMZN Mktp US*TQ02S5M10	\$7.88	Sandra F Dexter
08/23/2023	**** 2151	WEB*NETWORKSOLUTIONS	\$77.97	Christy Baumgarten
08/24/2023	**** 4228	AMZN Mktp US*TQ5UR4Y72	\$8.99	Laura Baumgarten
08/24/2023	**** 5068	Amazon.com*TQ5GB8811	\$11.99	Elena Marquez
08/24/2023	**** 5068	AMAZON.COM*TQ7M29KJO AMZN	\$27.74	Elena Marquez
08/24/2023	**** 9304	CITY-MARKET #0433	\$38.55	Amy Shipley
08/24/2023	**** 3174	USPS PO 0706120530	\$198.00	Sandra F Dexter
08/25/2023	**** 2151	MOUNTAINCAREERS.COM	\$79.00	Christy Baumgarten
08/25/2023	**** 2151	SWIFT COMMUNICATIONS	\$99.00	Christy Baumgarten
08/25/2023	**** 7370	97019 - TREMONT GARAGE	\$16.00	Evelyn I Dominguez
08/26/2023	**** 7327	AMZN Mktp US*T32H534F0	\$19.63	Kristen A Doyle
08/26/2023	**** 9304	CITY-MARKET #0433	\$47.60	Amy Shipley
08/26/2023	**** 7327	EB LIBRARY MANAGEMENT	\$430.44	Kristen A Doyle
08/27/2023	**** 7370	97019 - TREMONT GARAGE	\$16.00	Evelyn I Dominguez

DATE	CARD	MERCHANT	AMOUNT	NAME
08/28/2023	**** 4228	AMAZON.COM*T35078LN1 AMZN	\$52.22	Laura Baumgarten
08/28/2023	**** 5068	CAFE BERNARD	\$37.54	Elena Marquez
08/28/2023	**** 2151	Live Chat	\$240.00	Christy Baumgarten
08/29/2023	**** 9304	AMZN MKTP US*T30Y228X2 AM	\$20.99	Amy Shipley
08/30/2023	**** 2151	AMZN Mktp US*T38P13SOO	\$23.82	Christy Baumgarten
08/30/2023	**** 9304	CC CAFE	\$43.20	Amy Shipley
08/31/2023	**** 7370	Etsy.com - FabbleFrames	\$56.86	Evelyn I Dominguez
08/31/2023	**** 3174	NESPRESSO USA, INC.	\$130.40	Sandra F Dexter
08/31/2023	**** 7370	Etsy.com - GRNHouseofgla	\$41.76	Evelyn I Dominguez
09/01/2023	**** 2151	FACEBK WPD4BTFMH2	\$46.07	Christy Baumgarten
09/01/2023	**** 3174	AMZN Mktp US*TL9E23FF2	\$13.16	Sandra F Dexter
09/01/2023	**** 2151	GOOGLE GSUITE_basaltlibr	\$288.00	Christy Baumgarten
09/02/2023	**** 4228	AMZN Mktp US*TL0FU33V2	\$331.99	Laura Baumgarten
09/02/2023	**** 7370	AMZN Mktp US*TL6PE8NC0	\$37.84	Evelyn I Dominguez
09/02/2023	**** 2151	TMOBILE POSTPAID WEB	\$883.16	Christy Baumgarten
09/03/2023	**** 4228	AMAZON.COM*T32G92YB1 AMZN	\$19.96	Laura Baumgarten
09/03/2023	**** 5068	REFORMA	\$35.00	Elena Marquez
09/05/2023	**** 5068	AMZN Mktp US*TL7L62S02	\$105.90	Elena Marquez
09/06/2023	**** 3174	DREAMTIME WATER DIST	\$125.10	Sandra F Dexter
09/09/2023	**** 7327	AMZN Mktp US*TR3OS8J72	\$112.99	Kristen A Doyle
09/09/2023	**** 7327	AMZN Mktp US*TR1KI4JP2	\$31.98	Kristen A Doyle
09/09/2023	**** 7327	AMAZON.COM*TR2JS4LY0	\$516.48	Kristen A Doyle
09/10/2023	**** 0708	DOUBLETREE HOTEL GRAND JU	\$188.04	Maria Lagos
09/10/2023	**** 5068	AMAZON.COM*TR3N971Y2 AMZN	\$41.26	Elena Marquez
09/10/2023	**** 7327	AMZN Mktp US*TR5RQ6G62	\$49.45	Kristen A Doyle



DATE	CARD	MERCHANT	AMOUNT	NAME
09/10/2023	**** 7327	AMZN Mktp US*TR9RA8GI2	\$185.47	Kristen A Doyle
09/10/2023	**** 4228	Amazon.com*TR8S91G72	\$50.94	Laura Baumgarten
09/12/2023	**** 5068	AMZN Mktp US*TR29B2QN2	\$78.92	Elena Marquez
09/12/2023	**** 5068	AMZN Mktp US*TR59Z5QB2	\$18.49	Elena Marquez
09/12/2023	**** 5068	AMZN Mktp US*TR8IW1HB0	\$45.65	Elena Marquez
09/12/2023	**** 2151	AMZN Mktp US*TR4GF7B30	\$25.63	Christy Baumgarten
09/12/2023	**** 5068	AMZN MKTP US*TR5MF5QP2	\$12.99	Elena Marquez
09/13/2023	**** 3174	Amazon.com*TR02886B0	\$29.45	Sandra F Dexter
09/13/2023	**** 3174	AMZN Mktp US*TR6F06SU0	\$144.12	Sandra F Dexter
09/13/2023	**** 3174	AMZN Mktp US*TR6MQ6200	\$12.99	Sandra F Dexter
09/13/2023	**** 2151	DRI*ESIGNS	\$67.40	Christy Baumgarten
09/13/2023	**** 5068	AMAZON.COM	-\$27.74	Elena Marquez
09/13/2023	**** 9304	KOA GRAND JUNCT	\$73.95	Amy Shipley
09/14/2023	**** 3174	AMZN Mktp US*TR4RP21F1	\$17.39	Sandra F Dexter
09/14/2023	**** 2151	SP WIZARDPINS.COM	\$219.75	Christy Baumgarten
<b>Total</b>			<b>\$6,837.98</b>	

**Colorado Office**  
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# ASSOCIATION RESERVES

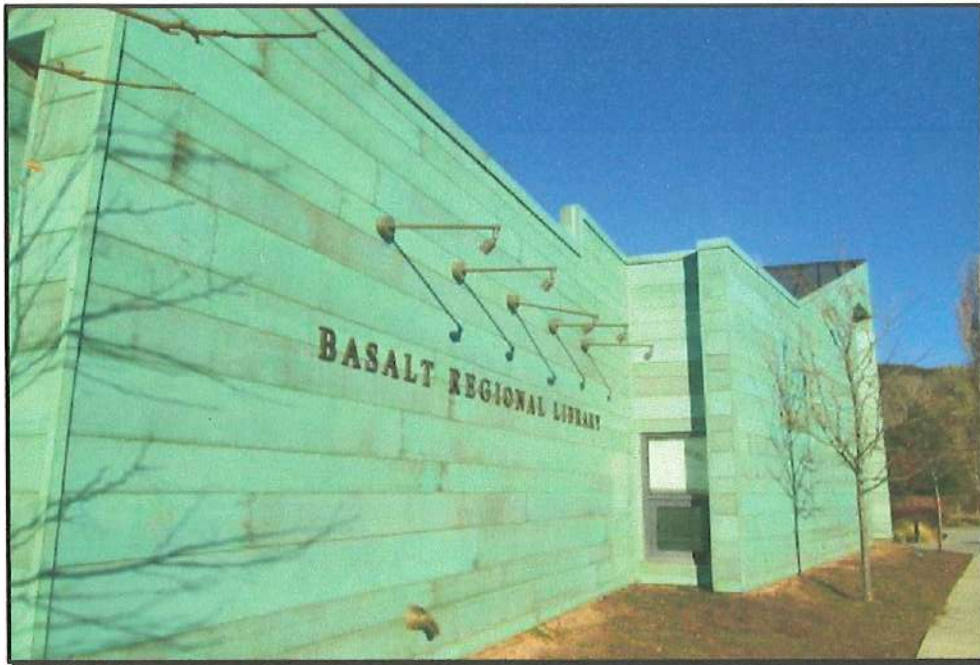
Est. 1986

*Over 30,000 Reserve Studies nationwide*

## Regional Offices

Arizona  
California  
Colorado  
Florida  
Hawaii  
Nevada  
Washington

## “Full” Capital Replacement Plan



## Basalt Regional Library Basalt, CO

**Report #: 29868-0**

**For Period Beginning: January 1, 2017**

**Expires: December 31, 2017**

**Date Prepared: December 5, 2016**



---

## Hello, and welcome to your Capital Replacement Plan!

**W**e don't want you to be surprised. This Report is designed to help you anticipate, and prepare for, the major common area expenses your property will face. Inside you will find:

- 1) **The Reserve Component List** (the "Scope and Schedule" of your Reserve projects) – telling you what your property is Reserving for, what condition they are in now, and what they'll cost to replace.
- 2) **An Evaluation of your current Reserve Fund Size and Strength** (Percent Funded). This tells you your financial starting point, revealing your risk of deferred maintenance and cash flow problems.
- 3) **A Recommended Multi-Year Reserve Funding Plan**, answering the question... "What do we do now?"

**More Questions?**

Visit our website at [www.ReserveStudy.com](http://www.ReserveStudy.com) or call us at:

303/394-9181

**ASSOCIATION  
RESERVES**  
Est. 1986

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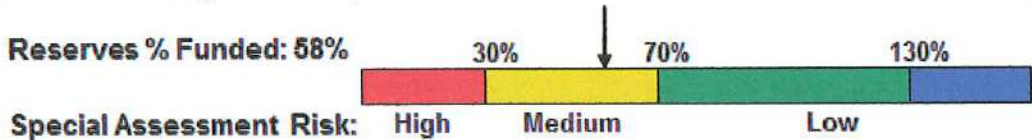
## 3- Minute Executive Summary

**Association:** Basalt Regional Library **#:** 29868-0  
**Location:** Basalt, CO **# of Units:** 1  
**Report Period:** January 1, 2017 through December 31, 2017

**Findings/Recommendations as-of 1/1/2017:**

Projected Starting Capital Account Balance: .....	\$336,720
Current Fully Funded Capital Account Balance: .....	\$582,936
Average Reserve Deficit Per Unit: .....	\$246,216
Recommended 2017 Annual "Full Funding" Contributions: .....	\$127,000
Alternate Minimum Contributions* to keep Reserves above \$0:...	\$105,000
Recommended 2017 Special Assessment:.....	\$0

**Most Recent Budgeted Capital Account Contribution Rate: .....**\$40,000



**Economic Assumptions:**

**Net Annual "After Tax" Interest Earnings – Capital Funds.....** 1.00%  
**Annual Inflation Rate .....** 3.00%

- This is a "Full" Capital Replacement Plan (original, created "from scratch"), and is based on our site inspection on November 9, 2016. This Report was prepared by a credentialed Reserve Specialist (RS #260).
- Because your Capital Replacement Fund is at 58% Funded, this means your cash flow problem & deferred maintenance risk is currently medium. The objective of your multi-year Funding Plan is to Fully Fund your Reserves, where properties enjoy a low risk of cash flow problems.
- Based on this starting point, your anticipated future expenses, and your historical contribution rate, our recommendation is to increase your Capital Reserve contributions.
- No assets appropriate for Reserve designation were excluded.

\*officially called "Baseline Funding"

Table 1: Executive Summary

29868-0

#	Component	Useful Life (yrs)	Rem. Useful Life (yrs)	Current Cost Estimate
<b>Sites &amp; Grounds</b>				
2115	Concrete Walkways - Repair - 5%	25	18	\$1,550
2131	Asphalt - Seal/Repair	4	0	\$3,900
2133	Asphalt - Resurface	25	18	\$29,150
2155	Site Fencing/Gate: Wood - Replace	25	18	\$3,250
2181	Sign/Monument - Refurbish/Replace	30	23	\$2,000
2185	Site Pole Lights - Replace	25	18	\$2,800
2187	Bollard Lights - Replace	20	13	\$3,500
2191	Outdoor/Site Furniture - Replace	15	8	\$3,500
<b>Building Exteriors</b>				
2303	Exterior Wall Lights - Replace	25	18	\$1,500
2337	Building Exterior - Seal/Paint	7	0	\$12,400
2353	Wood/Composite Siding - Replace	40	33	\$41,850
2355	Metal Siding - Repair/Replace	50	43	\$116,000
2361	Windows - Replace	30	23	\$667,500
2375	Low Slope Roof - Replace	20	13	\$367,500
2381	Metal Roof - Replace	30	23	\$17,600
2389	Skylights - Replace	30	23	\$10,000
<b>Building Interiors</b>				
2401	Interior Surfaces - Repaint	10	3	\$10,150
2405	Interior Lighting - Replace	25	18	\$9,000
2405	Library Pendant Lights - Replace	25	22	\$3,250
2405	Stage Lights - Replace	20	18	\$6,000
2409	Tile Flooring - Replace	30	23	\$36,000
2417	Resilient Sheet Flooring - Replace	20	13	\$6,650
2421	Metal Lockers - Replace	30	23	\$3,300
2425	Community Room Furniture - Update	15	8	\$16,000
2425	Conference Room Furniture - Remodel	20	13	\$2,750
2425	Kids Furniture - Update	15	8	\$14,200
2425	Library Furniture - Update	15	8	\$23,000
2425	Office Furniture - Remodel	15	8	\$9,000
2426	Office Cabinets - Remodel	20	13	\$8,000
2427	Kids Bathroom - Remodel	20	13	\$4,000
2427	Office Bathrooms - Remodel	20	13	\$10,000
2427	Public Bathrooms - Remodel	20	13	\$12,000
2433	Window Treatment - Replace	15	8	\$2,600
2435	Conference Room Kitchen - Remodel	20	13	\$12,500
2435	Office Kitchen - Remodel	20	13	\$8,000
2437	Kitchen Appliances - Replace - 25%	4	3	\$1,650
<b>Mechanical</b>				
2503	Card/Fob Reader System - Replace	15	8	\$4,650
2503	Traffic Counter System - Replace	10	9	\$5,400
2517	Heat Pump - Replace	20	13	\$3,500

#	Component	Useful Life (yrs)	Rem. Useful Life (yrs)	Current Cost Estimate
2519	Packaged Air Unit - Replace	25	18	\$225,000
2521	Cabinet Heaters - Replace - 25%	5	3	\$4,000
2533	Pumps/Valves - Allowance	3	2	\$2,500
2537	Community Room A/V - Replace	10	9	\$6,000
2537	Conference Room A/V - Replace	10	3	\$4,000
2537	Televisions - Replace	10	3	\$2,250
2543	Security Cameras - Modernize	12	9	\$10,000
2545	Library Computers - Replace	4	2	\$39,000
2545	Office Computers - Replace - 50%	2	0	\$14,000
2553	Fire Control Panel - Update/Replace	20	13	\$7,000
2555	Exit/Emergency Lights - Replace	25	18	\$2,950
2561	Boilers - Replace	25	18	\$37,500
2569	Expansion Tanks - Replace	30	23	\$3,500
2575	Solar Panels - Replace	30	23	\$173,500
53	Total Funded Components			

Note 1: a Useful Life of "N/A" means a one-time expense, not expected to repeat.

Note 2: Yellow highlighted line items are expected to require attention in the initial year, green highlighted items are expected to occur within the first five years.

## Introduction



A Capital Replacement Plan is the art and science of anticipating, and preparing for, a property’s major common area repair and replacement expenses. Partially art, because in this field we are making projections about the future. Partially science, because our work is a combination of research and well-defined computations, following consistent National Reserve Study Standard principles.

The foundation of this and every Reserve Study is your Reserve Component List (what you are reserving for). This is because the Reserve Component List defines the *scope and schedule* of all your anticipated upcoming Capital projects. Based on that List and your starting balance, we calculate the property’s Capital Fund Strength (reported in terms of “Percent Funded”). Then we compute a Capital Replacement Funding Plan to provide for the Reserve needs of the property. These form the three results of your Reserve Study.



Capital contributions are not “for the future”. They are designed to offset the ongoing, daily deterioration of your Reserve assets. Done well, a stable, budgeted Capital Funding Plan will collect sufficient funds over time, so the property is financially prepared for the irregular expenditures scattered through future years when those projects eventually require replacement.

## Methodology

LEVELS OF SERVICE



For this Full Capital Replacement Plan, we started with a review of recent Capital Reserve expenditures, an evaluation of how expenditures are handled (ongoing maintenance vs Reserves), and research into any well-established precedents. We

performed an on-site inspection to quantify and evaluate your common areas, creating your Reserve Component List *from scratch*.



### *Which Physical Assets are Funded by Reserves?*

There is a national-standard four-part test to determine which expenses should appear in your Reserve Component List. First, it must be a common area maintenance responsibility. Second, the component must have a limited life. Third, the remaining life must be predictable (or it by definition is a *surprise* which cannot be accurately anticipated). Fourth, the component must be above a minimum threshold cost (often between .5% and 1% of a property's total budget). This limits Reserve



RESERVE COMPONENT "FOUR-PART TEST"

Components to major, predictable expenses. Within this framework, it is inappropriate to include *lifetime* components, unpredictable expenses (such as damage due to fire, flood, or earthquake), and expenses more appropriately handled from the Operational Budget or as an insured loss.

### *How do we establish Useful Life and Remaining Useful Life estimates?*

- 1) Visual Inspection (observed wear and age)
- 2) Association Reserves database of experience
- 3) Client History (install dates & previous life cycle information)
- 4) Vendor Evaluation and Recommendation

### *How do we establish Current Repair/Replacement Cost Estimates?*

In this order...

- 1) Actual client cost history, or current proposals
- 2) Comparison to Association Reserves database of work done at similar properties
- 3) Vendor Recommendations
- 4) Reliable National Industry cost estimating guidebooks

### *How much Reserves are enough?*

Reserve adequacy is not measured in cash terms. Reserve adequacy is found when the *amount* of current Reserve cash is compared to Reserve component deterioration (the *needs of the property*). Having *enough* means you can execute your projects in a timely manner with existing Reserve funds. Not having *enough* typically creates deferred maintenance or cash flow problems.

Adequacy is measured in a two-step process:

- 1) Calculate the *value of deterioration* at the association (called Fully Funded Balance, or FFB).
- 2) Compare that to the Reserve Fund Balance, and express as a percentage.



SPECIAL ASSESSMENT RISK

Each year, the *value of deterioration* at the property changes. When there is more deterioration (as components approach the time they need to be replaced), there should be more cash to offset that deterioration and prepare for the expenditure. Conversely, the *value of deterioration* shrinks after projects are accomplished. The *value of deterioration* (the FFB) changes each year, and is a moving but predictable target.

There is a high risk of cash flow problems and deferred maintenance when the Percent Funded is *weak*, below 30%. Approximately 30% of all properties are in this high risk range. While the 100% point is Ideal (indicating Reserve cash is equal to the *value of deterioration*), a Reserve Fund in the 70% -130% range is considered strong (low risk of cash flow problems). Measuring your Reserves by Percent Funded tells how well prepared your property is for upcoming Reserve expenses.

*How much should we contribute?*



**RESERVE FUNDING PRINCIPLES**

According to National Reserve Study Standards, there are four Funding Principles to balance in developing your Reserve Funding Plan. Our first objective is to design a plan that provides you with sufficient cash to perform your Reserve projects on time. Second, a stable contribution is desirable because it keeps these naturally irregular expenses from unsettling the budget.

Reserve contributions that are evenly distributed over the years enable ownership to pay their fair share of the property’s Reserve expenses evenly over the years. And finally, we develop a plan that is fiscally responsible and safe. Remember, it is ownership’s job to provide for the ongoing care of the common areas. An ownership team invites liability exposure when ongoing Reserve contributions are inadequate to offset ongoing common area deterioration.

*What is our Recommended Funding Goal?*

Maintaining the Reserve Fund at a level equal to the *value* of deterioration is called “Full Funding” (100% Funded). As each asset ages and becomes “used up”, the Reserve Fund grows proportionally. **This is simple, responsible, and our recommendation.** Evidence shows that properties in the 70-130% range *enjoy a low risk of cash flow problems or deferred maintenance.*



**FUNDING OBJECTIVES**

Allowing the Reserves to fall close to zero, but not below zero, is called Baseline Funding. Doing so allows the Reserve Fund to drop into the 0-30% range, where there is a high risk of cash flow problems & deferred maintenance. Since Baseline Funding still provides for the timely execution of all Reserve projects, and only the “margin of safety” is different, Baseline Funding contributions average only 10% - 15% less than Full Funding contributions. Threshold Funding is the title of all other Cash or Percent Funded objectives *between* Baseline Funding and Full Funding.

### Site Inspection Notes

During our site visit on November 9, 2016, we started with a brief meeting with Kim Clinco, and then started the site inspection beginning with the mechanicals. We visually inspected all of the building, and were able to see a majority of the common areas.

For a detailed listing and photos of each component, please refer to the Inventory Appendix.



**Projected Expenses**

While this Capital Replacement Plan looks forward 30 years, we have no expectation that all these expenses will all take place as anticipated. This Plan needs to be updated annually because we expect the timing of these expenses to shift and the size of these expenses to change. We do feel more certain of the timing and cost of near-term expenses than expenses many years away. Your *first five years* of projected Reserve expenses total \$133,421. Adding the next five years, your *first ten years* of projected Reserve expenses are \$368,126. Please be aware of your near-term expenses, which we are able to project more accurately than the more distant projections.

The figure below summarizes the projected future expenses at your property as defined by your Reserve Component List. A summary of these expenses are shown in Table 5, while details of the projects that make up these expenses are shown in Table 6.

**Annual Reserve Expenses**

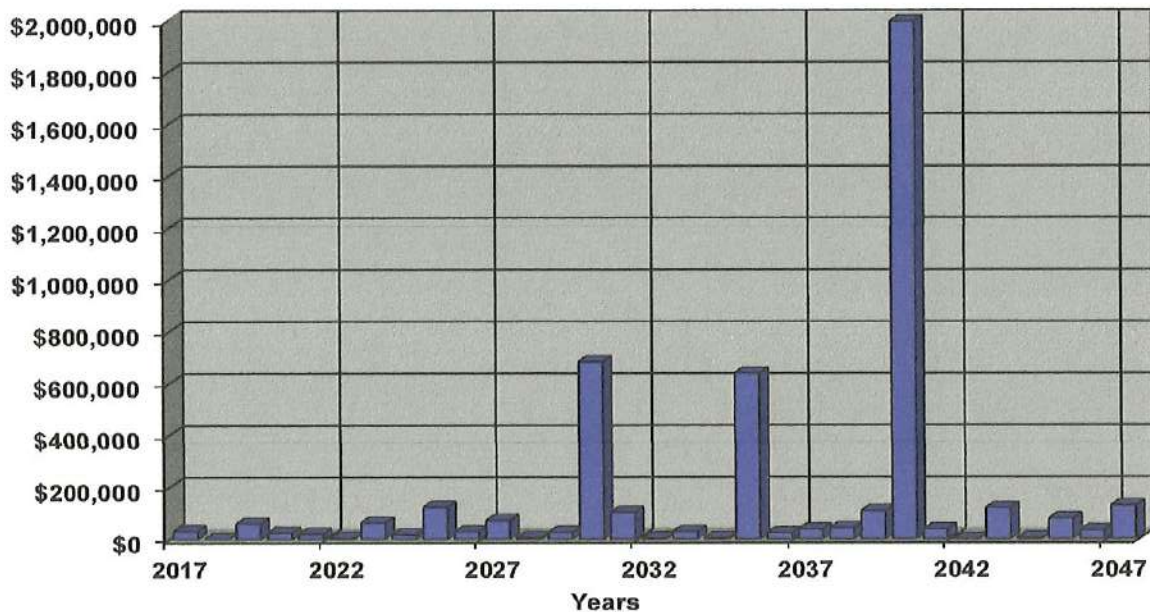


Figure 1

### Reserve Fund Status

The starting point for our financial analysis is your Capital Reserve Fund balance, projected to be \$336,720 as-of the start of your Fiscal Year on January 1, 2017. As of January 1, 2017, your Fully Funded Balance is computed to be \$582,936 (see Table 3). This figure represents the deteriorated value of your common area components. Comparing your Reserve Balance to your Fully Funded Balance indicates your Reserves are 58% Funded. Across the country, approx 6% of properties in this range experience cash flow problems or deferred maintenance.

### Recommended Funding Plan

Based on your current Percent Funded and your near-term and long-term Reserve needs, we are recommending budgeted contributions of \$127,000/year this Fiscal Year. The overall 30-yr plan, in perspective, is shown below. This same information is shown numerically in both Table 5 and Table 6.

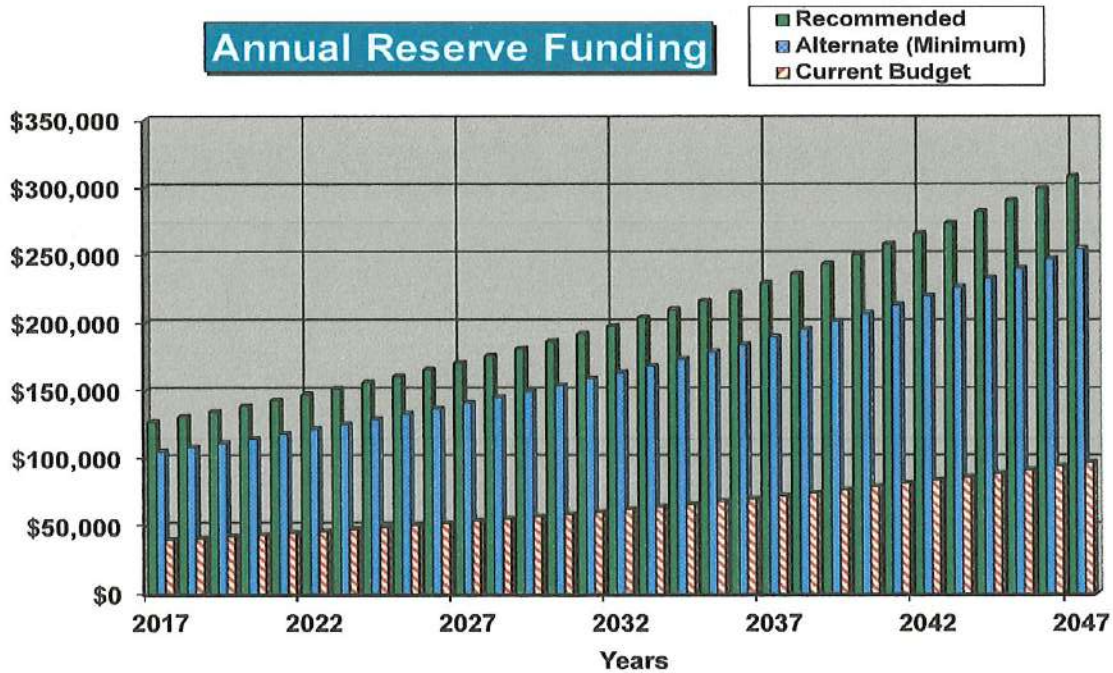


Figure 2

The following chart shows your Reserve balance under our recommended Full Funding Plan, an alternate Baseline Funding Plan, and at your current budgeted contribution rate, compared to your always-changing Fully Funded Balance target.

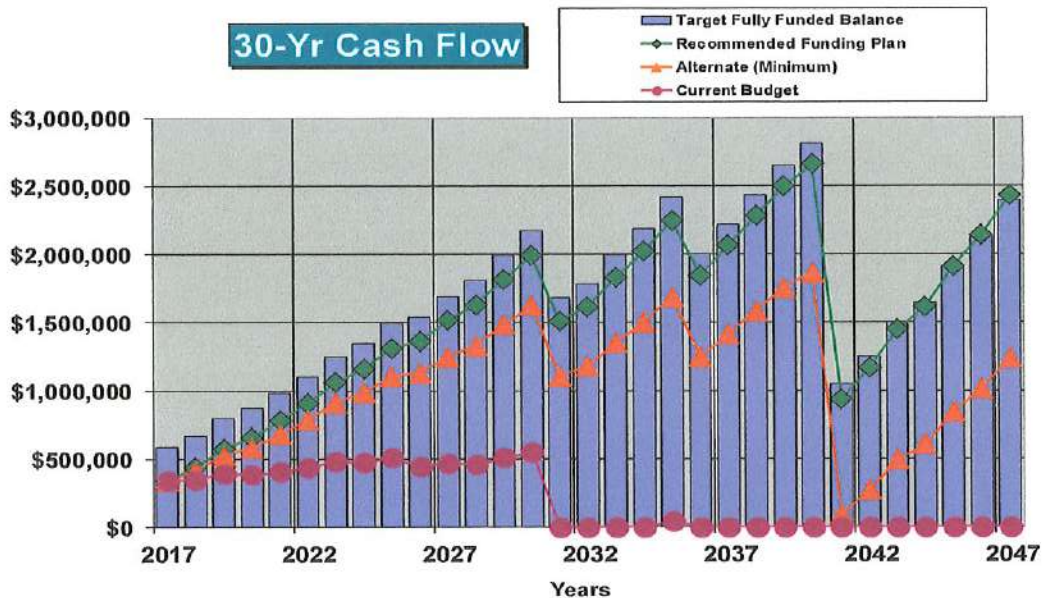


Figure 3

This figure shows this same information, plotted on a Percent Funded scale.

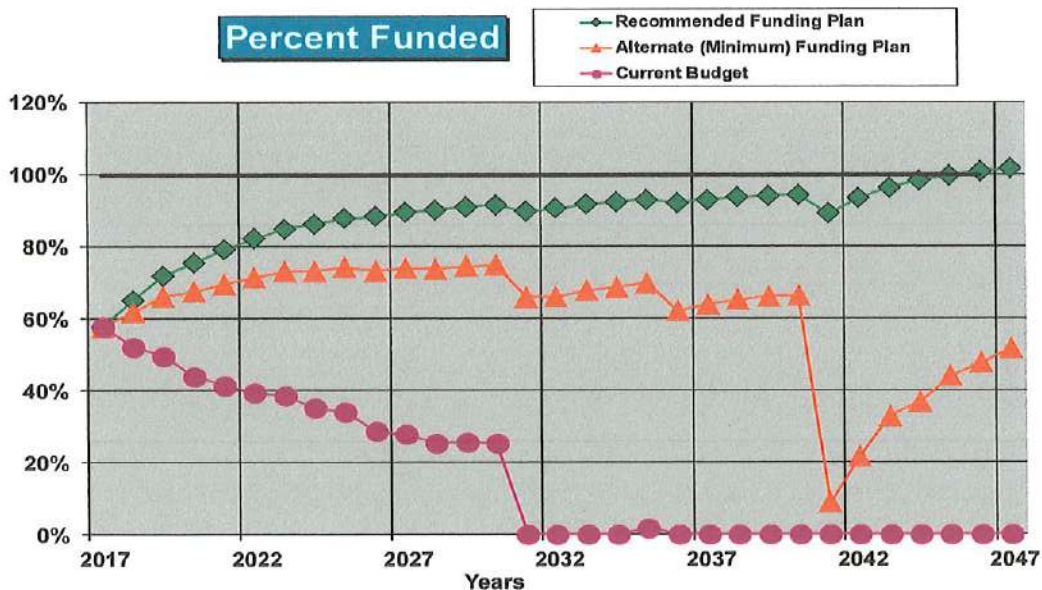


Figure 4

## **Table Descriptions**

The tabular information in this Report is broken down into six tables.

Table 1 is a summary of your Reserve Components (your Reserve Component List), the information found in Table 2.

Table 2 is your Reserve Component List, which forms the foundation of this Reserve Study. This table represents the information from which all other tables are derived.

Table 3 shows the calculation of your Fully Funded Balance, the measure of your current Reserve component deterioration. For each component, the Fully Funded Balance is the fraction of life used up multiplied by its estimated Current Replacement Cost.

Table 4 shows the significance of each component to Reserve needs of the property, helping you see which components have more (or less) influence than others on your total Reserve contribution rate. The deterioration cost/yr of each component is calculated by dividing Current Replacement Cost by Useful Life, then that component's percentage of the total is displayed.

Table 5: This table provides a one-page 30-year summary of the cash flowing into and out of the Reserve Fund, with a display of the Fully Funded Balance, Percent Funded, and special assessment risk for each year.

Table 6: This table shows the cash flow detail for the next 30 years. This table makes it possible to see which components are projected to require repair or replacement each year, and the size of those individual expenses.



Table 2: Reserve Component List Detail

29868-0

#	Component	Quantity	Useful Life	Rem. Useful Life	[ — Current Cost Estimate — ]	
					Best Case	Worst Case
<b>Sites &amp; Grounds</b>						
2115	Concrete Walkways - Repair - 5%	5% ~ 2,300 GSF	25	18	\$1,300	\$1,800
2131	Asphalt - Seal/Repair	~ 9,700 GSF	4	0	\$3,400	\$4,400
2133	Asphalt - Resurface	~ 9,700 GSF	25	18	\$24,300	\$34,000
2155	Site Fencing/Gate: Wood - Replace	~ 56 LF	25	18	\$2,500	\$4,000
2181	Sign/Monument - Refurbish/Replace	Metal Lettering	30	23	\$1,500	\$2,500
2185	Site Pole Lights - Replace	~ (2) Fixtures	25	18	\$2,400	\$3,200
2187	Bollard Lights - Replace	~ (4) Fixtures	20	13	\$3,000	\$4,000
2191	Outdoor/Site Furniture - Replace	~ (4) Pieces	15	8	\$3,200	\$3,800
<b>Building Exteriors</b>						
2303	Exterior Wall Lights - Replace	~ (12) Fixtures	25	18	\$1,200	\$1,800
2337	Building Exterior - Seal/Paint	~ 3,100 GSF	7	0	\$9,300	\$15,500
2353	Wood/Composite Siding - Replace	~ 3,100 GSF	40	33	\$37,200	\$46,500
2355	Metal Siding - Repair/Replace	~ 2,900 GSF	50	43	\$87,000	\$145,000
2361	Windows - Replace	~ (267) Windows	30	23	\$534,000	\$801,000
2375	Low Slope Roof - Replace	~ 21,000 GSF	20	13	\$315,000	\$420,000
2381	Metal Roof - Replace	~ 1,100 GSF	30	23	\$15,400	\$19,800
2389	Skylights - Replace	~ (10) Skylights	30	23	\$8,000	\$12,000
<b>Building Interiors</b>						
2401	Interior Surfaces - Repaint	~ 7,500 GSF	10	3	\$9,000	\$11,300
2405	Interior Lighting - Replace	~ (53) Fixtures	25	18	\$8,000	\$10,000
2405	Library Pendant Lights - Replace	~ (56) Fixtures	25	22	\$3,000	\$3,500
2405	Stage Lights - Replace	~ (14) Fixtures	20	18	\$5,000	\$7,000
2409	Tile Flooring - Replace	~ 1,600 GSF	30	23	\$32,000	\$40,000
2417	Resilient Sheet Flooring - Replace	~ 950 GSF	20	13	\$5,800	\$7,500
2421	Metal Lockers - Replace	~ (12) Metal Lockers	30	23	\$3,000	\$3,600
2425	Community Room Furniture - Update	~ (99) Pieces	15	8	\$15,000	\$17,000
2425	Conference Room Furniture - Remodel	(1) Conference Room	20	13	\$2,000	\$3,500
2425	Kids Furniture - Update	~ (71) Pieces	15	8	\$10,600	\$17,800
2425	Library Furniture - Update	~ (121) Pieces	15	8	\$22,000	\$24,000
2425	Office Furniture - Remodel	~ (38) Pieces	15	8	\$8,000	\$10,000
2426	Office Cabinets - Remodel	Offices	20	13	\$6,000	\$10,000
2427	Kids Bathroom - Remodel	(1) Bathroom	20	13	\$3,000	\$5,000
2427	Office Bathrooms - Remodel	(2) Bathrooms	20	13	\$8,000	\$12,000
2427	Public Bathrooms - Remodel	(2) Bathrooms	20	13	\$10,000	\$14,000
2433	Window Treatment - Replace	~ (8) Window Treatments	15	8	\$2,000	\$3,200
2435	Conference Room Kitchen - Remodel	(1) Kitchen	20	13	\$10,000	\$15,000
2435	Office Kitchen - Remodel	(1) Kitchen	20	13	\$7,000	\$9,000
2437	Kitchen Appliances - Replace - 25%	25% of ~ (6) Appliances	4	3	\$1,500	\$1,800
<b>Mechanical</b>						
2503	Card/Fob Reader System - Replace	~ (6) Units	15	8	\$4,000	\$5,300
2503	Traffic Counter System - Replace	~ (1) System	10	9	\$5,000	\$5,800

**Table 2: Reserve Component List Detail**

**29868-0**

#	Component	Quantity	Useful	Rem.	[ --- Current Cost Estimate --- ]	
			Life	Useful Life	Best Case	Worst Case
2517	Heat Pump - Replace	(1) Daikin Heat Pump	20	13	\$3,000	\$4,000
2519	Packaged Air Unit - Replace	(1) 25 Ton Unit	25	18	\$200,000	\$250,000
2521	Cabinet Heaters - Replace - 25%	25% of ~ (7) Units	5	3	\$3,000	\$5,000
2533	Pumps/Valves - Allowance	~ (6) Variable Pumps	3	2	\$2,000	\$3,000
2537	Community Room A/V - Replace	~ (2) Units	10	9	\$5,000	\$7,000
2537	Conference Room A/V - Replace	~ (2) Units	10	3	\$3,000	\$5,000
2537	Televisions - Replace	(3) T.V.s	10	3	\$2,000	\$2,500
2543	Security Cameras - Modernize	~ (19) Cameras	12	9	\$9,000	\$11,000
2545	Library Computers - Replace	~ (40) Computers	4	2	\$36,000	\$42,000
2545	Office Computers - Replace - 50%	~ 50% of (18) Units	2	0	\$13,000	\$15,000
2553	Fire Control Panel - Update/Replace	(1) Panel	20	13	\$6,000	\$8,000
2555	Exit/Emergency Lights - Replace	~ (18) Fixtures	25	18	\$2,700	\$3,200
2561	Boilers - Replace	(3) 399k BTU Boilers	25	18	\$30,000	\$45,000
2569	Expansion Tanks - Replace	~ (3) Tank	30	23	\$3,000	\$4,000
2575	Solar Panels - Replace	~ (324) Panels, 76.14 KW	30	23	\$152,000	\$195,000
53	<b>Total Funded Components</b>					

Table 3: Fully Funded Balance

29868-0

#	Component	Current Cost Estimate	X	Effective Age	/	Useful Life	=	Fully Funded Balance
<b>Sites &amp; Grounds</b>								
2115	Concrete Walkways - Repair - 5%	\$1,550	X	7	/	25	=	\$434
2131	Asphalt - Seal/Repair	\$3,900	X	4	/	4	=	\$3,900
2133	Asphalt - Resurface	\$29,150	X	7	/	25	=	\$8,162
2155	Site Fencing/Gate: Wood - Replace	\$3,250	X	7	/	25	=	\$910
2181	Sign/Monument - Refurbish/Replace	\$2,000	X	7	/	30	=	\$467
2185	Site Pole Lights - Replace	\$2,800	X	7	/	25	=	\$784
2187	Bollard Lights - Replace	\$3,500	X	7	/	20	=	\$1,225
2191	Outdoor/Site Furniture - Replace	\$3,500	X	7	/	15	=	\$1,633
<b>Building Exteriors</b>								
2303	Exterior Wall Lights - Replace	\$1,500	X	7	/	25	=	\$420
2337	Building Exterior - Seal/Paint	\$12,400	X	7	/	7	=	\$12,400
2353	Wood/Composite Siding - Replace	\$41,850	X	7	/	40	=	\$7,324
2355	Metal Siding - Repair/Replace	\$116,000	X	7	/	50	=	\$16,240
2361	Windows - Replace	\$667,500	X	7	/	30	=	\$155,750
2375	Low Slope Roof - Replace	\$367,500	X	7	/	20	=	\$128,625
2381	Metal Roof - Replace	\$17,600	X	7	/	30	=	\$4,107
2389	Skylights - Replace	\$10,000	X	7	/	30	=	\$2,333
<b>Building Interiors</b>								
2401	Interior Surfaces - Repaint	\$10,150	X	7	/	10	=	\$7,105
2405	Interior Lighting - Replace	\$9,000	X	7	/	25	=	\$2,520
2405	Library Pendant Lights - Replace	\$3,250	X	3	/	25	=	\$390
2405	Stage Lights - Replace	\$6,000	X	2	/	20	=	\$600
2409	Tile Flooring - Replace	\$36,000	X	7	/	30	=	\$8,400
2417	Resilient Sheet Flooring - Replace	\$6,650	X	7	/	20	=	\$2,328
2421	Metal Lockers - Replace	\$3,300	X	7	/	30	=	\$770
2425	Community Room Furniture - Update	\$16,000	X	7	/	15	=	\$7,467
2425	Conference Room Furniture - Remodel	\$2,750	X	7	/	20	=	\$963
2425	Kids Furniture - Update	\$14,200	X	7	/	15	=	\$6,627
2425	Library Furniture - Update	\$23,000	X	7	/	15	=	\$10,733
2425	Office Furniture - Remodel	\$9,000	X	7	/	15	=	\$4,200
2426	Office Cabinets - Remodel	\$8,000	X	7	/	20	=	\$2,800
2427	Kids Bathroom - Remodel	\$4,000	X	7	/	20	=	\$1,400
2427	Office Bathrooms - Remodel	\$10,000	X	7	/	20	=	\$3,500
2427	Public Bathrooms - Remodel	\$12,000	X	7	/	20	=	\$4,200
2433	Window Treatment - Replace	\$2,600	X	7	/	15	=	\$1,213
2435	Conference Room Kitchen - Remodel	\$12,500	X	7	/	20	=	\$4,375
2435	Office Kitchen - Remodel	\$8,000	X	7	/	20	=	\$2,800
2437	Kitchen Appliances - Replace - 25%	\$1,650	X	1	/	4	=	\$413
<b>Mechanical</b>								
2503	Card/Fob Reader System - Replace	\$4,650	X	7	/	15	=	\$2,170
2503	Traffic Counter System - Replace	\$5,400	X	1	/	10	=	\$540

**Table 3: Fully Funded Balance**

**29868-0**

#	Component	Current Cost Estimate	X	Effective Age	/	Useful Life	=	Fully Funded Balance
2517	Heat Pump - Replace	\$3,500	X	7	/	20	=	\$1,225
2519	Packaged Air Unit - Replace	\$225,000	X	7	/	25	=	\$63,000
2521	Cabinet Heaters - Replace - 25%	\$4,000	X	2	/	5	=	\$1,600
2533	Pumps/Valves - Allowance	\$2,500	X	1	/	3	=	\$833
2537	Community Room A/V - Replace	\$6,000	X	1	/	10	=	\$600
2537	Conference Room A/V - Replace	\$4,000	X	7	/	10	=	\$2,800
2537	Televisions - Replace	\$2,250	X	7	/	10	=	\$1,575
2543	Security Cameras - Modernize	\$10,000	X	3	/	12	=	\$2,500
2545	Library Computers - Replace	\$39,000	X	2	/	4	=	\$19,500
2545	Office Computers - Replace - 50%	\$14,000	X	2	/	2	=	\$14,000
2553	Fire Control Panel - Update/Replace	\$7,000	X	7	/	20	=	\$2,450
2555	Exit/Emergency Lights - Replace	\$2,950	X	7	/	25	=	\$826
2561	Boilers - Replace	\$37,500	X	7	/	25	=	\$10,500
2569	Expansion Tanks - Replace	\$3,500	X	7	/	30	=	\$817
2575	Solar Panels - Replace	\$173,500	X	7	/	30	=	\$40,483
								\$582,936

**Table 4: Component Significance**

**29868-0**

#	Component	Useful Life	Current Cost Estimate	Deterioration Cost/yr	Deterioration Significance
<b>Sites &amp; Grounds</b>					
2115	Concrete Walkways - Repair - 5%	25	\$1,550	\$62	0.1%
2131	Asphalt - Seal/Repair	4	\$3,900	\$975	1.0%
2133	Asphalt - Resurface	25	\$29,150	\$1,166	1.2%
2155	Site Fencing/Gate: Wood - Replace	25	\$3,250	\$130	0.1%
2181	Sign/Monument - Refurbish/Replace	30	\$2,000	\$67	0.1%
2185	Site Pole Lights - Replace	25	\$2,800	\$112	0.1%
2187	Bollard Lights - Replace	20	\$3,500	\$175	0.2%
2191	Outdoor/Site Furniture - Replace	15	\$3,500	\$233	0.2%
<b>Building Exteriors</b>					
2303	Exterior Wall Lights - Replace	25	\$1,500	\$60	0.1%
2337	Building Exterior - Seal/Paint	7	\$12,400	\$1,771	1.8%
2353	Wood/Composite Siding - Replace	40	\$41,850	\$1,046	1.1%
2355	Metal Siding - Repair/Replace	50	\$116,000	\$2,320	2.3%
2361	Windows - Replace	30	\$667,500	\$22,250	22.5%
2375	Low Slope Roof - Replace	20	\$367,500	\$18,375	18.6%
2381	Metal Roof - Replace	30	\$17,600	\$587	0.6%
2389	Skylights - Replace	30	\$10,000	\$333	0.3%
<b>Building Interiors</b>					
2401	Interior Surfaces - Repaint	10	\$10,150	\$1,015	1.0%
2405	Interior Lighting - Replace	25	\$9,000	\$360	0.4%
2405	Library Pendant Lights - Replace	25	\$3,250	\$130	0.1%
2405	Stage Lights - Replace	20	\$6,000	\$300	0.3%
2409	Tile Flooring - Replace	30	\$36,000	\$1,200	1.2%
2417	Resilient Sheet Flooring - Replace	20	\$6,650	\$333	0.3%
2421	Metal Lockers - Replace	30	\$3,300	\$110	0.1%
2425	Community Room Furniture - Update	15	\$16,000	\$1,067	1.1%
2425	Conference Room Furniture - Remodel	20	\$2,750	\$138	0.1%
2425	Kids Furniture - Update	15	\$14,200	\$947	1.0%
2425	Library Furniture - Update	15	\$23,000	\$1,533	1.5%
2425	Office Furniture - Remodel	15	\$9,000	\$600	0.6%
2426	Office Cabinets - Remodel	20	\$8,000	\$400	0.4%
2427	Kids Bathroom - Remodel	20	\$4,000	\$200	0.2%
2427	Office Bathrooms - Remodel	20	\$10,000	\$500	0.5%
2427	Public Bathrooms - Remodel	20	\$12,000	\$600	0.6%
2433	Window Treatment - Replace	15	\$2,600	\$173	0.2%
2435	Conference Room Kitchen - Remodel	20	\$12,500	\$625	0.6%
2435	Office Kitchen - Remodel	20	\$8,000	\$400	0.4%
2437	Kitchen Appliances - Replace - 25%	4	\$1,650	\$413	0.4%
<b>Mechanical</b>					
2503	Card/Fob Reader System - Replace	15	\$4,650	\$310	0.3%
2503	Traffic Counter System - Replace	10	\$5,400	\$540	0.5%

**Table 4: Component Significance**

**29868-0**

#	Component	Useful Life	Current Cost Estimate	Deterioration Cost/yr	Deterioration Significance
2517	Heat Pump - Replace	20	\$3,500	\$175	0.2%
2519	Packaged Air Unit - Replace	25	\$225,000	\$9,000	9.1%
2521	Cabinet Heaters - Replace - 25%	5	\$4,000	\$800	0.8%
2533	Pumps/Valves - Allowance	3	\$2,500	\$833	0.8%
2537	Community Room A/V - Replace	10	\$6,000	\$600	0.6%
2537	Conference Room A/V - Replace	10	\$4,000	\$400	0.4%
2537	Televisions - Replace	10	\$2,250	\$225	0.2%
2543	Security Cameras - Modernize	12	\$10,000	\$833	0.8%
2545	Library Computers - Replace	4	\$39,000	\$9,750	9.8%
2545	Office Computers - Replace - 50%	2	\$14,000	\$7,000	7.1%
2553	Fire Control Panel - Update/Replace	20	\$7,000	\$350	0.4%
2555	Exit/Emergency Lights - Replace	25	\$2,950	\$118	0.1%
2561	Boilers - Replace	25	\$37,500	\$1,500	1.5%
2569	Expansion Tanks - Replace	30	\$3,500	\$117	0.1%
2575	Solar Panels - Replace	30	\$173,500	\$5,783	5.8%
53	<b>Total Funded Components</b>			<b>\$99,040</b>	<b>100.0%</b>

**Table 5: 30-Year Reserve Plan Summary**

29868-0

**Fiscal Year Start: 01/01/17**

**Interest: 1.0%**

**Inflation: 3.0%**

**Reserve Fund Strength Calculations**  
(All values as of Fiscal Year Start Date)

**Projected Reserve Balance Changes**

Year	Starting Reserve Balance	Fully Funded Balance	Percent Funded	Special Assmt Risk	Reserve Contribs.	Loans or Special Assmts	Interest Income	Reserve Expenses
2017	\$336,720	\$582,936	57.8%	Med	\$127,000	\$0	\$3,868	\$30,300
2018	\$437,288	\$671,226	65.1%	Med	\$130,810	\$0	\$5,050	\$0
2019	\$573,148	\$796,434	72.0%	Low	\$134,734	\$0	\$6,139	\$58,880
2020	\$655,142	\$867,904	75.5%	Low	\$138,776	\$0	\$7,158	\$24,095
2021	\$776,981	\$980,594	79.2%	Low	\$142,940	\$0	\$8,422	\$20,147
2022	\$908,196	\$1,104,075	82.3%	Low	\$147,228	\$0	\$9,849	\$2,898
2023	\$1,062,375	\$1,252,471	84.8%	Low	\$151,645	\$0	\$11,116	\$63,285
2024	\$1,161,851	\$1,346,668	86.3%	Low	\$156,194	\$0	\$12,370	\$17,280
2025	\$1,313,135	\$1,494,731	87.9%	Low	\$160,880	\$0	\$13,380	\$123,320
2026	\$1,364,075	\$1,541,778	88.5%	Low	\$165,706	\$0	\$14,396	\$27,922
2027	\$1,516,254	\$1,692,372	89.6%	Low	\$170,677	\$0	\$15,732	\$71,228
2028	\$1,631,436	\$1,806,874	90.3%	Low	\$175,798	\$0	\$17,244	\$5,745
2029	\$1,818,733	\$1,996,370	91.1%	Low	\$181,072	\$0	\$19,052	\$25,521
2030	\$1,993,335	\$2,175,418	91.6%	Low	\$186,504	\$0	\$17,526	\$684,043
2031	\$1,513,322	\$1,685,923	89.8%	Low	\$192,099	\$0	\$15,652	\$102,705
2032	\$1,618,368	\$1,785,015	90.7%	Low	\$197,862	\$0	\$17,239	\$2,571
2033	\$1,830,898	\$1,994,848	91.8%	Low	\$203,798	\$0	\$19,273	\$28,724
2034	\$2,025,244	\$2,188,805	92.5%	Low	\$209,912	\$0	\$21,379	\$4,132
2035	\$2,252,403	\$2,418,822	93.1%	Low	\$216,209	\$0	\$20,501	\$639,604
2036	\$1,849,508	\$2,006,261	92.2%	Low	\$222,695	\$0	\$19,584	\$22,883
2037	\$2,068,904	\$2,221,756	93.1%	Low	\$229,376	\$0	\$21,751	\$36,845
2038	\$2,283,187	\$2,434,702	93.8%	Low	\$236,257	\$0	\$23,914	\$41,671
2039	\$2,501,688	\$2,654,593	94.2%	Low	\$243,345	\$0	\$25,813	\$107,781
2040	\$2,663,065	\$2,818,680	94.5%	Low	\$250,645	\$0	\$17,991	\$1,995,099
2041	\$936,603	\$1,049,617	89.2%	Low	\$258,165	\$0	\$10,523	\$36,387
2042	\$1,168,903	\$1,250,994	93.4%	Low	\$265,910	\$0	\$13,078	\$0
2043	\$1,447,892	\$1,502,112	96.4%	Low	\$273,887	\$0	\$15,320	\$119,691
2044	\$1,617,408	\$1,643,890	98.4%	Low	\$282,104	\$0	\$17,647	\$3,665
2045	\$1,913,494	\$1,916,028	99.9%	Low	\$290,567	\$0	\$20,288	\$78,476
2046	\$2,145,873	\$2,126,072	100.9%	Low	\$299,284	\$0	\$22,896	\$32,756

**Table 6: 30-Year Income/Expense Detail (yrs 0 through 4)**

**29868-0**

Fiscal Year	2017	2018	2019	2020	2021
Starting Reserve Balance	\$336,720	\$437,288	\$573,148	\$655,142	\$776,981
Annual Reserve Contribution	\$127,000	\$130,810	\$134,734	\$138,776	\$142,940
Recommended Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$3,868	\$5,050	\$6,139	\$7,158	\$8,422
<b>Total Income</b>	<b>\$467,588</b>	<b>\$573,148</b>	<b>\$714,022</b>	<b>\$801,076</b>	<b>\$928,343</b>
<b># Component</b>					
<b>Sites &amp; Grounds</b>					
2115 Concrete Walkways - Repair - 5%	\$0	\$0	\$0	\$0	\$0
2131 Asphalt - Seal/Repair	\$3,900	\$0	\$0	\$0	\$4,389
2133 Asphalt - Resurface	\$0	\$0	\$0	\$0	\$0
2155 Site Fencing/Gate: Wood - Replace	\$0	\$0	\$0	\$0	\$0
2181 Sign/Monument - Refurbish/Replace	\$0	\$0	\$0	\$0	\$0
2185 Site Pole Lights - Replace	\$0	\$0	\$0	\$0	\$0
2187 Bollard Lights - Replace	\$0	\$0	\$0	\$0	\$0
2191 Outdoor/Site Furniture - Replace	\$0	\$0	\$0	\$0	\$0
<b>Building Exteriors</b>					
2303 Exterior Wall Lights - Replace	\$0	\$0	\$0	\$0	\$0
2337 Building Exterior - Seal/Paint	\$12,400	\$0	\$0	\$0	\$0
2353 Wood/Composite Siding - Replace	\$0	\$0	\$0	\$0	\$0
2355 Metal Siding - Repair/Replace	\$0	\$0	\$0	\$0	\$0
2361 Windows - Replace	\$0	\$0	\$0	\$0	\$0
2375 Low Slope Roof - Replace	\$0	\$0	\$0	\$0	\$0
2381 Metal Roof - Replace	\$0	\$0	\$0	\$0	\$0
2389 Skylights - Replace	\$0	\$0	\$0	\$0	\$0
<b>Building Interiors</b>					
2401 Interior Surfaces - Repaint	\$0	\$0	\$0	\$11,091	\$0
2405 Interior Lighting - Replace	\$0	\$0	\$0	\$0	\$0
2405 Library Pendant Lights - Replace	\$0	\$0	\$0	\$0	\$0
2405 Stage Lights - Replace	\$0	\$0	\$0	\$0	\$0
2409 Tile Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2417 Resilient Sheet Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2421 Metal Lockers - Replace	\$0	\$0	\$0	\$0	\$0
2425 Community Room Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Conference Room Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2425 Kids Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Library Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Office Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2426 Office Cabinets - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Kids Bathroom - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Office Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Public Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2433 Window Treatment - Replace	\$0	\$0	\$0	\$0	\$0
2435 Conference Room Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0
2435 Office Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0



**Table 6: 30-Year Income/Expense Detail (yrs 0 through 4)**

**29868-0**

Fiscal Year	2017	2018	2019	2020	2021
2437 Kitchen Appliances - Replace - 25%	\$0	\$0	\$0	\$1,803	\$0
<b>Mechanical</b>					
2503 Card/Fob Reader System - Replace	\$0	\$0	\$0	\$0	\$0
2503 Traffic Counter System - Replace	\$0	\$0	\$0	\$0	\$0
2517 Heat Pump - Replace	\$0	\$0	\$0	\$0	\$0
2519 Packaged Air Unit - Replace	\$0	\$0	\$0	\$0	\$0
2521 Cabinet Heaters - Replace - 25%	\$0	\$0	\$0	\$4,371	\$0
2533 Pumps/Valves - Allowance	\$0	\$0	\$2,652	\$0	\$0
2537 Community Room A/V - Replace	\$0	\$0	\$0	\$0	\$0
2537 Conference Room A/V - Replace	\$0	\$0	\$0	\$4,371	\$0
2537 Televisions - Replace	\$0	\$0	\$0	\$2,459	\$0
2543 Security Cameras - Modernize	\$0	\$0	\$0	\$0	\$0
2545 Library Computers - Replace	\$0	\$0	\$41,375	\$0	\$0
2545 Office Computers - Replace - 50%	\$14,000	\$0	\$14,853	\$0	\$15,757
2553 Fire Control Panel - Update/Replace	\$0	\$0	\$0	\$0	\$0
2555 Exit/Emergency Lights - Replace	\$0	\$0	\$0	\$0	\$0
2561 Boilers - Replace	\$0	\$0	\$0	\$0	\$0
2569 Expansion Tanks - Replace	\$0	\$0	\$0	\$0	\$0
2575 Solar Panels - Replace	\$0	\$0	\$0	\$0	\$0
<b>Total Expenses</b>	<b>\$30,300</b>	<b>\$0</b>	<b>\$58,880</b>	<b>\$24,095</b>	<b>\$20,147</b>
<b>Ending Reserve Balance:</b>	<b>\$437,288</b>	<b>\$573,148</b>	<b>\$655,142</b>	<b>\$776,981</b>	<b>\$908,196</b>

**Table 6: 30-Year Income/Expense Detail (yrs 5 through 9)**

**29868-0**

Fiscal Year	2022	2023	2024	2025	2026
Starting Reserve Balance	\$908,196	\$1,062,375	\$1,161,851	\$1,313,135	\$1,364,075
Annual Reserve Contribution	\$147,228	\$151,645	\$156,194	\$160,880	\$165,706
Recommended Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$9,849	\$11,116	\$12,370	\$13,380	\$14,396
<b>Total Income</b>	<b>\$1,065,273</b>	<b>\$1,225,136</b>	<b>\$1,330,414</b>	<b>\$1,487,395</b>	<b>\$1,544,177</b>
<b># Component</b>					
<b>Sites &amp; Grounds</b>					
2115 Concrete Walkways - Repair - 5%	\$0	\$0	\$0	\$0	\$0
2131 Asphalt - Seal/Repair	\$0	\$0	\$0	\$4,940	\$0
2133 Asphalt - Resurface	\$0	\$0	\$0	\$0	\$0
2155 Site Fencing/Gate: Wood - Replace	\$0	\$0	\$0	\$0	\$0
2181 Sign/Monument - Refurbish/Replace	\$0	\$0	\$0	\$0	\$0
2185 Site Pole Lights - Replace	\$0	\$0	\$0	\$0	\$0
2187 Bollard Lights - Replace	\$0	\$0	\$0	\$0	\$0
2191 Outdoor/Site Furniture - Replace	\$0	\$0	\$0	\$4,434	\$0
<b>Building Exteriors</b>					
2303 Exterior Wall Lights - Replace	\$0	\$0	\$0	\$0	\$0
2337 Building Exterior - Seal/Paint	\$0	\$0	\$15,250	\$0	\$0
2353 Wood/Composite Siding - Replace	\$0	\$0	\$0	\$0	\$0
2355 Metal Siding - Repair/Replace	\$0	\$0	\$0	\$0	\$0
2361 Windows - Replace	\$0	\$0	\$0	\$0	\$0
2375 Low Slope Roof - Replace	\$0	\$0	\$0	\$0	\$0
2381 Metal Roof - Replace	\$0	\$0	\$0	\$0	\$0
2389 Skylights - Replace	\$0	\$0	\$0	\$0	\$0
<b>Building Interiors</b>					
2401 Interior Surfaces - Repaint	\$0	\$0	\$0	\$0	\$0
2405 Interior Lighting - Replace	\$0	\$0	\$0	\$0	\$0
2405 Library Pendant Lights - Replace	\$0	\$0	\$0	\$0	\$0
2405 Stage Lights - Replace	\$0	\$0	\$0	\$0	\$0
2409 Tile Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2417 Resilient Sheet Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2421 Metal Lockers - Replace	\$0	\$0	\$0	\$0	\$0
2425 Community Room Furniture - Update	\$0	\$0	\$0	\$20,268	\$0
2425 Conference Room Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2425 Kids Furniture - Update	\$0	\$0	\$0	\$17,988	\$0
2425 Library Furniture - Update	\$0	\$0	\$0	\$29,136	\$0
2425 Office Furniture - Remodel	\$0	\$0	\$0	\$11,401	\$0
2426 Office Cabinets - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Kids Bathroom - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Office Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Public Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2433 Window Treatment - Replace	\$0	\$0	\$0	\$3,294	\$0
2435 Conference Room Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0
2435 Office Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0

**Table 6: 30-Year Income/Expense Detail (yrs 5 through 9)**

**29868-0**

Fiscal Year		2022	2023	2024	2025	2026
2437	Kitchen Appliances - Replace - 25%	\$0	\$0	\$2,029	\$0	\$0
<b>Mechanical</b>						
2503	Card/Fob Reader System - Replace	\$0	\$0	\$0	\$5,890	\$0
2503	Traffic Counter System - Replace	\$0	\$0	\$0	\$0	\$7,046
2517	Heat Pump - Replace	\$0	\$0	\$0	\$0	\$0
2519	Packaged Air Unit - Replace	\$0	\$0	\$0	\$0	\$0
2521	Cabinet Heaters - Replace - 25%	\$0	\$0	\$0	\$5,067	\$0
2533	Pumps/Valves - Allowance	\$2,898	\$0	\$0	\$3,167	\$0
2537	Community Room A/V - Replace	\$0	\$0	\$0	\$0	\$7,829
2537	Conference Room A/V - Replace	\$0	\$0	\$0	\$0	\$0
2537	Televisions - Replace	\$0	\$0	\$0	\$0	\$0
2543	Security Cameras - Modernize	\$0	\$0	\$0	\$0	\$13,048
2545	Library Computers - Replace	\$0	\$46,568	\$0	\$0	\$0
2545	Office Computers - Replace - 50%	\$0	\$16,717	\$0	\$17,735	\$0
2553	Fire Control Panel - Update/Replace	\$0	\$0	\$0	\$0	\$0
2555	Exit/Emergency Lights - Replace	\$0	\$0	\$0	\$0	\$0
2561	Boilers - Replace	\$0	\$0	\$0	\$0	\$0
2569	Expansion Tanks - Replace	\$0	\$0	\$0	\$0	\$0
2575	Solar Panels - Replace	\$0	\$0	\$0	\$0	\$0
<b>Total Expenses</b>		<b>\$2,898</b>	<b>\$63,285</b>	<b>\$17,280</b>	<b>\$123,320</b>	<b>\$27,922</b>
<b>Ending Reserve Balance:</b>		<b>\$1,062,375</b>	<b>\$1,161,851</b>	<b>\$1,313,135</b>	<b>\$1,364,075</b>	<b>\$1,516,254</b>

**Table 6: 30-Year Income/Expense Detail (yrs 10 through 14)**

**29868-0**

Fiscal Year	2027	2028	2029	2030	2031
Starting Reserve Balance	\$1,516,254	\$1,631,436	\$1,818,733	\$1,993,335	\$1,513,322
Annual Reserve Contribution	\$170,677	\$175,798	\$181,072	\$186,504	\$192,099
Recommended Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$15,732	\$17,244	\$19,052	\$17,526	\$15,652
<b>Total Income</b>	<b>\$1,702,664</b>	<b>\$1,824,477</b>	<b>\$2,018,856</b>	<b>\$2,197,365</b>	<b>\$1,721,073</b>
# Component					
<b>Sites &amp; Grounds</b>					
2115 Concrete Walkways - Repair - 5%	\$0	\$0	\$0	\$0	\$0
2131 Asphalt - Seal/Repair	\$0	\$0	\$5,560	\$0	\$0
2133 Asphalt - Resurface	\$0	\$0	\$0	\$0	\$0
2155 Site Fencing/Gate: Wood - Replace	\$0	\$0	\$0	\$0	\$0
2181 Sign/Monument - Refurbish/Replace	\$0	\$0	\$0	\$0	\$0
2185 Site Pole Lights - Replace	\$0	\$0	\$0	\$0	\$0
2187 Bollard Lights - Replace	\$0	\$0	\$0	\$5,140	\$0
2191 Outdoor/Site Furniture - Replace	\$0	\$0	\$0	\$0	\$0
<b>Building Exteriors</b>					
2303 Exterior Wall Lights - Replace	\$0	\$0	\$0	\$0	\$0
2337 Building Exterior - Seal/Paint	\$0	\$0	\$0	\$0	\$18,756
2353 Wood/Composite Siding - Replace	\$0	\$0	\$0	\$0	\$0
2355 Metal Siding - Repair/Replace	\$0	\$0	\$0	\$0	\$0
2361 Windows - Replace	\$0	\$0	\$0	\$0	\$0
2375 Low Slope Roof - Replace	\$0	\$0	\$0	\$539,686	\$0
2381 Metal Roof - Replace	\$0	\$0	\$0	\$0	\$0
2389 Skylights - Replace	\$0	\$0	\$0	\$0	\$0
<b>Building Interiors</b>					
2401 Interior Surfaces - Repaint	\$0	\$0	\$0	\$14,906	\$0
2405 Interior Lighting - Replace	\$0	\$0	\$0	\$0	\$0
2405 Library Pendant Lights - Replace	\$0	\$0	\$0	\$0	\$0
2405 Stage Lights - Replace	\$0	\$0	\$0	\$0	\$0
2409 Tile Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2417 Resilient Sheet Flooring - Replace	\$0	\$0	\$0	\$9,766	\$0
2421 Metal Lockers - Replace	\$0	\$0	\$0	\$0	\$0
2425 Community Room Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Conference Room Furniture - Remodel	\$0	\$0	\$0	\$4,038	\$0
2425 Kids Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Library Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Office Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2426 Office Cabinets - Remodel	\$0	\$0	\$0	\$11,748	\$0
2427 Kids Bathroom - Remodel	\$0	\$0	\$0	\$5,874	\$0
2427 Office Bathrooms - Remodel	\$0	\$0	\$0	\$14,685	\$0
2427 Public Bathrooms - Remodel	\$0	\$0	\$0	\$17,622	\$0
2433 Window Treatment - Replace	\$0	\$0	\$0	\$0	\$0
2435 Conference Room Kitchen - Remodel	\$0	\$0	\$0	\$18,357	\$0
2435 Office Kitchen - Remodel	\$0	\$0	\$0	\$11,748	\$0

Table 6: 30-Year Income/Expense Detail (yrs 10 through 14)

29868-0

Fiscal Year	2027	2028	2029	2030	2031
2437 Kitchen Appliances - Replace - 25%	\$0	\$2,284	\$0	\$0	\$0
<b>Mechanical</b>					
2503 Card/Fob Reader System - Replace	\$0	\$0	\$0	\$0	\$0
2503 Traffic Counter System - Replace	\$0	\$0	\$0	\$0	\$0
2517 Heat Pump - Replace	\$0	\$0	\$0	\$5,140	\$0
2519 Packaged Air Unit - Replace	\$0	\$0	\$0	\$0	\$0
2521 Cabinet Heaters - Replace - 25%	\$0	\$0	\$0	\$5,874	\$0
2533 Pumps/Valves - Allowance	\$0	\$3,461	\$0	\$0	\$3,781
2537 Community Room A/V - Replace	\$0	\$0	\$0	\$0	\$0
2537 Conference Room A/V - Replace	\$0	\$0	\$0	\$5,874	\$0
2537 Televisions - Replace	\$0	\$0	\$0	\$3,304	\$0
2543 Security Cameras - Modernize	\$0	\$0	\$0	\$0	\$0
2545 Library Computers - Replace	\$52,413	\$0	\$0	\$0	\$58,991
2545 Office Computers - Replace - 50%	\$18,815	\$0	\$19,961	\$0	\$21,176
2553 Fire Control Panel - Update/Replace	\$0	\$0	\$0	\$10,280	\$0
2555 Exit/Emergency Lights - Replace	\$0	\$0	\$0	\$0	\$0
2561 Boilers - Replace	\$0	\$0	\$0	\$0	\$0
2569 Expansion Tanks - Replace	\$0	\$0	\$0	\$0	\$0
2575 Solar Panels - Replace	\$0	\$0	\$0	\$0	\$0
<b>Total Expenses</b>	<b>\$71,228</b>	<b>\$5,745</b>	<b>\$25,521</b>	<b>\$684,043</b>	<b>\$102,705</b>
<b>Ending Reserve Balance:</b>	<b>\$1,631,436</b>	<b>\$1,818,733</b>	<b>\$1,993,335</b>	<b>\$1,513,322</b>	<b>\$1,618,368</b>

**Table 6: 30-Year Income/Expense Detail (yrs 15 through 19)**

**29868-0**

Fiscal Year	2032	2033	2034	2035	2036
Starting Reserve Balance	\$1,618,368	\$1,830,898	\$2,025,244	\$2,252,403	\$1,849,508
Annual Reserve Contribution	\$197,862	\$203,798	\$209,912	\$216,209	\$222,695
Recommended Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$17,239	\$19,273	\$21,379	\$20,501	\$19,584
<b>Total Income</b>	<b>\$1,833,469</b>	<b>\$2,053,968</b>	<b>\$2,256,535</b>	<b>\$2,489,113</b>	<b>\$2,091,787</b>

# Component

**Sites & Grounds**

2115 Concrete Walkways - Repair - 5%	\$0	\$0	\$0	\$2,639	\$0
2131 Asphalt - Seal/Repair	\$0	\$6,258	\$0	\$0	\$0
2133 Asphalt - Resurface	\$0	\$0	\$0	\$49,626	\$0
2155 Site Fencing/Gate: Wood - Replace	\$0	\$0	\$0	\$5,533	\$0
2181 Sign/Monument - Refurbish/Replace	\$0	\$0	\$0	\$0	\$0
2185 Site Pole Lights - Replace	\$0	\$0	\$0	\$4,767	\$0
2187 Bollard Lights - Replace	\$0	\$0	\$0	\$0	\$0
2191 Outdoor/Site Furniture - Replace	\$0	\$0	\$0	\$0	\$0

**Building Exteriors**

2303 Exterior Wall Lights - Replace	\$0	\$0	\$0	\$2,554	\$0
2337 Building Exterior - Seal/Paint	\$0	\$0	\$0	\$0	\$0
2353 Wood/Composite Siding - Replace	\$0	\$0	\$0	\$0	\$0
2355 Metal Siding - Repair/Replace	\$0	\$0	\$0	\$0	\$0
2361 Windows - Replace	\$0	\$0	\$0	\$0	\$0
2375 Low Slope Roof - Replace	\$0	\$0	\$0	\$0	\$0
2381 Metal Roof - Replace	\$0	\$0	\$0	\$0	\$0
2389 Skylights - Replace	\$0	\$0	\$0	\$0	\$0

**Building Interiors**

2401 Interior Surfaces - Repaint	\$0	\$0	\$0	\$0	\$0
2405 Interior Lighting - Replace	\$0	\$0	\$0	\$15,322	\$0
2405 Library Pendant Lights - Replace	\$0	\$0	\$0	\$0	\$0
2405 Stage Lights - Replace	\$0	\$0	\$0	\$10,215	\$0
2409 Tile Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2417 Resilient Sheet Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2421 Metal Lockers - Replace	\$0	\$0	\$0	\$0	\$0
2425 Community Room Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Conference Room Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2425 Kids Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Library Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Office Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2426 Office Cabinets - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Kids Bathroom - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Office Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Public Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2433 Window Treatment - Replace	\$0	\$0	\$0	\$0	\$0
2435 Conference Room Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0
2435 Office Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0

**Table 6: 30-Year Income/Expense Detail (yrs 15 through 19)**

**29868-0**

Fiscal Year	2032	2033	2034	2035	2036
2437 Kitchen Appliances - Replace - 25%	\$2,571	\$0	\$0	\$0	\$2,893
<b>Mechanical</b>					
2503 Card/Fob Reader System - Replace	\$0	\$0	\$0	\$0	\$0
2503 Traffic Counter System - Replace	\$0	\$0	\$0	\$0	\$9,469
2517 Heat Pump - Replace	\$0	\$0	\$0	\$0	\$0
2519 Packaged Air Unit - Replace	\$0	\$0	\$0	\$383,047	\$0
2521 Cabinet Heaters - Replace - 25%	\$0	\$0	\$0	\$6,810	\$0
2533 Pumps/Valves - Allowance	\$0	\$0	\$4,132	\$0	\$0
2537 Community Room A/V - Replace	\$0	\$0	\$0	\$0	\$10,521
2537 Conference Room A/V - Replace	\$0	\$0	\$0	\$0	\$0
2537 Televisions - Replace	\$0	\$0	\$0	\$0	\$0
2543 Security Cameras - Modernize	\$0	\$0	\$0	\$0	\$0
2545 Library Computers - Replace	\$0	\$0	\$0	\$66,395	\$0
2545 Office Computers - Replace - 50%	\$0	\$22,466	\$0	\$23,834	\$0
2553 Fire Control Panel - Update/Replace	\$0	\$0	\$0	\$0	\$0
2555 Exit/Emergency Lights - Replace	\$0	\$0	\$0	\$5,022	\$0
2561 Boilers - Replace	\$0	\$0	\$0	\$63,841	\$0
2569 Expansion Tanks - Replace	\$0	\$0	\$0	\$0	\$0
2575 Solar Panels - Replace	\$0	\$0	\$0	\$0	\$0
<b>Total Expenses</b>	<b>\$2,571</b>	<b>\$28,724</b>	<b>\$4,132</b>	<b>\$639,604</b>	<b>\$22,883</b>
<b>Ending Reserve Balance:</b>	<b>\$1,830,898</b>	<b>\$2,025,244</b>	<b>\$2,252,403</b>	<b>\$1,849,508</b>	<b>\$2,068,904</b>

**Table 6: 30-Year Income/Expense Detail (yrs 20 through 24)**

**29868-0**

Fiscal Year	2037	2038	2039	2040	2041
Starting Reserve Balance	\$2,068,904	\$2,283,187	\$2,501,688	\$2,663,065	\$936,603
Annual Reserve Contribution	\$229,376	\$236,257	\$243,345	\$250,645	\$258,165
Recommended Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$21,751	\$23,914	\$25,813	\$17,991	\$10,523
<b>Total Income</b>	<b>\$2,320,032</b>	<b>\$2,543,359</b>	<b>\$2,770,846</b>	<b>\$2,931,701</b>	<b>\$1,205,291</b>
# Component					
<b>Sites &amp; Grounds</b>					
2115 Concrete Walkways - Repair - 5%	\$0	\$0	\$0	\$0	\$0
2131 Asphalt - Seal/Repair	\$7,044	\$0	\$0	\$0	\$7,928
2133 Asphalt - Resurface	\$0	\$0	\$0	\$0	\$0
2155 Site Fencing/Gate: Wood - Replace	\$0	\$0	\$0	\$0	\$0
2181 Sign/Monument - Refurbish/Replace	\$0	\$0	\$0	\$3,947	\$0
2185 Site Pole Lights - Replace	\$0	\$0	\$0	\$0	\$0
2187 Bollard Lights - Replace	\$0	\$0	\$0	\$0	\$0
2191 Outdoor/Site Furniture - Replace	\$0	\$0	\$0	\$6,908	\$0
<b>Building Exteriors</b>					
2303 Exterior Wall Lights - Replace	\$0	\$0	\$0	\$0	\$0
2337 Building Exterior - Seal/Paint	\$0	\$23,068	\$0	\$0	\$0
2353 Wood/Composite Siding - Replace	\$0	\$0	\$0	\$0	\$0
2355 Metal Siding - Repair/Replace	\$0	\$0	\$0	\$0	\$0
2361 Windows - Replace	\$0	\$0	\$0	\$1,317,369	\$0
2375 Low Slope Roof - Replace	\$0	\$0	\$0	\$0	\$0
2381 Metal Roof - Replace	\$0	\$0	\$0	\$34,735	\$0
2389 Skylights - Replace	\$0	\$0	\$0	\$19,736	\$0
<b>Building Interiors</b>					
2401 Interior Surfaces - Repaint	\$0	\$0	\$0	\$20,032	\$0
2405 Interior Lighting - Replace	\$0	\$0	\$0	\$0	\$0
2405 Library Pendant Lights - Replace	\$0	\$0	\$6,227	\$0	\$0
2405 Stage Lights - Replace	\$0	\$0	\$0	\$0	\$0
2409 Tile Flooring - Replace	\$0	\$0	\$0	\$71,049	\$0
2417 Resilient Sheet Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2421 Metal Lockers - Replace	\$0	\$0	\$0	\$6,513	\$0
2425 Community Room Furniture - Update	\$0	\$0	\$0	\$31,577	\$0
2425 Conference Room Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2425 Kids Furniture - Update	\$0	\$0	\$0	\$28,025	\$0
2425 Library Furniture - Update	\$0	\$0	\$0	\$45,392	\$0
2425 Office Furniture - Remodel	\$0	\$0	\$0	\$17,762	\$0
2426 Office Cabinets - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Kids Bathroom - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Office Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Public Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2433 Window Treatment - Replace	\$0	\$0	\$0	\$5,131	\$0
2435 Conference Room Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0
2435 Office Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0



**Table 6: 30-Year Income/Expense Detail (yrs 20 through 24)**

**29868-0**

Fiscal Year	2037	2038	2039	2040	2041
2437 Kitchen Appliances - Replace - 25%	\$0	\$0	\$0	\$3,256	\$0
<b>Mechanical</b>					
2503 Card/Fob Reader System - Replace	\$0	\$0	\$0	\$9,177	\$0
2503 Traffic Counter System - Replace	\$0	\$0	\$0	\$0	\$0
2517 Heat Pump - Replace	\$0	\$0	\$0	\$0	\$0
2519 Packaged Air Unit - Replace	\$0	\$0	\$0	\$0	\$0
2521 Cabinet Heaters - Replace - 25%	\$0	\$0	\$0	\$7,894	\$0
2533 Pumps/Valves - Allowance	\$4,515	\$0	\$0	\$4,934	\$0
2537 Community Room A/V - Replace	\$0	\$0	\$0	\$0	\$0
2537 Conference Room A/V - Replace	\$0	\$0	\$0	\$7,894	\$0
2537 Televisions - Replace	\$0	\$0	\$0	\$4,441	\$0
2543 Security Cameras - Modernize	\$0	\$18,603	\$0	\$0	\$0
2545 Library Computers - Replace	\$0	\$0	\$74,728	\$0	\$0
2545 Office Computers - Replace - 50%	\$25,286	\$0	\$26,825	\$0	\$28,459
2553 Fire Control Panel - Update/Replace	\$0	\$0	\$0	\$0	\$0
2555 Exit/Emergency Lights - Replace	\$0	\$0	\$0	\$0	\$0
2561 Boilers - Replace	\$0	\$0	\$0	\$0	\$0
2569 Expansion Tanks - Replace	\$0	\$0	\$0	\$6,908	\$0
2575 Solar Panels - Replace	\$0	\$0	\$0	\$342,417	\$0
<b>Total Expenses</b>	<b>\$36,845</b>	<b>\$41,671</b>	<b>\$107,781</b>	<b>\$1,995,099</b>	<b>\$36,387</b>
<b>Ending Reserve Balance:</b>	<b>\$2,283,187</b>	<b>\$2,501,688</b>	<b>\$2,663,065</b>	<b>\$936,603</b>	<b>\$1,168,903</b>

**Table 6: 30-Year Income/Expense Detail (yrs 25 through 29)**

**29868-0**

Fiscal Year	2042	2043	2044	2045	2046
Starting Reserve Balance	\$1,168,903	\$1,447,892	\$1,617,408	\$1,913,494	\$2,145,873
Annual Reserve Contribution	\$265,910	\$273,887	\$282,104	\$290,567	\$299,284
Recommended Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$13,078	\$15,320	\$17,647	\$20,288	\$22,896
<b>Total Income</b>	<b>\$1,447,892</b>	<b>\$1,737,099</b>	<b>\$1,917,159</b>	<b>\$2,224,349</b>	<b>\$2,468,053</b>

# Component

**Sites & Grounds**

2115 Concrete Walkways - Repair - 5%	\$0	\$0	\$0	\$0	\$0
2131 Asphalt - Seal/Repair	\$0	\$0	\$0	\$8,923	\$0
2133 Asphalt - Resurface	\$0	\$0	\$0	\$0	\$0
2155 Site Fencing/Gate: Wood - Replace	\$0	\$0	\$0	\$0	\$0
2181 Sign/Monument - Refurbish/Replace	\$0	\$0	\$0	\$0	\$0
2185 Site Pole Lights - Replace	\$0	\$0	\$0	\$0	\$0
2187 Bollard Lights - Replace	\$0	\$0	\$0	\$0	\$0
2191 Outdoor/Site Furniture - Replace	\$0	\$0	\$0	\$0	\$0

**Building Exteriors**

2303 Exterior Wall Lights - Replace	\$0	\$0	\$0	\$0	\$0
2337 Building Exterior - Seal/Paint	\$0	\$0	\$0	\$28,370	\$0
2353 Wood/Composite Siding - Replace	\$0	\$0	\$0	\$0	\$0
2355 Metal Siding - Repair/Replace	\$0	\$0	\$0	\$0	\$0
2361 Windows - Replace	\$0	\$0	\$0	\$0	\$0
2375 Low Slope Roof - Replace	\$0	\$0	\$0	\$0	\$0
2381 Metal Roof - Replace	\$0	\$0	\$0	\$0	\$0
2389 Skylights - Replace	\$0	\$0	\$0	\$0	\$0

**Building Interiors**

2401 Interior Surfaces - Repaint	\$0	\$0	\$0	\$0	\$0
2405 Interior Lighting - Replace	\$0	\$0	\$0	\$0	\$0
2405 Library Pendant Lights - Replace	\$0	\$0	\$0	\$0	\$0
2405 Stage Lights - Replace	\$0	\$0	\$0	\$0	\$0
2409 Tile Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2417 Resilient Sheet Flooring - Replace	\$0	\$0	\$0	\$0	\$0
2421 Metal Lockers - Replace	\$0	\$0	\$0	\$0	\$0
2425 Community Room Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Conference Room Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2425 Kids Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Library Furniture - Update	\$0	\$0	\$0	\$0	\$0
2425 Office Furniture - Remodel	\$0	\$0	\$0	\$0	\$0
2426 Office Cabinets - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Kids Bathroom - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Office Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2427 Public Bathrooms - Remodel	\$0	\$0	\$0	\$0	\$0
2433 Window Treatment - Replace	\$0	\$0	\$0	\$0	\$0
2435 Conference Room Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0
2435 Office Kitchen - Remodel	\$0	\$0	\$0	\$0	\$0

**Table 6: 30-Year Income/Expense Detail (yrs 25 through 29)**

**29868-0**

Fiscal Year	2042	2043	2044	2045	2046
2437 Kitchen Appliances - Replace - 25%	\$0	\$0	\$3,665	\$0	\$0
<b>Mechanical</b>					
2503 Card/Fob Reader System - Replace	\$0	\$0	\$0	\$0	\$0
2503 Traffic Counter System - Replace	\$0	\$0	\$0	\$0	\$12,725
2517 Heat Pump - Replace	\$0	\$0	\$0	\$0	\$0
2519 Packaged Air Unit - Replace	\$0	\$0	\$0	\$0	\$0
2521 Cabinet Heaters - Replace - 25%	\$0	\$0	\$0	\$9,152	\$0
2533 Pumps/Valves - Allowance	\$0	\$5,391	\$0	\$0	\$5,891
2537 Community Room A/V - Replace	\$0	\$0	\$0	\$0	\$14,139
2537 Conference Room A/V - Replace	\$0	\$0	\$0	\$0	\$0
2537 Televisions - Replace	\$0	\$0	\$0	\$0	\$0
2543 Security Cameras - Modernize	\$0	\$0	\$0	\$0	\$0
2545 Library Computers - Replace	\$0	\$84,107	\$0	\$0	\$0
2545 Office Computers - Replace - 50%	\$0	\$30,192	\$0	\$32,031	\$0
2553 Fire Control Panel - Update/Replace	\$0	\$0	\$0	\$0	\$0
2555 Exit/Emergency Lights - Replace	\$0	\$0	\$0	\$0	\$0
2561 Boilers - Replace	\$0	\$0	\$0	\$0	\$0
2569 Expansion Tanks - Replace	\$0	\$0	\$0	\$0	\$0
2575 Solar Panels - Replace	\$0	\$0	\$0	\$0	\$0
<b>Total Expenses</b>	<b>\$0</b>	<b>\$119,691</b>	<b>\$3,665</b>	<b>\$78,476</b>	<b>\$32,756</b>
<b>Ending Reserve Balance:</b>	<b>\$1,447,892</b>	<b>\$1,617,408</b>	<b>\$1,913,494</b>	<b>\$2,145,873</b>	<b>\$2,435,296</b>

## Accuracy, Limitations, and Disclosures

Because we have no control over future events, we do not expect that all the events we anticipate will occur as planned. We expect that inflationary trends will continue, and we expect Reserve funds to continue to earn interest, so we believe that reasonable estimates for these figures are much more accurate than ignoring these economic realities. We can control measurements, which we attempt to establish within 5% accuracy through a combination of on-site measurements, drawings, and satellite imagery. The starting Capital Reserve Balance and interest rate earned on deposited Reserve funds that you provided to us were considered reliable and were not confirmed independently. We have considered the client's representation of current and historical Reserve projects reliable, and we have considered the representations made by its vendors and suppliers to also be accurate and reliable. Component Useful Life, Remaining Useful Life, and Current Cost estimates assume a stable economic environment and lack of natural disasters.

Because the physical condition of your components, your Capital Reserve balance, the economic environment, and legislative environment change each year, this Capital Plan is by nature a "one-year" document. Because a long-term perspective improves the accuracy of near-term planning, this Report projects expenses for the next 30 years. It is our recommendation and that of the Financial Accounting Standards Board (FASB) that your Capital Plan be updated each year as part of the annual budget process.

Association Reserves and its employees have no ownership, management, or other business relationships with the client other than this Reserve Study engagement. Robert M. Nordlund, P.E., R.S., company president, is a California licensed Professional Engineer (Mechanical, #22322), and credentialed Reserve Specialist (#5). All work done by Association Reserves is performed under his Responsible Charge. There are no material issues to our knowledge that have not been disclosed to the client that would cause a distortion of the association's situation.

Component quantities indicated in this Report were developed by Association Reserves unless otherwise noted in our "Site Inspection Notes" comments. No destructive or intrusive testing was performed. This Report and this site inspection were accomplished only for Reserve budget purposes (to help identify and address the normal deterioration of properly built and installed components with predictable life expectancies). The Funding Plan in this Report was developed using the cash-flow methodology to achieve the specified Funding Objective.

Association Reserves' liability in any matter involving this Reserve Study is limited to our Fee for services rendered.

## Terms and Definitions

<b>BTU</b>	British Thermal Unit (a standard unit of energy)
<b>DIA</b>	Diameter
<b>GSF</b>	Gross Square Feet (area). Equivalent to Square Feet
<b>GSY</b>	Gross Square Yards (area). Equivalent to Square Yards
<b>HP</b>	Horsepower
<b>LF</b>	Linear Feet (length)

**Effective Age:** The difference between Useful Life and Remaining Useful Life. Note that this is not necessarily equivalent to the chronological age of the component.

**Fully Funded Balance (FFB):** The value of the deterioration of the Reserve Components. This is the fraction of life "used up" of each component multiplied by its estimated Current Replacement. While calculated for each component, it is summed together for an association total.

$$\text{FFB} = (\text{Current Cost} \times \text{Effective Age}) / \text{Useful Life}$$

**Inflation:** Cost factors are adjusted for inflation at the rate defined in the Executive Summary and compounded annually. These increasing costs can be seen as you follow the recurring cycles of a component on Table 6.

**Interest:** Interest earnings on Reserve Funds are calculated using the average balance for the year (taking into account income and expenses through the year) and compounded monthly using the rate defined in the Executive Summary. Annual interest earning assumption appears in the Executive Summary.

**Percent Funded:** The ratio, at a particular point in time (the first day of the Fiscal Year), of the actual (or projected) Reserve Balance to the Fully Funded Balance, expressed as a percentage.

**Remaining Useful Life (RUL):** The estimated time, in years, that a common area component can be expected to continue to serve its intended function.

**Useful Life (UL):** The estimated time, in years, that a common area component can be expected to serve its intended function.

## Component Details

Component Details

## Sites / Grounds

**Comp #:** 2115 Concrete Walkways - Repair - 5%

**Quantity:** 5% ~ 2,300 GSF

**Location:** Common areas

**Funded?:** Yes.

**History:**

**Evaluation:** There was no cracking or lifting observed during our inspection. Overall good conditions were noted. Colorado is home to expansive soils. One of the causes of concrete damage in this type of soil moisture. Expansive soils tend to swell in size when wet and contract as they dry out. As the soil expands and contracts it can create enough force to cause major damage to sidewalks. Repair any trip and fall hazards immediately to ensure safety. As routine maintenance, inspect regularly, pressure wash for appearance and repair promptly as needed to prevent water penetrating into the base and causing further damage. In our experience, larger repair/replacement expenses emerge as the community ages. Although difficult to predict timing, cost and scope, we suggest a rotating funding allowance to supplement the operating/maintenance budget for periodic larger repairs. Adjust as conditions, actual expense patterns dictate within future reserve study updates.

**Useful Life:**  
25 years

**Remaining Life:**  
18 years



**Best Case:** \$ 1,300  
Lower allowance

**Worst Case:** \$ 1,800  
Higher allowance

**Cost Source:** Allowance



**Comp #:** 2131 Asphalt - Seal/Repair

**Quantity:** ~ 9,700 GSF

**Location:** Streets

**Funded?:** Yes.

**History:**

**Evaluation:** Reportedly the asphalt has not been sealed since the property was built. Plans to reseal asphalt in the near future. The seal was observed to be weathered and faded. Regular cycles of seal coating (along with any needed repair) has proven to be the best program in our opinion for the long term care of lower traffic asphalt areas such as these. The primary reason to seal coat asphalt pavement is to protect the pavement from the deteriorating effects of sun and water. When asphalt pavement is exposed, the asphalt oxidizes, or hardens which causes the pavement to become more brittle. As a result, the pavement will be more likely to crack because it is unable to bend and flex when subjected to traffic and temperature changes. A seal coat combats this situation by providing a waterproof membrane, which not only slows down the oxidation process but also helps the pavement to shed water, preventing it from entering the base material. Seal coat also provides uniform appearance, concealing the inevitable patching and repairs which accumulate over time. Seal coat ultimately extends useful life of asphalt, postponing the asphalt resurfacing, which can be one of the larger cost items in this study (see component #2133 for asphalt resurfacing costs). Repair asphalt before seal coating. Surface preparation and dry weather, during and following application, is key to lasting performance. The ideal conditions are a warm, sunny day with low humidity; rain can cause major problems when seal coating and should never be done when showers are threatening. Incorporate any striping and curb repair into this project. Fill cracks and clean oil stains promptly in between cycles as routine maintenance.

**Useful Life:**  
4 years

**Remaining Life:**  
0 years



**Best Case:** \$ 3,400  
Lower allowance

**Worst Case:** \$ 4,400  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2133 Asphalt - Resurface

**Quantity:** ~ 9,700 GSF

**Location:** Streets

**Funded?:** Yes.

**History:**

**Evaluation:** No problems were observed at the time of inspection. No major cracking was noted. Generally good conditions.

Useful life below assumes regular seal coating and repairs. The lack of seal coating and repairs can greatly decrease the asphalt's useful life. Resurfacing is typically one of the larger expense items in a reserve study. When need to resurface is apparent within a couple of years, consult with geotechnical engineer for recommendations, specifications / scope of work and project oversight.

As routine maintenance, keep surfaces clean and free of debris, ensure that drains are free flowing, repair cracks, and clean oil stains promptly. Assuming proactive maintenance, plan to resurface at roughly the time frame below.

Further resources:

Pavement Surface Condition Field Rating Manual for Asphalt Pavement.

<http://co-asphalt.com/resources/maintenance-and-preservation/>

**Useful Life:**  
25 years

**Remaining Life:**  
18 years



**Best Case:** \$ 24,300  
Lower allowance

**Worst Case:** \$ 34,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2155 Site Fencing/Gate: Wood - Replace

**Quantity:** ~ 56 LF

**Location:** Common areas

**Funded?:** Yes.

**History:**

**Evaluation:** There is one (1) 10' gate included with the fencing. Trash enclosure(s) appeared to be in good condition with no problems observed at the time of inspection. There were no problems noted at the time of inspection. The fence was observed to be in overall good condition. As routine maintenance, inspect regularly for any damage, repair as needed and avoid contact with ground and surrounding vegetation wherever possible. Regular cycles of uniform, professional sealing/painting will help to maintain appearance and maximize life. Plan to replace at roughly the time frame below with funding included here for similar wood replacement. At next replacement, association might want to consider replacing with more sturdy, lower-maintenance products like composite, vinyl, etc. Although installation costs are higher, total life cycle cost is lower due to less maintenance and longer design life expectancy.

**Useful Life:**  
25 years

**Remaining Life:**  
18 years



**Best Case:** \$ 2,500  
Lower allowance

**Worst Case:** \$ 4,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2181 Sign/Monument - Refurbish/Replace

**Quantity:** Metal Lettering

**Location:** Entry

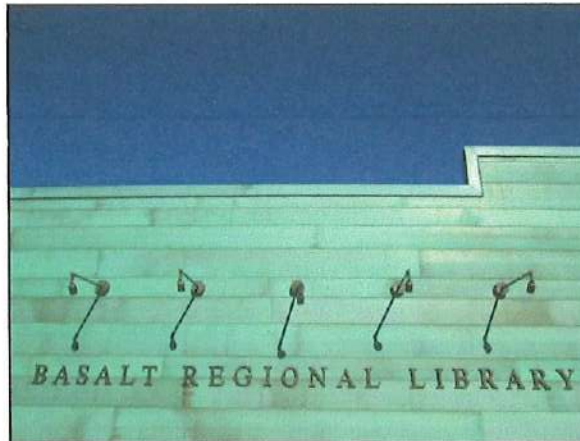
**Funded?:** Yes.

**History:**

**Evaluation:** There are a few areas of signage which is made up of individual metal letters, located on the exterior of the building. Good conditions were noted during our inspection. Funding allowance here can vary significantly depending on style/type desired. Inspect regularly, clean for appearance and repair as needed from general Operating funds. Best to plan for regular intervals of complete replacement at the time frame indicated below, to maintain functionality and a quality appearance as located in highly exposed areas. When replacement pieces are being evaluated, the association should place additional value on materials that require less maintenance, such as metal, stone, or a composite material.

**Useful Life:**  
30 years

**Remaining Life:**  
23 years



**Best Case:** \$ 1,500  
Lower allowance

**Worst Case:** \$ 2,500  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #: 2185 Site Pole Lights - Replace**

**Quantity: ~ (2) Fixtures**

Location: Common areas

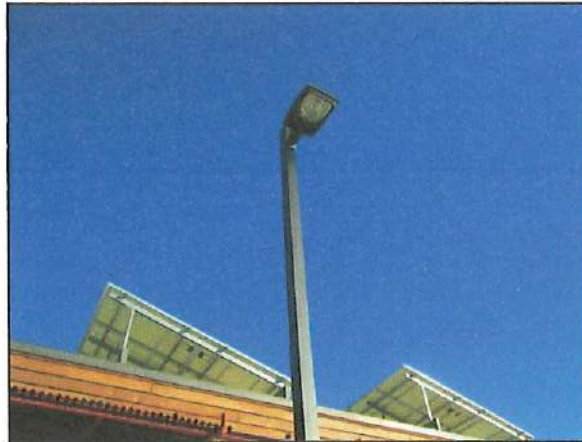
Funded?: Yes.

History:

Evaluation: There were two (2), 12' metal site pole lights located in the parking area of the property. Good condition noted with no significant damage/deterioration observed or reported to us. Observed during daylight hours; assumed to be in functional operating condition. Best to plan for large scale replacement at roughly the time frame below for cost efficiency and consistent quality/appearance throughout association. As routine maintenance, inspect, repair/change bulbs as needed.

Useful Life:  
25 years

Remaining Life:  
18 years



Best Case: \$ 2,400  
Lower allowance

Worst Case: \$ 3,200  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #: 2187 Bollard Lights - Replace**

**Quantity: ~ (4) Fixtures**

Location: Common areas

Funded?: Yes.

History:

Evaluation: There were four (4), 3' metal bollard lights. The lights were observed to be in good condition. Inspected during daylight hours; assumed to be in functional operating condition. As routine maintenance, inspect, repair/change bulbs as needed. Best to plan for large scale replacement at roughly the time frame below for cost efficiency and consistent quality/appearance throughout association.

Useful Life:  
20 years

Remaining Life:  
13 years



Best Case: \$ 3,000  
Lower allowance

Worst Case: \$ 4,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #: 2191 Outdoor/Site Furniture - Replace**

**Quantity: ~ (4) Pieces**

Location: Common areas

Funded?: Yes.

History:

Evaluation: There were four (4) wooden benches located on the property. Good condition noted at the time of inspection. Best to plan for regular intervals of complete replacement at the time frame indicated below, to maintain functionality and a quality appearance. Consider composite, coated metal, concrete or similar as lowest maintenance, typically least annualized cost over time. Inspect regularly, clean for appearance and repair as needed from general operating funds.

Useful Life:  
15 years

Remaining Life:  
8 years



Best Case: \$ 3,200  
Lower allowance

Worst Case: \$ 3,800  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #: 2195 Landscaping - Refurbish**

**Quantity: Landscaping**

Location: Common areas

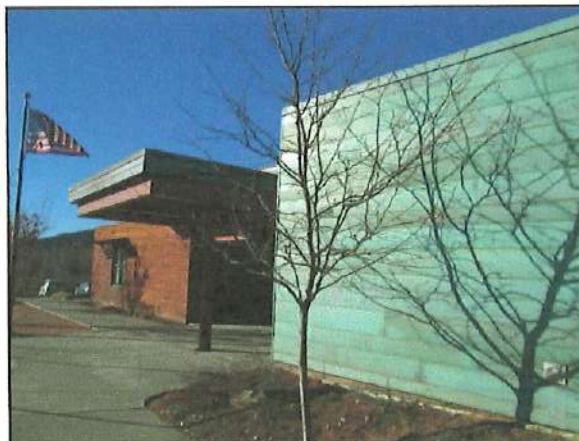
Funded?: No. Reported as an operating expense

History:

Evaluation: No specific problems observed by site inspector or identified by association contact. Although typically funded as ongoing maintenance item, this component may be utilized for setting aside funds for larger expenses that do not occur on an annual basis, such as large scale plantings, resodding lawn areas, bark/mulch replenishment, etc. Often times these type of projects can be handled within the annual operating budget as a separate line item from the landscape maintenance contract. At this time, there is no reported expectation for major projects requiring Reserve funding. Monitor and include funding in Reserve Study updates if needed.

Useful Life:

Remaining Life:



Best Case:

Worst Case:

Cost Source:

**Comp #:** 2197 Detention Ponds - Maintain

**Quantity:** (1) Detention Pond

**Location:** Common areas

**Funded?:** No. Unpredictable scope.

**History:**

**Evaluation:** There was one detention pond located on the North side of the property. No funding is recommended for this asset due to the unpredictable scope. Under normal circumstances, well-maintained retention ponds should not require major repair/refurbishing projects. In some cases, large projects such as erosion control, weed abatement or dredging may be required, but the scope and frequency of such projects is very unpredictable. As a precaution, the association may want to budget an allowance for repairs to the ponds. The association should consult with pond service vendor on a regular basis to identify any necessary projects, which may be included within future Reserve Study updates as needed.

**Useful Life:**

**Remaining Life:**



**Best Case:**

**Worst Case:**

**Cost Source:**

## Building Exteriors

**Comp #:** 2303 Exterior Wall Lights - Replace

**Quantity:** ~ (12) Fixtures

**Location:** Exteriors

**Funded?:** Yes.

**History:**

**Evaluation:** There were five (5) pendant lights and seven (7) flood lights located on the exterior walls of the building. Overall good conditions noted for the lights during our inspection. Observed during daylight hours, but assumed to be in functional operating condition. As routine maintenance, clean by wiping down with an appropriate cleaner, change bulbs and repair as needed. Best practice is to plan for large-scale replacement at roughly the time frame below for cost efficiency and consistent quality/appearance throughout association. Should be coordinated with exterior painting projects whenever possible. Be sure to inspect for tight seal with building envelope. Note: expect the need to replace individual fixtures occasionally due to failure or damage. Individual replacements should be considered an Operating expense. If available, an extra supply of replacement fixtures should be kept on-site to allow for prompt replacement.

**Useful Life:**  
25 years

**Remaining Life:**  
18 years



**Best Case:** \$ 1,200  
Lower allowance

**Worst Case:** \$ 1,800  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History



**Comp #:** 2305 Metal Awnings - Replace

**Quantity:** ~ 550 GSF Awnings

**Location:** Entry

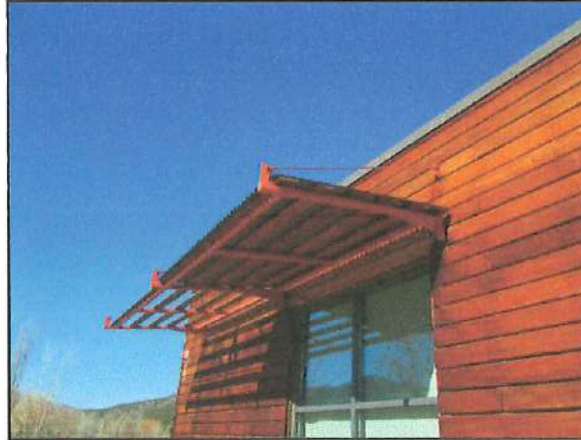
**Funded?:** No. Replace as needed using operating budget.

**History:**

**Evaluation:** Overall good conditions were noted of the metal awnings. These can be repaired as needed using operating budget funding. Inspect periodically and repair as needed. Treat with rust inhibitor to as needed to prolong life of the metal. All awnings should be replaced simultaneously to preserve good, uniform appearance in all areas.

**Useful Life:**

**Remaining Life:**



**Best Case:**

**Worst Case:**

**Cost Source:**

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**Comp #:** 2337 Building Exterior - Seal/Paint

**Quantity:** ~ 3,100 GSF

**Location:** Exterior

**Funded?:** Yes.

**History:**

**Evaluation:** The building exterior is Ipe wood, which was observed to be in need staining. Reportedly the exterior has not been stained during the lifetime of the building. It is recommended that staining take place in the near future. As routine maintenance, inspect regularly (including sealants), repair locally and touch-up paint as needed. Typical paint cycles can vary greatly depending upon many factors including; type of material painted, surface preparations, quality of material, application methods, weather conditions during application, moisture beneath paint, and exposure to weather conditions. Proper sealant/caulking is critical to preventing water intrusion and resulting damage to the building structure. Incorrect installations of sealant are common, and can greatly decrease its useful life. Inspect sealant, more frequently as it ages, to determine if it is failing. Typical sealant problems include failure of sealant to adhere to adjacent materials and tearing/splitting of the sealant itself. As sealants age and are exposure to ultra-violet sunlight, they will dry out, harden, and lose their elastic ability. Remove and replace sealant as signs of failure begin to appear. Proper cleaning, prep work, and proper installation are critical for a long lasting sealant/caulking. Do not install sealant in locations that would block water drainage from behind the siding. Repair areas as needed prior to project. For best results, the association may want to consult with a building envelope specialist or waterproofing contractor to specify types of materials to be used and define complete scope of work before bidding. Best practice is to coordinate this type of work with other projects whenever practical, such as balcony sealing, planter waterproofing, etc.

**Useful Life:**  
7 years

**Remaining Life:**  
0 years



**Best Case:** \$ 9,300  
Lower allowance

**Worst Case:** \$ 15,500  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2353 Wood/Composite Siding - Replace

**Quantity:** ~ 3,100 GSF

**Location:** Exterior

**Funded?:** Yes.

**History:**

**Evaluation:** The building exterior has lpe wood siding. Surface was not painted. No major problems were observed with the siding. No view of the critical underlying waterproofing was available as part of our limited visual review. Replacement may ultimately be needed due to the failure of the underlying waterproofing degrading over the decades, and/or the end of the useful life of the siding materials from general aging. Many factors influence the useful life, including exposure to (or protection from) wind driven rain, and the quality of the waterproofing and flashing beneath the siding. Evaluate the siding and the critical underlying waterproofing (typically building paper or house-wrap) more frequently as the remaining useful life approaches zero years. Adjust remaining useful life as dictated by the evaluation. Align with window replacement for cost efficiencies and building envelope integrity when practical. Inspect annually and repair locally as needed using general maintenance funds. Keep the wood siding painted to protect the wood from decay caused by water. Another item that greatly influences useful life is the thoroughness of the original painting. Wood siding will last longer if each piece was painted on all six sides. Typically, wood siding is painted on the two sides that are exposed and not on the back, ends, or top. Since we perform only a visual review, we were unable to confirm the extents of the painting. It is reasonable to presume that not all six sides are painted. If the siding is not painted on all sides, water can infiltrate and be absorbed into the wood on the unpainted sides, which over time will lead to cupping, warping and decay, limiting its useful life.

Project costs can vary depending upon materials chosen and the condition of the underlying structural framing when exposed. We recommend the Board conduct research well in advance in order to define scope, timing and costs, including plan for some margin of contingency.

**Useful Life:**  
40 years

**Remaining Life:**  
33 years



**Best Case:** \$ 37,200  
Lower allowance

**Worst Case:** \$ 46,500  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2355 Metal Siding - Repair/Replace

**Quantity:** ~ 2,900 GSF

**Location:** Exterior

**Funded?:** Yes.

**History:**

**Evaluation:** Reportedly the siding is copper which means it will likely not need to be replaced, however inspection and eventual replacement of the waterproofing membrane should take place. Overall good conditions were observed during our inspection

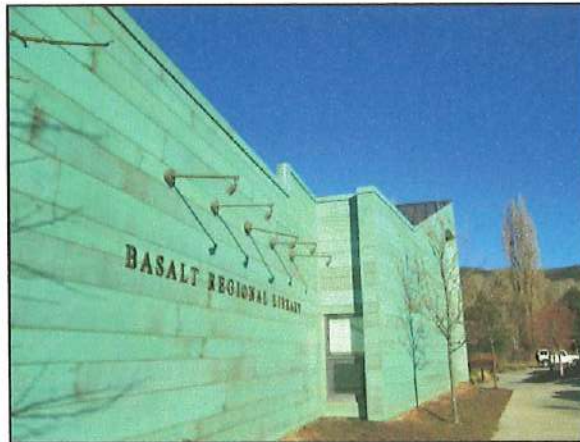
Replacement may ultimately be needed due to the failure of the underlying waterproofing degrading over the decades, and/or the end of the useful life of the siding materials from general aging. Many factors influence the useful life, including exposure to (or protection from) wind driven rain, and the quality of the waterproofing and flashing beneath the siding. Evaluate the siding and the critical underlying waterproofing (typically building paper or house-wrap) more frequently as the remaining useful life approaches zero years. Adjust remaining useful life as dictated by the evaluation. Align with other exterior replacements for cost efficiencies and building envelope integrity when practical. Inspect annually and repair locally as needed using general maintenance funds.

Metal panel can have a finish that is either field applied or factory applied. Most have factory applied finish, which can last much longer than a field-applied finish. We assume that it is long lasting factory finish. Many factors influence the useful life, including exposure to (or protection from) wind driven rain, quality of the siding material, and quality of the waterproofing and flashing beneath the siding. Almost all waterproofing systems will degrade over time (years or decades) as it ages.

Project costs can vary depending upon materials chosen and the condition of the underlying structural framing when exposed. We recommend the Board conduct research well in advance in order to define scope, timing and costs, including plan for some margin of contingency.

**Useful Life:**  
50 years

**Remaining Life:**  
43 years



**Best Case:** \$ 87,000  
Lower allowance

**Worst Case:** \$ 145,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2361 Windows - Replace

**Quantity:** ~ (267) Windows

**Location:** Exterior

**Funded?:** Yes.

**History:**

**Evaluation:** Windows consisted of approximately: (58) 4x10, (27) 5x5, (13) 5x2, (11) 3x7, (42) 3x4, (71) 4x4, (33) 2x2, (12) 4x2.

Mostly fixed operation windows. Head flashing was/was not observed. Jambs and sills had sealant joint between window frame and cladding. Weep holes at exterior lower corners were observed to be clear in the few windows sampled for our study. Some condensation was observed between window panes, typically indicative of failed glazing seals. This was noted on (1) window located in the library area. Reported that (1) window has been replaced due to a failed seal. Failed glazing seals are common in windows as they age, especially areas with high UV exposure. No observation of the critical underlying waterproofing details and flashing was part of our limited visual review. The underlying details and flashing are critical to maintaining the waterproofing of the building envelope and preventing structural damage as a result of water infiltration. Many factors affect useful life, including quality of window (design pressure rating), waterproofing and flashing details, building movement and exposure to the elements including wind driven rain. Those same variables, along with glazing and frame materials can also greatly affect the appropriate choice, replacement costs. You can learn more about window design here: <http://www.rci-online.org/interface/2010-04-hinjosa.pdf>

Inspect regularly, including sealant, if any, and repair as needed. Typical sealant failures include a lack of adhesion to adjacent materials, tearing/splitting of the sealant itself, and loss of elastic ability. Loss of elastic ability can be caused by exposure to ultra-violet light and general aging. Remove and replace all sealants as signs of failure begin to appear. Proper cleaning, prep work, and installation of specified joint design are critical for lasting performance. Keep weep holes free and clear to allow proper drainage of water that gets into window frame. Do not block (caulk or seal) gap at top of head flashing, as this allows water that gets behind the siding, to drain out.

We recommend the board conduct research well in advance of this project to help better define timing and costs (scope of work, material specifications, etc.). Further, we recommend that you hire a professional consultant (architect, engineer, building envelope consultant) to evaluate the existing windows, design and specify new installation requirements, assist with bid process and observe construction to increase the likelihood of proper installation. We recommend all associations hire qualified consultants whenever they are considering having work performed on any high-risk building envelope components (roof, walls, windows, decks, exterior painting and caulking/sealant).

Note: Cost below is for window replacement only. Professional architectural details and specifications, general contractor's oversight and coordination, and repair of underlying wood structural framing damage from water infiltration, etc. can add significantly to project cost.

**Useful Life:**  
30 years

**Remaining Life:**  
23 years



**Best Case:** \$ 534,000  
Lower allowance

**Worst Case:** \$ 801,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2367 Entry Doors - Replace

**Quantity:** ~ (7) Doors

**Location:** Exterior

**Funded?:** No.

**History:**

**Evaluation:** There are six (6) glass unit front doors and one (1) metal utility door on the property. The glass windows were glazed and had aluminum frames. Overall good conditions were observed. There are no expectations to replace these doors. The utility door was a metal door with no observed problems at the time of inspection. There is no expectation to replace this door. With ordinary care and maintenance, there is no predictable expectation to replace these on cyclical basis as Reserve project at this time. As routine maintenance, inspect periodically and repair / replace as needed using general building repair funds within operating budget. Clean and paint along with other interior building surfaces, no need for separate funding. If need becomes apparent to replace in large scale, funding should be incorporated into future Reserve Study updates. No Reserve funding basis at this time.

**Useful Life:**

**Remaining Life:**



**Best Case:**

**Worst Case:**

**Cost Source:**

**Comp #:** 2375 Low Slope Roof - Replace  
**Location:** Roof  
**Funded?:** Yes.  
**History:**

**Quantity:** ~ 21,000 GSF

**Evaluation:** The flat roof was a TPO, white single ply, 60 mil membrane. No problems were observed sloping appeared to be adequate, however, debris was noted in the drain areas. Typical useful life of low slope roof is 15-20 years depending on the quality of the roof system installed and the maintenance receives throughout its life. Vendor reported that the cost of replacement will be higher due to the number of solar panel penetrations, as well as the thickness of the insulation installed beneath the membrane. As routine maintenance, many manufacturers recommend professional inspections at least twice annually and after storms. Promptly repair any damaged sections or any other repairs needed to ensure waterproof integrity of roof. Keep scuppers, drains, gutters, and downspouts clear and free of debris to allow proper drainage and prevent the ponding of water on the roof surface. We recommend having roof inspected in greater detail (including conditions of sub-surface materials) by an independent roofing consultant prior to replacement. There is a wealth of information available through organizations such as the Roof Consultant Institute <http://www.rci-online.org> and the National Roofing Contractors Association (NRCA) <http://www.nrca.net>. If the roof has a warranty, be sure to review terms and conduct proper inspections/repairs as needed to keep warranty in force.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 315,000  
Lower allowance

**Worst Case:** \$ 420,000  
Higher allowance

**Cost Source:** Research with Local Vendor/Contractor

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**Comp #:** 2381 Metal Roof - Replace

**Quantity:** ~ 1,100 GSF

**Location:** Roof

**Funded?:** Yes.

**History:**

**Evaluation:** There was a small section of standing seam metal roof. No problems were observed, however it was noted that the metal appears to have stained the roof. Typically metal roofs are either Pro-Panel seamed roofs or Standing Seam roofs. Pro Panel roofs are installed with exposed metal screws and fasteners, while Standing Seam will snap lock panels over the mechanical seam, with no penetrations to the underlayment. Advantages of metal roofs include long life expectancies with relatively low need to repair. Metal roofing is typically a long-lived component assuming it was properly installed and is properly maintained. As routine maintenance, many manufacturers recommend inspections at least twice annually (once in the fall, before the rainy season, and again in the spring) and after large storm events. Promptly replace any damaged/missing sections or conduct any other repair needed to ensure waterproof integrity of roof. We recommend having roof inspected in greater detail (including conditions of sub-surface materials) by an independent roofing consultant prior to replacement. There is a wealth of information available through organizations such as the Roof Consultant Institute <http://www.rci-online.org> and the National Roofing Contractors Association (NRCA) <http://www.nrca.net/>. If the roof has a warranty, be sure to review terms and conduct proper inspections/repairs as needed to keep warranty in force.

**Useful Life:**  
30 years

**Remaining Life:**  
23 years



**Best Case:** \$ 15,400  
Lower allowance

**Worst Case:** \$ 19,800  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History



**Comp #:** 2389 Skylights - Replace

**Quantity:** ~ (10) Skylights

**Location:** Roof

**Funded?:** Yes.

**History:**

**Evaluation:** There were ten (10) 5x5 skylights on the property. The skylights were observed to be in good condition. The skylights were glass with no condensation noted at the time of inspection.

We recommend the board conduct research well in advance of this project to help better define timing and costs (scope of work, material specifications, etc.). Further, we recommend that you hire a professional consultant (architect, engineer, building envelope consultant) to evaluate the existing windows, design and specify new installation requirements, assist with bid process and observe construction to increase the likelihood of proper installation. We recommend all associations hire qualified consultants whenever they are considering having work performed on any high-risk building envelope components (roof, walls, windows, decks, exterior painting and caulking/sealant).

Note: Cost below is for window replacement only. Professional architectural details and specifications, general contractor's oversight and coordination, and repair of underlying wood structural framing damage from water infiltration, etc. can add significantly to project cost.

**Useful Life:**  
30 years

**Remaining Life:**  
23 years



**Best Case:** \$ 8,000  
Lower allowance

**Worst Case:** \$ 12,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

## Building Interiors

**Comp #:** 2401 Interior Surfaces - Repaint

**Quantity:** ~ 7,500 GSF

**Location:** Interiors

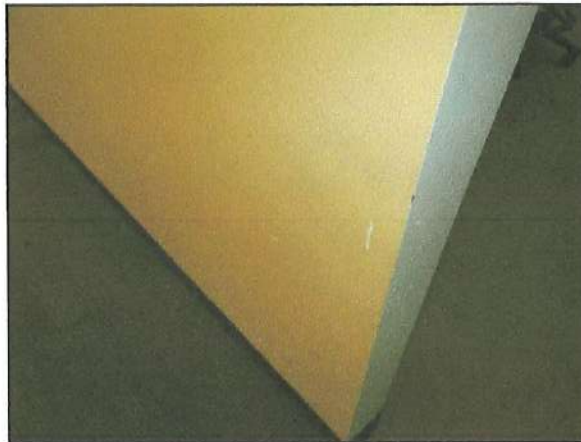
**Funded?:** Yes.

**History:**

**Evaluation:** The surfaces of the walls were observed to be in good to fair condition, with minor scuffing observed specifically, in the kids area. Regular cycles of professional painting are recommended to maintain appearance. Small touch-up projects can be conducted as needed as a maintenance expense, but comprehensive painting of interior areas will restore a consistent look and quality to all areas. Best practice is to coordinate at same time as other interior projects whenever possible to minimize downtime and maintain consistent quality standard.

**Useful Life:**  
10 years

**Remaining Life:**  
3 years



**Best Case:** \$ 9,000  
Lower allowance

**Worst Case:** \$ 11,300  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

Comp #: 2405 Interior Lighting - Replace

Quantity: ~ (53) Fixtures

Location: Interiors

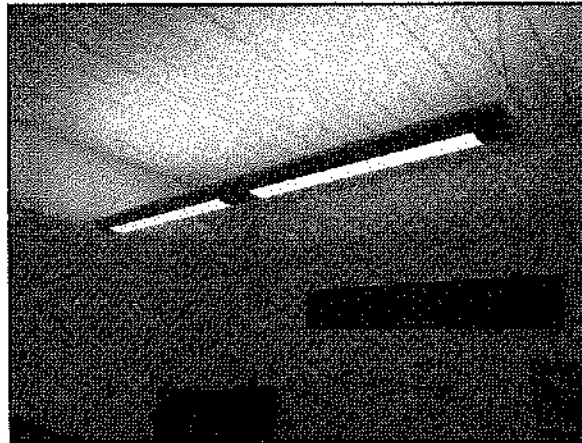
Funded?: Yes.

History:

Evaluation: There were sixty-seven (67) lights in the interior of the building, not including the library lights (separate component). There were twenty (20) lights in the office, twenty-eight (28) lights in the kids area, and nineteen (5) in the community room. As routine maintenance, inspect, repair and change bulbs as needed. Best practice is to coordinate at same time as other interior projects (especially painting) whenever possible to minimize downtime and maintain consistent quality standard. Timing and interval is subjective. Estimates shown here are based on our experience with similar properties and general aesthetic qualities. Schedule can be updated/adjusted at the discretion of the association for planning purposes. A wide variety of fixture styles is available; funding recommendations are based on replacement with comparable quality fixtures.

Useful Life:  
25 years

Remaining Life:  
18 years



Best Case: \$ 8,000  
Lower allowance

Worst Case: \$ 10,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2405 Library Pendant Lights - Replace

**Quantity:** ~ (56) Fixtures

**Location:** Interiors

**Funded?:** Yes.

**History:** Replaced in 2014

**Evaluation:** There were fifty-six (56) pendant lights in the library area of the property. As routine maintenance, inspect, repair and change bulbs as needed. Best practice is to coordinate at same time as other interior projects (especially painting) whenever possible to minimize downtime and maintain consistent quality standard. Timing and interval is subjective. Estimates shown here are based on our experience with similar properties and general aesthetic qualities. Schedule can be updated/adjusted at the discretion of the association for planning purposes. A wide variety of fixture styles is available; funding recommendations are based on replacement with comparable quality fixtures.

**Useful Life:**  
25 years

**Remaining Life:**  
22 years



**Best Case:** \$ 3,000  
Lower allowance

**Worst Case:** \$ 3,500  
Higher allowance

**Cost Source:** Client Cost History

**Comp #:** 2405 Stage Lights - Replace

**Quantity:** ~ (14) Fixtures

**Location:** Interiors

**Funded?:** Yes.

**History:** Replaced in 2015

**Evaluation:** No issues were reported at the time of the inspection. As routine maintenance, inspect, repair and change bulbs as needed. Best practice is to coordinate at same time as other interior projects (especially painting) whenever possible to minimize downtime and maintain consistent quality standard. Timing and interval is subjective. Estimates shown here are based on our experience with similar properties and general aesthetic qualities. Schedule can be updated/adjusted at the discretion of the association for planning purposes. A wide variety of fixture styles is available; funding recommendations are based on replacement with comparable quality fixtures.

**Useful Life:**  
20 years

**Remaining Life:**  
18 years



**Best Case:** \$ 5,000  
Lower allowance

**Worst Case:** \$ 7,000  
Higher allowance

**Cost Source:** Client Cost History

**Comp #:** 2409 Tile Flooring - Replace

**Quantity:** ~ 1,600 GSF

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** The tile flooring was located at the entry area. Good conditions were observed with no major problems at the time of our inspection. As part of ongoing maintenance program, inspect regularly, repairing or replacing damaged sections as needed. If available, best practice is to keep a collection of replacement tiles on hand for partial replacements. With ordinary care and maintenance, tile in interior locations can last for an extended period of time, but replacement is often warranted eventually to enhance and restore aesthetic appeal in the common areas. Replacement costs can vary greatly depending on size and type of tiles selected. Our recommendation is to replace at the approximate schedule shown here, but this schedule can be adjusted at the association's discretion.

**Useful Life:**  
30 years

**Remaining Life:**  
23 years



**Best Case:** \$ 32,000  
Lower allowance

**Worst Case:** \$ 40,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2411 Carpet - Replace

**Quantity:** ~ 2,100 GSY

**Location:** Interiors

**Funded?:** No. Back-up stock in place.

**History:**

**Evaluation:** Carpet is a tiled carpet product. Reported that the tiles are replaced as needed. It was also reported there is a full set of back-up replacement carpet tiles already on the property, therefore no funding is required at this time.

**Useful Life:**

**Remaining Life:**



**Best Case:**

**Worst Case:**

Cost Source:

**Comp #:** 2417 Resilient Sheet Flooring - Replace

**Quantity:** ~ 950 GSF

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** Flooring appeared to be a vinyl type floor which was observed to be in good conditions at the time of inspection. Inspect regularly, repair any damaged areas and clean using operating/maintenance budget. Although this flooring should have a very long useful life in this application, comprehensive replacement should eventually be expected to maintain good aesthetic standards in the common areas. Costs can vary based on quality and style of flooring selected.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 5,800  
Lower allowance

**Worst Case:** \$ 7,500  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

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**Comp #: 2421 Metal Lockers - Replace**

**Quantity: ~ (12) Metal Lockers**

Location: Lobby

Funded?: Yes.

History:

Evaluation: There were twelve (12) metal lockers on the property. The lockers were located in the office area. There were no problems noted at the time of inspection, overall good conditions. Clean and inspect regularly, change lock cylinders, lubricate hinges and repair as needed from Operating budget. Metal locker structures located inside protected interior areas can have very long life expectancies. In our experience, it is prudent to expect replacement at the approximate interval shown below in order to maintain good appearance consistent with other interior areas. Schedule can be updated/adjusted at the discretion of the association for planning purposes.

Useful Life:  
30 years

Remaining Life:  
23 years



Best Case: \$ 3,000  
Lower allowance

Worst Case: \$ 3,600  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

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**Comp #:** 2425 Community Room Furniture - Update

**Quantity:** ~ (99) Pieces

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** The Community Room Area furnishing included: Seventeen (17) tables and eighty-two (82) chairs. All of the furnishings were noted to be in good condition with no major problems at the time of our inspection. This component recommends funding for periodic replacement/refurbishment of interior furnishings and decor such as furniture, artwork, window treatments, misc. decorative items, etc., in order to maintain a desirable aesthetic in the common areas. Cost estimates can vary greatly depending on the amount of items to be replaced at each project, and the style and quality of replacement options. Best practice is to coordinate this type of project with other interior projects such as flooring replacement, painting, etc. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**  
15 years

**Remaining Life:**  
8 years



**Best Case:** \$ 15,000  
Lower allowance

**Worst Case:** \$ 17,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2425 Conference Room Furniture - Remodel

**Quantity:** (1) Conference Room

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** Room should not receive heavy use. There was one (1) conference room which included one (1) 9' conference table and eight (8) chairs. The condition noted in the conference room was overall good. Periodic conference remodeling is prudent in order to maintain an attractive, functional workspace for personnel. Typical projects often include replacement of room finishes and furnishings, and may also include replacement of IT equipment, phones, office supplies, storage units, etc. Life estimates can vary greatly depending on level of use and preferences of association. If the office is used as a public area for hosting potential buyers and other important visitors, remodeling should be a high priority. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 2,000  
Lower allowance

**Worst Case:** \$ 3,500  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #: 2425 Kids Furniture - Update**

**Quantity: ~ (71) Pieces**

Location: Interiors

Funded?: Yes.

History:

Evaluation: The Kids Area furnishing included: forty-three (43) little chairs, fifteen (15) little desks and thirteen (13) little lounge chairs. All of the furnishings were noted to be in good condition with no major problems at the time of our inspection. This component recommends funding for periodic replacement/refurbishment of interior furnishings and decor such as furniture, artwork, window treatments, misc. decorative items, etc., in order to maintain a desirable aesthetic in the common areas. Cost estimates can vary greatly depending on the amount of items to be replaced at each project, and the style and quality of replacement options. Best practice is to coordinate this type of project with other interior projects such as flooring replacement, painting, etc. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

Useful Life:  
15 years

Remaining Life:  
8 years



Best Case: \$ 10,600  
Lower allowance

Worst Case: \$ 17,800  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2425 Library Furniture - Update

**Quantity:** ~ (121) Pieces

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** The Library Area furnishing included: twenty (20) lounge chairs, one (1) couch, fifty-four (54) rolling chairs, thirty-two (32) desks, seven (7) table lamps and seven (7) chairs. All of the furnishings were noted to be in good condition with no major problems at the time of our inspection. This component recommends funding for periodic replacement/refurbishment of interior furnishings and decor such as furniture, artwork, window treatments, misc. decorative items, etc., in order to maintain a desirable aesthetic in the common areas. Cost estimates can vary greatly depending on the amount of items to be replaced at each project, and the style and quality of replacement options. Best practice is to coordinate this type of project with other interior projects such as flooring replacement, painting, etc. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**  
15 years

**Remaining Life:**  
8 years



**Best Case:** \$ 22,000  
Lower allowance

**Worst Case:** \$ 24,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History



**Comp #:** 2425 Office Furniture - Remodel

**Quantity:** ~ (38) Pieces

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** There were seventeen (17) desks and twenty-one (21) chairs. Good conditions were noted in this area with no obvious problems. Periodic office remodeling is prudent in order to maintain an attractive, functional workspace for personnel. Typical projects often include replacement of room finishes and furnishings, and may also include replacement of IT equipment, phones, office supplies, storage units, etc. Life estimates can vary greatly depending on level of use and preferences of association. If the office is used as a public area for hosting potential buyers and other important visitors, remodeling should be a high priority. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**

15 years

**Remaining Life:**

8 years



**Best Case:** \$ 8,000  
Lower allowance

**Worst Case:** \$ 10,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

---

**Comp #:** 2426 Office Cabinets - Remodel

**Quantity:** Offices

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** The office area included 14 LF of upper cabinets and 24 LF of lower cabinets. Good conditions were noted in this area with no obvious problems. Periodic office remodeling is prudent in order to maintain an attractive, functional workspace for personnel. Typical projects often include replacement of room finishes and furnishings, and may also include replacement of IT equipment, phones, office supplies, storage units, etc. Life estimates can vary greatly depending on level of use and preferences of association. If the office is used as a public area for hosting potential buyers and other important visitors, remodeling should be a high priority. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 6,000  
Lower allowance

**Worst Case:** \$ 10,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

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**Comp #:** 2427 Kids Bathroom - Remodel

**Quantity:** (1) Bathroom

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** There was one (1) kids bathroom which includes: ~10x8 with tile flooring, one (1) sink and one (1) toilet. The overall condition of the bathroom was good. Minor staining on the grout. No major problems were noted during our inspection. As routine maintenance, inspect regularly and perform any needed repairs promptly utilizing general Operating funds. Typical remodeling project can include some or all of the following: replacement of plumbing fixtures, partitions, countertops, lighting, flooring, ventilation fans, accessories, décor, etc. Best practice is to coordinate this type of project with other areas whenever possible. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**

20 years

**Remaining Life:**

13 years



**Best Case:** \$ 3,000  
Lower allowance

**Worst Case:** \$ 5,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

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**Comp #:** 2427 Office Bathrooms - Remodel

**Quantity:** (2) Bathrooms

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** There were two (2) bathrooms in the office area of the building. One bathroom included: ~5x7 with tile flooring, one (1) sink, and one (1) toilet. The other included: ~14x7 with tile flooring, one (1) sink, one (1) toilet and one (1) Shower. Overall bathrooms were noted to be in good condition with no problems observed during the inspection. As routine maintenance, inspect regularly and perform any needed repairs promptly utilizing general Operating funds. Typical remodeling project can include some or all of the following: replacement of plumbing fixtures, partitions, countertops, lighting, flooring, ventilation fans, accessories, décor, etc. Best practice is to coordinate this type of project with other areas whenever possible. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 8,000  
Lower allowance

**Worst Case:** \$ 12,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History



**Comp #:** 2427 Public Bathrooms - Remodel

**Quantity:** (2) Bathrooms

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** There were two (2) public restrooms in the building. Each bathroom included: ~45x10 with four (4) toilets and two (2) sinks. Overall the bathrooms were noted to be in good condition with no obvious problems. As routine maintenance, inspect regularly and perform any needed repairs promptly utilizing general Operating funds. Typical remodeling project can include some or all of the following: replacement of plumbing fixtures, partitions, countertops, lighting, flooring, ventilation fans, accessories, décor, etc. Best practice is to coordinate this type of project with other areas whenever possible. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 10,000  
Lower allowance

**Worst Case:** \$ 14,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2433 Window Treatment - Replace

**Quantity:** ~ (8) Window Treatments

**Location:** Interiors

**Funded?:** Yes.

**History:**

**Evaluation:** There were five (5) 3x4, one (1) each of 8x10, 2x20 and 10x15 window treatments in the building. This component recommends funding for periodic replacement/refurbishment of the window treatments in order to maintain a desirable aesthetic in the common areas. Cost estimates can vary greatly depending on the amount of items to be replaced at each project, and the style and quality of replacement options. Best practice is to coordinate this type of project with other interior projects such as flooring replacement, painting, etc. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment.

**Useful Life:**

15 years

**Remaining Life:**

8 years



**Best Case:** \$ 2,000  
Lower allowance

**Worst Case:** \$ 3,200  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2435 Conference Room Kitchen - Remodel

**Quantity:** (1) Kitchen

**Location:** Kitchen area

**Funded?:** Yes.

**History:**

**Evaluation:** The conference room included 15 LF of upper cabinets, 15 LF of lower cabinets and 30 GSF of countertops. The conference room kitchen was observed to be in good condition. Kitchen materials typically have an extended useful life. However, many associations choose to refurbish the kitchen periodically for aesthetic updating. This may include refurbishment/refinishing of kitchen cabinets, and countertops, replacement of sinks, installation/replacement of under-cabinet lighting, etc. Should ideally be coordinated with replacement of the kitchen appliances. Best practice is to coordinate this project with other amenity areas, such as bathrooms or other amenity rooms. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment

**Useful Life:**

20 years

**Remaining Life:**

13 years



**Best Case:** \$ 10,000  
Lower allowance

**Worst Case:** \$ 15,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2435 Office Kitchen - Remodel

**Quantity:** (1) Kitchen

**Location:** Kitchen area

**Funded?:** Yes.

**History:**

**Evaluation:** The office kitchen included 10 LF of upper cabinets, 10 LF of lower cabinets, 20 GSF of laminate countertops, three (3) tables and seven (7) chairs. The office kitchen was noted to be in fair conditions showing higher volume of traffic. Kitchen materials typically have an extended useful life. However, many associations choose to refurbish the kitchen periodically for aesthetic updating. This may include refurbishment/refinishing of kitchen cabinets, and countertops, replacement of sinks, installation/replacement of under-cabinet lighting, etc. Should ideally be coordinated with replacement of the kitchen appliances. Best practice is to coordinate this project with other amenity areas, such as bathrooms or other amenity rooms. Schedule and cost estimates should be re-evaluated during future Reserve Study updates and adjusted as needed based on the association's good judgment

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 7,000  
Lower allowance

**Worst Case:** \$ 9,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2437 Kitchen Appliances - Replace - 25%

**Quantity:** 25% of ~ (6)  
Appliances

**Location:** Kitchen areas

**Funded?:** Yes.

**History:**

**Evaluation:** The appliances on the property included: (2) GE refrigerator, (1) GE dishwasher, two (2) microwaves and one (1) toaster. All appliances appeared to be original to the property and in fair condition. Individual appliances were not tested during inspection, and are assumed to be in functional operating condition unless otherwise noted. Funding recommendation shown here is for replacing with comparable quality appliances. Individual pieces may be replaced as needed using Operating funds.

**Useful Life:**  
4 years

**Remaining Life:**  
3 years



**Best Case:** \$ 1,500  
Lower allowance

**Worst Case:** \$ 1,800  
Higher allowance

**Cost Source:** Allowance

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## Mechanical

**Comp #:** 2503 Card/Fob Reader System - Replace

**Quantity:** ~ (6) Units

**Location:** Entry areas

**Funded?:** Yes.

**History:**

**Evaluation:** The controls were observed to be in good condition with no problems noted. Card/fob reader devices were/were observed to be functional during site inspection. Due to use, exposure, and advancements in technology, plan to replace devices and control system at the approximate interval shown here. Individual readers can often be replaced as an Operating expense due to damage or localized failures. To ensure a functional, compatible system and obtain better pricing, plan on replacing all devices together as one project.

**Useful Life:**  
15 years

**Remaining Life:**  
8 years



**Best Case:** \$ 4,000  
Lower allowance

**Worst Case:** \$ 5,300  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2503 Traffic Counter System - Replace

**Quantity:** ~ (1) System

**Location:** Entry areas

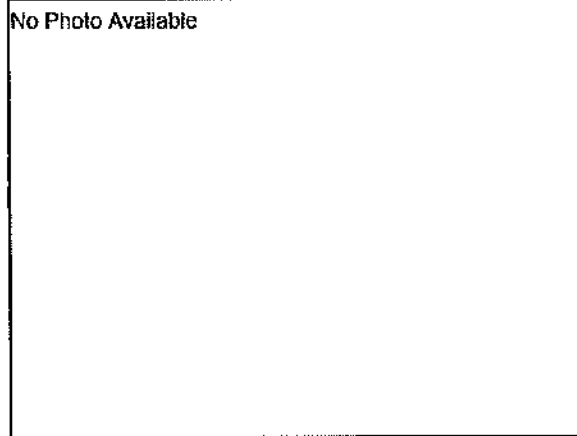
**Funded?:** Yes.

**History:**

**Evaluation:** System was not yet installed at the time of the inspection. Due to use, exposure, and advancements in technology, plan to replace devices and control system at the approximate interval shown here. To ensure a functional, compatible system and obtain better pricing, plan on replacing all devices together as one project.

**Useful Life:**  
10 years

**Remaining Life:**  
9 years



**Best Case:** \$ 5,000  
Lower allowance

**Worst Case:** \$ 5,800  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

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**Comp #:** 2517 Heat Pump - Replace

**Quantity:** (1) Daikin Heat Pump

**Location:** Common areas

**Funded?:** Yes.

**History:**

**Evaluation:** There was one Daikin Heat pump, model RXSIDJVU on the property. This was a small split system that run the air in the mechanical / computer room. Life expectancy of HVAC systems can vary greatly depending on location of the property. As routine maintenance, regular professional inspections and maintenance will help to extend useful life cycles. Treat routine repairs/maintenance such as filter replacement as an Operating expense. Plan for replacement at the typical service life expectancy indicated below. With proactive service and maintenance, useful life can often be extended - have service vendor evaluate continuously and adjust useful life / remaining useful life as indicated within Reserve Study updates. Unless otherwise noted, funding for system with same size/capacity as the current system.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 3,000  
Lower allowance

**Worst Case:** \$ 4,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History



**Comp #:** 2519 Packaged Air Unit - Replace

**Quantity:** (1) 25 Ton Unit

**Location:** Common areas

**Funded?:** Yes.

**History:**

**Evaluation:** Engineered Air Unit. Vendor reported that the unit is a custom, variable speed unit, which will increase the cost of replacement. Device is used to regulate and circulate air as part of a heating, ventilating, and air-conditioning (HVAC) system. As routine maintenance, regular professional inspections and maintenance will help to extend useful life cycles. Treat routine repairs/maintenance such as filter replacement as an Operating expense. Plan for replacement at the typical service life expectancy indicated below. With proactive service and maintenance, useful life can often be extended - have service vendor evaluate continuously and adjust useful life / remaining useful life as indicated within Reserve Study updates. Unless otherwise noted, funding for system with same size/capacity as the current system.

**Useful Life:**  
25 years

**Remaining Life:**  
18 years



**Best Case:** \$ 200,000  
Lower allowance

**Worst Case:** \$ 250,000  
Higher allowance

**Cost Source:** Research with Local Vendor/Contractor

**Comp #:** 2521 Cabinet Heaters - Replace - 25%

**Quantity:** 25% of ~ (7) Units

**Location:** Common areas

**Funded?:** Yes.

**History:**

**Evaluation:** There is no expectation to replace all at one time, they can be repaired and replaced as needed. Heaters should be inspected and evaluated regularly by servicing vendor. Treat routine repairs/maintenance as an Operating expense. Plan for replacement at the typical service life expectancy indicated below. With proactive service and maintenance, useful life can often be extended - have service vendor evaluate continuously and adjust useful life / remaining useful life as indicated within Reserve Study updates. Unless otherwise noted, funding for system with same size/capacity as the current system.

**Useful Life:**  
5 years

**Remaining Life:**  
3 years



**Best Case:** \$ 3,000  
Lower allowance

**Worst Case:** \$ 5,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2533 Pumps/Valves - Allowance

**Quantity:** ~ (6) Variable Pumps

**Location:** Mechanical room

**Funded?:** Yes.

**History:**

**Evaluation:** There were six (6), variable speed pumps on the property. They were observed to be in good condition at the time of inspection, no problems observed. Expect eventual need for tear down and rebuild (more cost-effective than buying new units) at roughly the interval below. Treat smaller repair / replacement below the reserve funding threshold (< 1% of the annual operating expenses, excluding reserves) as general maintenance item(s) within operating budget.

**Useful Life:**  
3 years

**Remaining Life:**  
2 years



**Best Case:** \$ 2,000  
Lower allowance

**Worst Case:** \$ 3,000  
Higher allowance

**Cost Source:** Allowance

**Comp #:** 2537 Community Room A/V - Replace

**Quantity:** ~ (2) Units

**Location:** Mechanical room

**Funded?:** Yes.

**History:** Replaced in 2016

**Evaluation:** There was one (1) 15x12 Project Screen and one (1) Hitachi Projector in the Community Room of the property which were both observed to be in good condition at the time of inspection. Audio/visual equipment should be maintained and tested periodically to ensure good function. For most associations, ongoing replacements of individual components is treated as an Operating expense, but replacement of many (or all) system components may eventually be warranted. Funding recommendation shown here is for replacement with new equipment, comparable in style and quality to the assets noted during our site inspection.

**Useful Life:**  
10 years

**Remaining Life:**  
9 years



**Best Case:** \$ 5,000  
Lower allowance

**Worst Case:** \$ 7,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2537 Conference Room A/V - Replace

**Quantity:** ~ (2) Units

**Location:** Mechanical room

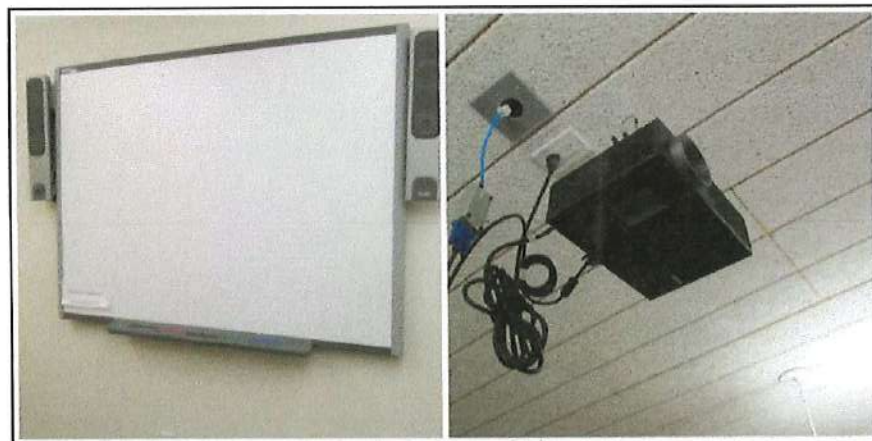
**Funded?:** Yes.

**History:**

**Evaluation:** There was one (1) smart screen and one (1) Dell projector on the property. Audio/visual equipment should be maintained and tested periodically to ensure good function. For most associations, ongoing replacements of individual components is treated as an Operating expense, but replacement of many (or all) system components may eventually be warranted. Funding recommendation shown here is for replacement with new equipment, comparable in style and quality to the assets noted during our site inspection.

**Useful Life:**  
10 years

**Remaining Life:**  
3 years



**Best Case:** \$ 3,000  
Lower allowance

**Worst Case:** \$ 5,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2537 Televisions - Replace

**Quantity:** (3) T.V.s

**Location:** Mechanical room

**Funded?:** Yes.

**History:**

**Evaluation:** There were three (3) flat screen televisions on the property which were observed to be in good condition at the time of inspection. Audio/visual equipment should be maintained and tested periodically to ensure good function. For most associations, ongoing replacements of individual components is treated as an Operating expense, but replacement of many (or all) system components may eventually be warranted. Funding recommendation shown here is for replacement with new equipment, comparable in style and quality to the assets noted during our site inspection.

**Useful Life:**  
10 years

**Remaining Life:**  
3 years



**Best Case:** \$ 2,000  
Lower allowance

**Worst Case:** \$ 2,500  
Higher allowance

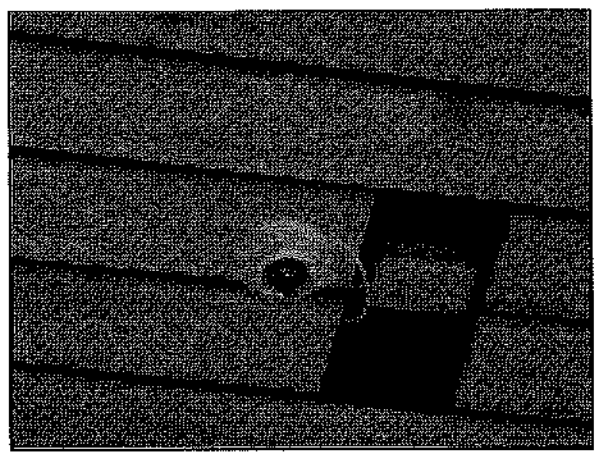
Cost Source: ARI Cost Database: Similar Project Cost History

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**Comp #:** 2543 Security Cameras - Modernize **Quantity:** ~ (19) Cameras  
**Location:** Common areas  
**Funded?:** Yes.  
**History:** 2014 purchased security system.  
**Evaluation:** There were three (3) exterior "dummy" cameras and sixteen (16) interior "real" cameras. The system was purchased in 2014 and was observed to be in good condition, with no reported problems. Security/surveillance systems should be monitored closely to ensure proper function. Whenever possible, camera locations should be protected and isolated to prevent tampering and/or theft. Plan to replace/upgrade the system at the approximate interval shown below. Typical modernization projects may include addition and/or replacement of camera fixtures, recording equipment, monitors, software, etc. In many cases, replacement or modernization is warranted due to advancement in technology, not functional failure of the existing system. Keep track of any partial replacements and include cost history during future Reserve Study updates.

**Useful Life:**  
12 years

**Remaining Life:**  
9 years



**Best Case:** \$ 9,000  
Lower allowance

**Worst Case:** \$ 11,000  
Higher allowance

**Cost Source:** Client Cost History + Inflation

**Comp #:** 2545 Library Computers - Replace

**Quantity:** ~ (40) Computers

**Location:** Offices

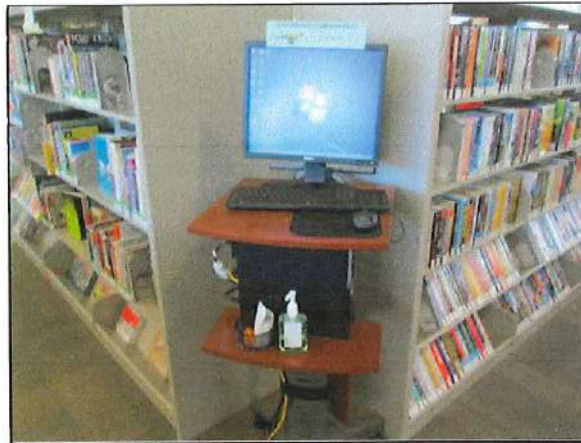
**Funded?:** Yes.

**History:** (40) computers were purchased for the library area in 2014.

**Evaluation:** There were forty (40) newer computers in the library area of the building. They were noted to be in good condition at the time of inspection. Computers and other IT equipment have a relatively short useful life (depending on the application and level of use) due to advancements in technology. Plan to replace/upgrade the existing equipment at the approximate interval shown here to ensure proper function and uninterrupted service. Keep track of any partial replacements and include cost history during future Reserve Study updates.

**Useful Life:**  
4 years

**Remaining Life:**  
2 years



**Best Case:** \$ 36,000  
Lower allowance

**Worst Case:** \$ 42,000  
Higher allowance

**Cost Source:** Client Cost History + Inflation

**Comp #:** 2545 Office Computers - Replace - 50%

**Quantity:** ~ 50% of (18) Units

**Location:** Offices

**Funded?:** Yes.

**History:**

**Evaluation:** There were eighteen (18) computers in the office area of the building. Computers and other IT equipment have a relatively short useful life (depending on the application and level of use) due to advancements in technology. Plan to replace/upgrade the existing equipment at the approximate interval shown here to ensure proper function and uninterrupted service. Keep track of any partial replacements and include cost history during future Reserve Study updates.

**Useful Life:**  
2 years

**Remaining Life:**  
0 years



**Best Case:** \$ 13,000  
Lower allowance

**Worst Case:** \$ 15,000  
Higher allowance

**Cost Source:** Allowance

**Comp #:** 2553 Fire Control Panel - Update/Replace

**Quantity:** (1) Panel

**Location:** Fire panel room

**Funded?:** Yes.

**History:**

**Evaluation:** There was one (1) fire control panel on the property. No problems were observed at the time of inspection and no problems were reported. We are not licensed to internally inspect these units. Panel was not tested for functionality during site inspection. Unless otherwise noted, fire alarm panel is assumed to have been designed and installed properly and adheres to all relevant building codes. Regular testing and inspections should be conducted as an Operating expense. In many cases, manufacturers discontinue support of panel and parts/service availability may therefore be limited as the panel ages. Research and experience suggests planning for replacement at roughly the time frame below. Begin formulation of specifications and obtain estimates in advance of need - replace proactively to ensure safety.

**Useful Life:**  
20 years

**Remaining Life:**  
13 years



**Best Case:** \$ 6,000  
Lower allowance

**Worst Case:** \$ 8,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2555 Exit/Emergency Lights - Replace

**Quantity:** ~ (18) Fixtures

**Location:** Common areas

**Funded?:** Yes.

**History:**

**Evaluation:** There were eighteen (18) emergency exit signs on the property. The signs were noted to be in good condition during our inspection. Exit signs and emergency lighting fixtures were not tested for functionality during site inspection. Replacement of individual fixtures can be included within the general maintenance and repair category of the Operating budget. Large-scale replacement of many (or all) fixtures may be warranted at some point and should ideally be coordinated with other life-safety components, such as fire alarm control panel(s), smoke detectors, pull stations, etc. There is a wide variety of fixture styles available, with a wide range of associated costs. Funding here to replace with fixtures comparable to those currently in place.

**Useful Life:**  
25 years

**Remaining Life:**  
18 years



**Best Case:** \$ 2,700  
Lower allowance

**Worst Case:** \$ 3,200  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

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**Comp #:** 2561 Boilers - Replace

**Quantity:** (3) 399k BTU Boilers

**Location:** Mechanical room

**Funded?:** Yes.

**History:**

**Evaluation:** There were three (3) Lochnivar - Knight boilers on the property. With routine inspection and maintenance, the boiler should have an approximate useful life as shown below before replacement with future technology and efficiencies will be warranted. Please note that the useful life of the boiler can be influenced by many factors, including water quality in the area. Life expectancy can also vary based on level of use. When considering replacements, the association should strongly consider replacing with high-efficiency models. Although initial cost may be higher than conventional alternatives, the payback period in energy savings is often a fraction of the overall life span of the boiler itself.

**Useful Life:**  
25 years

**Remaining Life:**  
18 years



**Best Case:** \$ 30,000  
Lower allowance

**Worst Case:** \$ 45,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2563 Water Heaters- Replace

**Quantity:** (2) 3 Gallon Water Heater

**Location:** Mechanical room

**Funded?:** No. Replace as needed

**History:**

**Evaluation:** There were two (2), 30 gallon, electric Bradford water heaters on the property. No problems were observed or reported during our inspection. Water heater life expectancies can vary greatly depending on level of use, location within a building, etc. Should be inspected and repaired as needed by servicing vendor or maintenance staff. Due to the small size of the units, plan to replace as needed.

**Useful Life:**

**Remaining Life:**



**Best Case:**

**Worst Case:**

**Cost Source:**

**Comp #:** 2567 Glycol Tank - Replace  
**Location:** Mechanical room  
**Funded?:** No. Repair / replace from operating budget.  
**History:**  
**Evaluation:** There is one (1), 6 gallon glycol tank on the property. This unit can be replaced / repaired using funds from the operating budget.

**Quantity:** (1) Unit

Useful Life:

Remaining Life:



Best Case:

Worst Case:

Cost Source:

**Comp #:** 2569 Expansion Tanks - Replace  
**Location:** Mechanical room  
**Funded?:** Yes.  
**History:**  
**Evaluation:** There are three (3) expansion tanks on the property. Two (2) of the tanks are smaller and can be replaced using the operating budget. The largest of the three (3) is added here with a replacement allowance. Expansion tanks should be inspected for leaks and other problems routinely by servicing vendor or maintenance staff. Small repairs and cleaning should be considered an Operating expense and conducted as needed. Plan to replace at the approximate interval shown below, ideally coordinated with replacement of the boiler/hot water heater itself in order to achieve better pricing and minimize system downtime.

**Quantity:** ~ (3) Tank

Useful Life:  
30 years

Remaining Life:  
23 years



Best Case: \$ 3,000  
Lower allowance

Worst Case: \$ 4,000  
Higher allowance

Cost Source: ARI Cost Database: Similar Project Cost History

**Comp #:** 2574 Solar Panel Converters - Repair

**Quantity:** ~ (11) Converters

**Location:** Roof

**Funded?:** No.

**History:**

**Evaluation:** System will provide a source of power, and will operate during a utility line disturbance without any interruptions of power supplied to the load. The transfer from utility power to battery power will utilize an uninterruptible system, pulse width modulated sine wave output. The system is capable of powering any combination of electronic, power factor corrected, fluorescent, incandescent or HID lighting; building management system, security system and any other critical voltage or frequency-sensitive electronic loads.

Analysis of electrical system(s) beyond visual inspection of readily-visible components is not within the scope of a Reserve Study. Some electrical system components used historically are known to be life limited, but predictability of failures is very difficult to determine. Manufacturing defects may become apparent from time to time and certain site conditions can contribute to premature deterioration of system components. Typically, if installed per architectural specifications and local building codes, there is no predictable time frame for large scale repair/replacement expenses within the scope of our report. In our experience working with similar associations, service life typically lasts well beyond rated life of components. Treat minor repairs as ongoing maintenance expense. Periodic inspections of distribution system by qualified electrician are wise to clean and tighten, exercise breakers, etc. Some associations employ infrared or other testing methodologies to identify trouble spots and potential hazards. Funding may be incorporated into future Reserve Study updates if conditions dictate. Keep track of any relevant expenses and include information during future Reserve Study updates as necessary. No basis for Reserve funding at this time.

**Useful Life:**

**Remaining Life:**



**Best Case:**

**Worst Case:**

**Cost Source:**

**Comp #:** 2575 Solar Panels - Replace

**Quantity:** ~ (324) Panels, 76.14 KW

**Location:** Roof

**Funded?:** Yes.

**History:**

**Evaluation:** Solar system includes collector panels and inverters. The system is a photovoltaic system. Reported that the system is a 76.14 KW system. Analysis of electrical system(s) beyond visual inspection of readily-visible components is not within the scope of a Reserve Study. No cracked glass or broken panels were observed during our limited inspection.

Some electrical system components used historically are known to be life limited, but predictability of failures is very difficult to determine. Manufacturing defects may become apparent from time to time and certain site conditions can contribute to premature deterioration of system components. Plan to have a specialist inspect the panels annually.

**Useful Life:**  
30 years

**Remaining Life:**  
23 years



**Best Case:** \$ 152,000  
Lower allowance

**Worst Case:** \$ 195,000  
Higher allowance

**Cost Source:** ARI Cost Database: Similar Project Cost History

**Comp #:** 2579 Irrigation Controllers - Replace

**Quantity:** ~ (1) Controller

**Location:** Common areas

**Funded?:** No. Replace as needed

**History:**

**Evaluation:** Eventual replacement is below the reserve funding threshold (< 1% of the annual operating expenses, excluding reserves) therefore, fund within operating budget.

**Useful Life:**

**Remaining Life:**



**Best Case:**

**Worst Case:**

**Cost Source:**



## Request for Proposal

### Roofing Replacement Project

Basalt Regional Library District  
14 Midland Avenue  
Basalt, Colorado 81621

October 17, 2023

#### SUMMARY OF WORK

The Basalt Regional Library District (District) seeks to retain a qualified roofing contractor to provide the following services and in accordance with the Bid Set of drawings and specifications, dated September 22, 2023:

#### DEMOLITION

1. Temporarily remove photovoltaic panels and associated electrical system and store all materials in a controlled environment for reinstallation.
2. Remove and legally dispose of off-site (discard) the existing TPO roofing membrane and cover board. Salvage all existing polyiso insulation.
3. Remove and discard existing sheet metal parapet copings, counter flashings, sheet metal scuppers, conductor heads, ladders, and downspouts in all areas.

#### NEW CONSTRUCTION

1. If areas of wet/damaged insulation are found, contractor to replace areas of wet/damaged polyiso insulation, thickness to match the existing and slope to match in-kind.
2. Contract to have HVAC sub-contractor to lift and reset mechanical units for the installation of the new TPO roofing system. Roofing contractor shall coordinate work with District so facilities remain operational.
3. Furnish and install a new adhered 80-mil TPO roofing system at the specified roof area. Remaining polyisocyanurate insulation mechanically fastened through all layers of insulation down to roof deck, one layer of 1/2 inch thick gypsum cover board adhered in low-rise foam adhesive, and one layer of adhered 80-mil TPO (color – white). Install new metal flashing and reinstall PV system.

#### ADD ALTERNATE

1. At the steep-sloped section of A and B, install a new double locked standing seam coated metal roof system that is similar to existing Roof Area G. New standing seam roof

- will include high temperature underlayment, eave and rake flashing. and transition to TPO roof system. Existing PV system will be secured to stand seams utilizing PV clamps.
2. In lieu of 80-mil thick TPO membrane, install 60-mil thick TPO system with same components as described above.

**BACKGROUND**

The 21,000 square foot Basalt Regional Library was completed in 2010 and serves a district that spans from Hagerman Pass to Mount Sopris and includes the communities of Old Snowmass, Basalt, El Jebel and the Fryingpan Valley.

The building is built on a concrete foundation; slab on grade, with deep foundation walls to provide flood protection for the structure. The building structure is steel frame with steel roof decking. Exterior walls are double stud wood frame to provide enhanced thermal performance.

Existing roof assembly consists of the following:

- 60 mil TPO roofing membrane (mechanical attachment)
- 1/4" DensDeck
- polyisocyanurate board insulation
- corrugated metal roof deck

The building photovoltaic system is located on three areas of the roof. Above the staff wing of the building the panels are mounted on racks that are supported by spaced wood frame fin walls standing up from the roof below, allowing the tapered roof system below to pitch to drains. Above the main reading room, the panels are mounted to TPO-wrapped wood sleepers anchored to the roof deck below.

At the steep-sloped section of A and B, install a new double locked standing seam coated metal roof system that is similar to existing Roof Area G. New standing seam roof will include high temperature underlayment, eave and rake flashing. and transition to TPO roof system. Existing PV system will be secured to stand seams utilizing PV clamps.

**PROPOSED SCHEDULE**

District wishes to complete remedial roof work in the Spring of 2024. However, if a different timeline is needed due to other commitments, please submit a proposal detailing a timeline that would work.

The following is a list of key dates relating to the proposal process\*:

RFP Posted	October 17, 2023
Written questions due no later than	November 15, 2023
Questions and answers posted no later than	November 30, 2023
Proposals due by 3:00 p.m.	January 2, 2024
Proposal evaluation and interviews with finalists no later than	January 30, 2024

Reference checks completed	February 15, 2024
Bid awarded and vendor notification	February 20, 2024

\*The District reserves the right to revise the above schedule.

**CONSULTANT PROPOSAL CONTENTS**

1. Name of Firm
2. History of Firm
3. Future of Firm
4. Contact Person
5. Examples of similar projects
6. Hourly pay rate by job description
7. Detailed description of proposed solution with alternates clearly identified
8. Estimate of fees broken down by work items listed in Summary of Work shown above
9. Estimated project timeline
10. Three client references

**CONTACT**

Amy Shipley  
 Executive Director  
 (970) 927-4311 extension 1008  
 ashipley@basaltlibrary.org

**ATTACHMENTS**

1. Bid Set of drawings
2. Project specifications







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(COLORADO REGISTRATION No. 00406230)  
JUNE 23, 2022

**BID SET**  
NOT FOR CONSTRUCTION

PROJECT:  
**BASALT REGIONAL  
LIBRARY ROOF  
REPLACEMENT**  
14 Midland Avenue  
Basalt, Colorado 81621

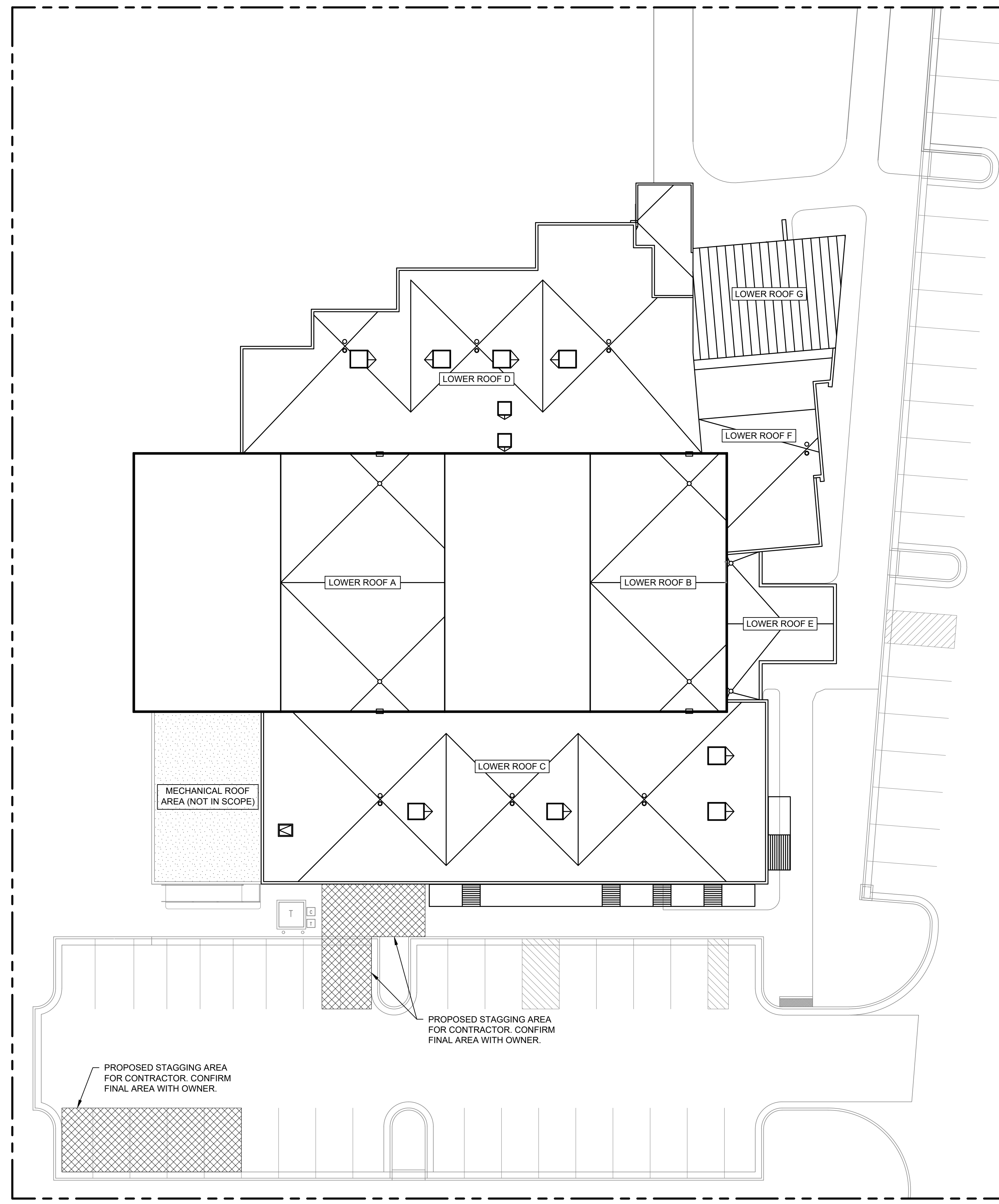
CLIENT:  
**Basalt Regional Library  
District**  
14 Midland Avenue  
Basalt, Colorado 81621

No.	DATE	DESCRIPTION

WJE PROJECT No.: 2022.7310.0  
ISSUE DATE: SEPTEMBER 22, 2023  
PROJECT MANAGER: CLM  
REVIEWED BY: MMT  
DRAWN BY: KMH/BRS/CRS  
SCALE: AS NOTED

**OVERALL ROOF PLAN**

TITLE:  
**R200**  
SHEET No.:



**1 OVERALL ROOF PLAN AND SITE PLAN**  
SCALE: 1/16" = 1'-0"

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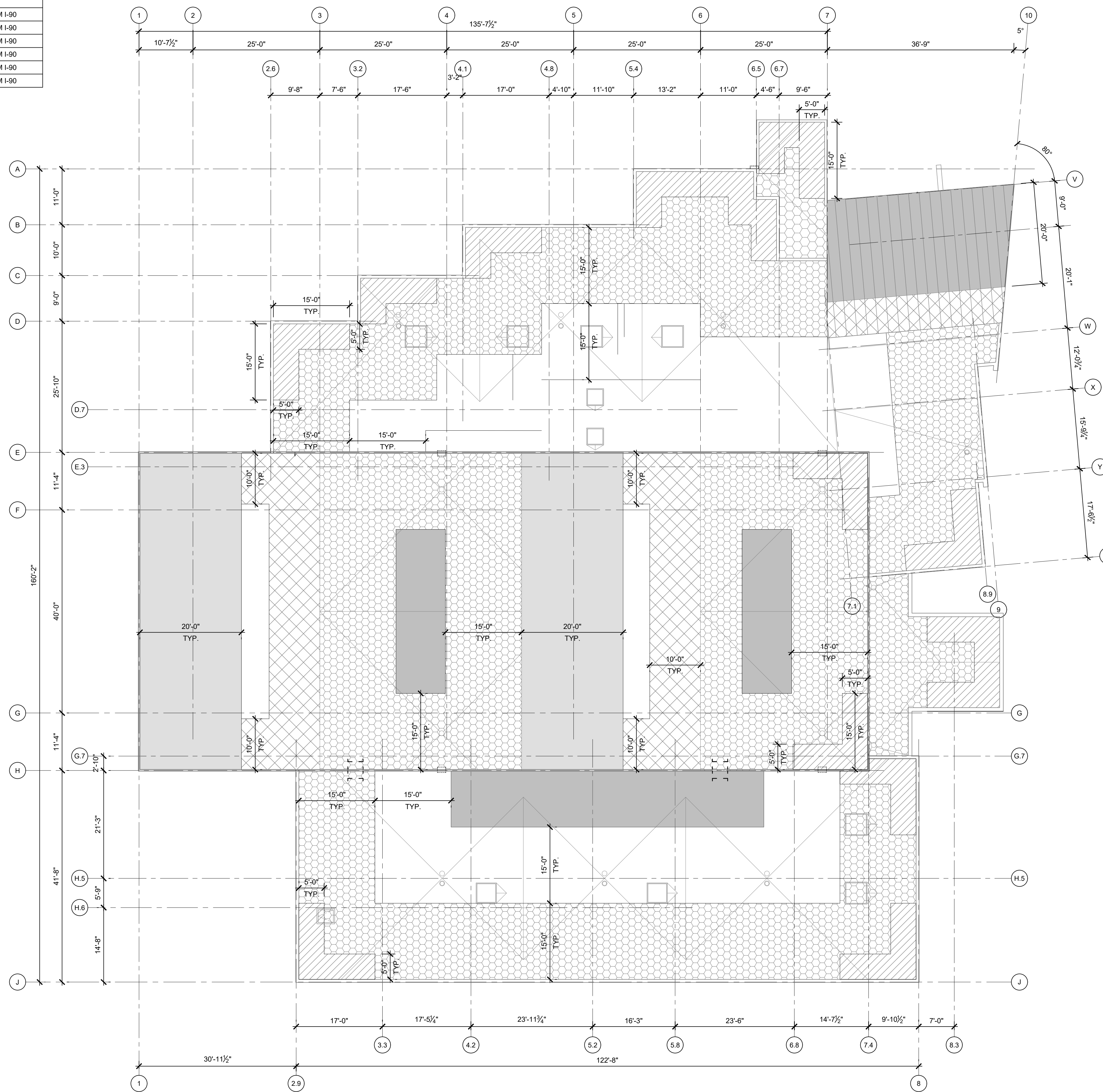
ROOF SYSTEM WIND RESISTANT ZONES				
ROOF AREA	TYPE	ZONE	DESIGN UPLIFT PRESSURE (PSF)	FM EQUIV.
FLAT	MEMBRANE	1	49	FM I-90
		2	64	FM I-90
		3	87	FM I-90
MONOSLOPE	MEMBRANE	1	38	FM I-90
		2	46	FM I-90
		3	79	FM I-90

**NOTES:**

1. ROOF SYSTEM SHALL BE A TESTED ASSEMBLY THAT MEETS OR EXCEEDS THE DESIGN UPLIFT PRESSURES PROVIDED. THE DESIGN UPLIFT PRESSURES IN THE TABLE ABOVE ARE SERVICE LEVEL PRESSURES WITH A 2.0 SAFETY FACTOR FOR THE LISTED MEMBRANE ROOF TYPES.
2. MEMBRANE ROOF ASSEMBLY SHALL BE MINIMUM FM I-90.
3. GROUND ELEVATION PROVISIONS APPLY: GROUND ELEVATION 6,600 FT. ABOVE SEA LEVEL.

**BUILDING AND ROOF AREA INPUT DATA**

ROOF SLOPE: BETWEEN FLAT AND 4.5:12 OR LESS  
 EXPOSURE CATEGORY: C  
 RISK CATEGORY: II  
 BASIC WIND SPEED: 115 MPH Vult



**1 UPLIFT PLAN**  
 SCALE: 3/32" = 1'-0"  
 N

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**BID SET**  
 NOT FOR CONSTRUCTION

PROJECT:  
**BASALT REGIONAL  
 LIBRARY ROOF  
 REPLACEMENT**  
 14 Midland Avenue  
 Basalt, Colorado 81621

CLIENT:  
**Basalt Regional Library  
 District**  
 14 Midland Avenue  
 Basalt, Colorado 81621

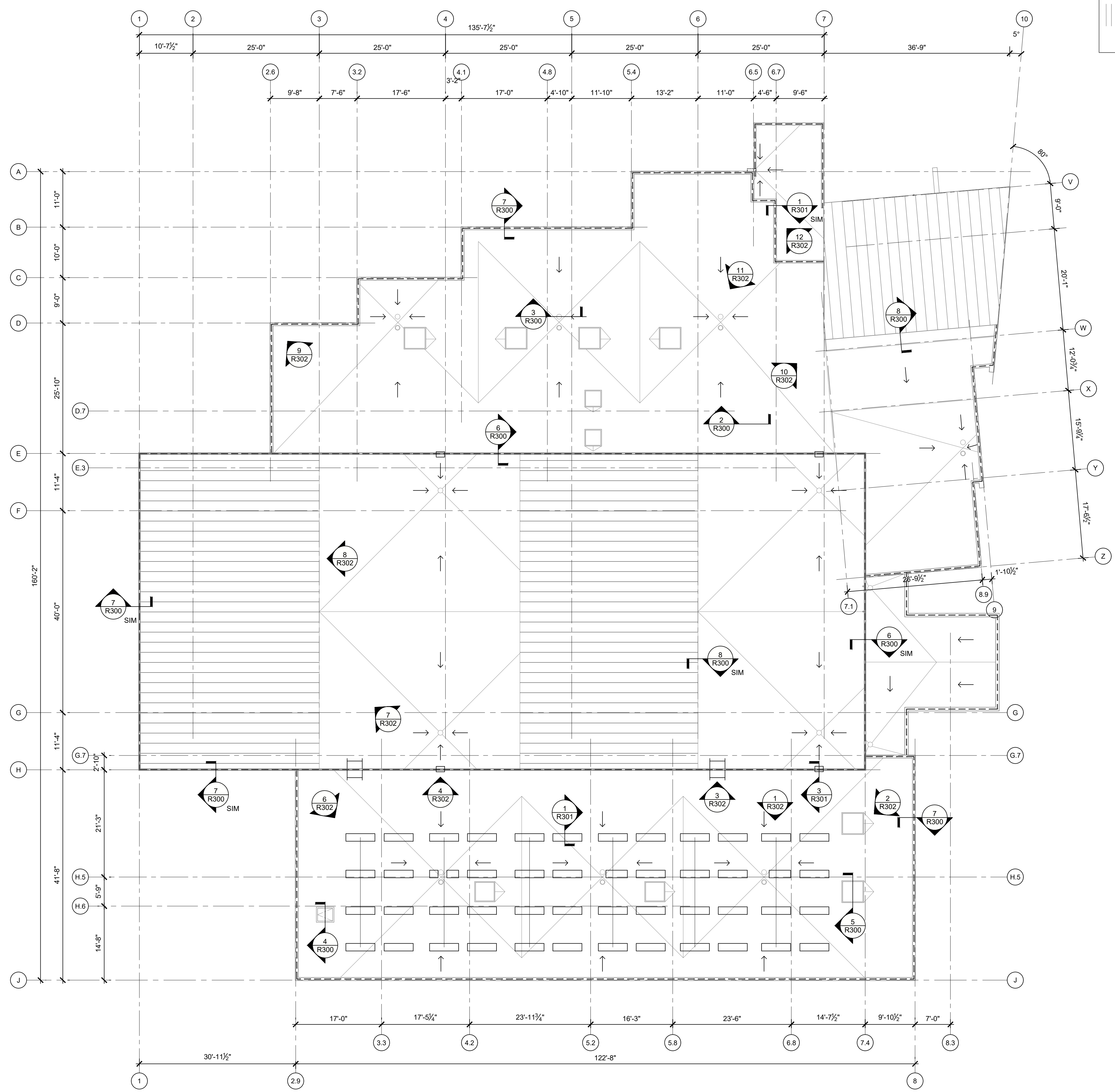
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**UPLIFT PLAN**

TITLE:  
**R202**  
 SHEET No.:

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**REPAIR LEGEND:**

--- INSTALL NEW HIGH DENSITY ISO COVER BOARD AND TPO MEMBRANE. INSTALL NEW PARAPET CAP COATED METAL FLASHING.  
 ▨ ADD ALTERNATE #1: IN LIEU OF TPO, INSTALL NEW COATED ALUMINUM STANDING SEAM ROOF. PV TO ATTACH TO NEW STANDING SEAM ROOF WITH SEAM

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PROJECT:

**BASALT REGIONAL LIBRARY ROOF REPLACEMENT**

14 Midland Avenue  
Basalt, Colorado 81621

CLIENT:

**Basalt Regional Library District**

14 Midland Avenue  
Basalt, Colorado 81621

No.	DATE	DESCRIPTION

WJE PROJECT No.: 2022.7310.0

ISSUE DATE: SEPTEMBER 22, 2023

PROJECT MANAGER: CLM

REVIEWED BY: MMT

DRAWN BY: KMH/BRS/CRS

SCALE: AS NOTED

**1 ROOF PLAN**  
SCALE: 3/32" = 1'-0"

TITLE:

**ROOF PLAN**

**R203**

SHEET No.:



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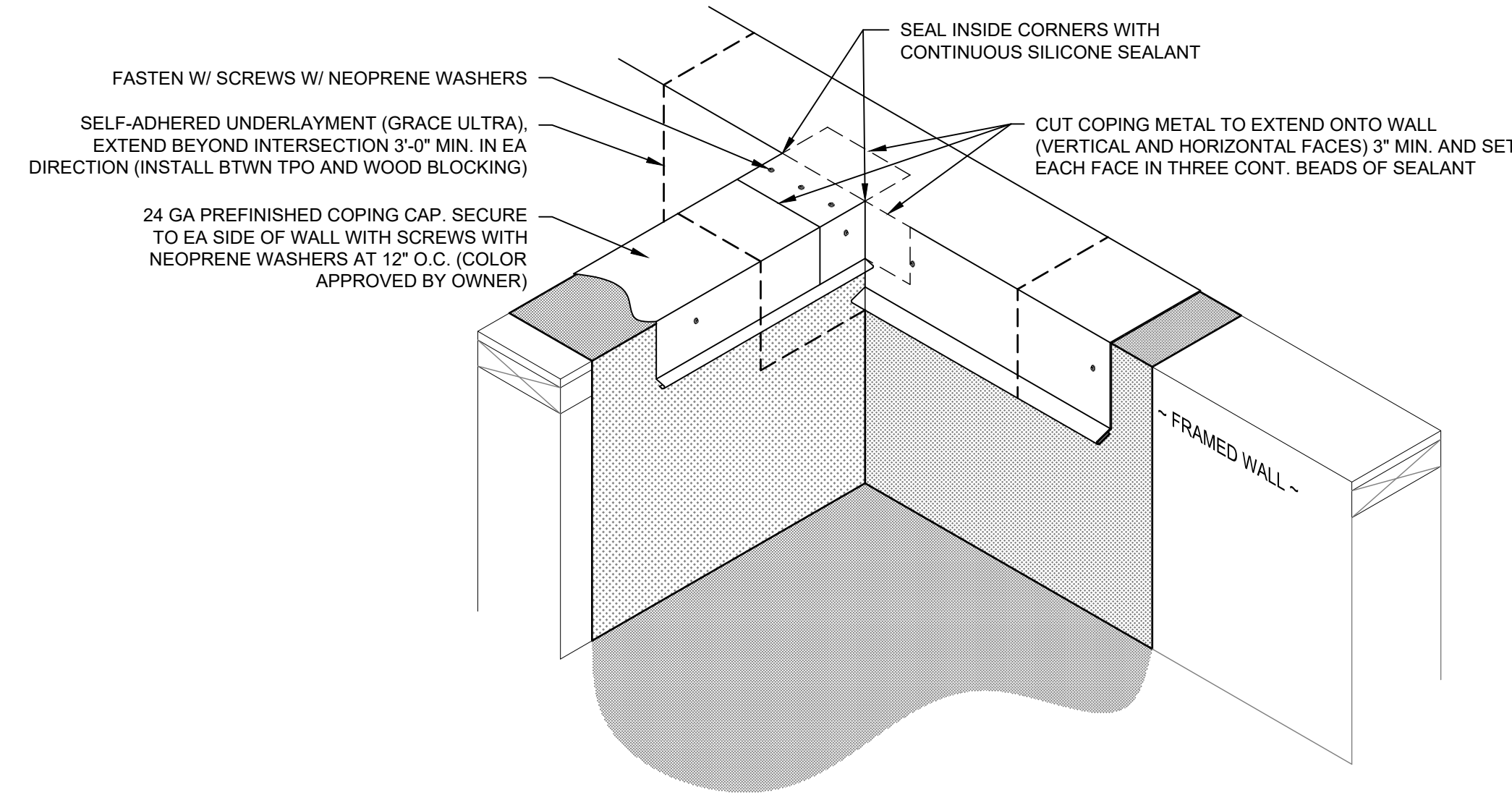
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No.	DATE	DESCRIPTION

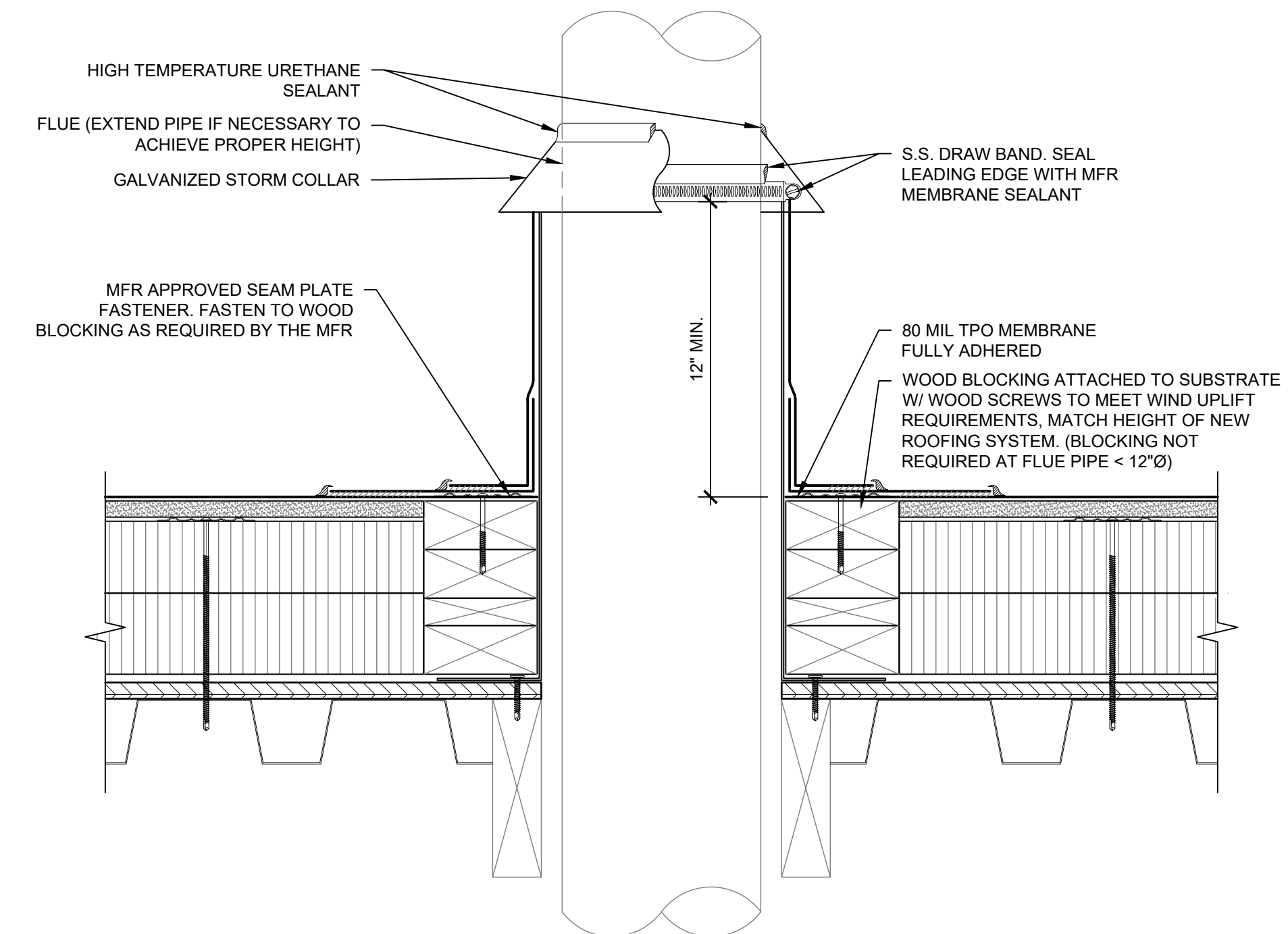
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**TYPICAL ROOFING DETAILS**

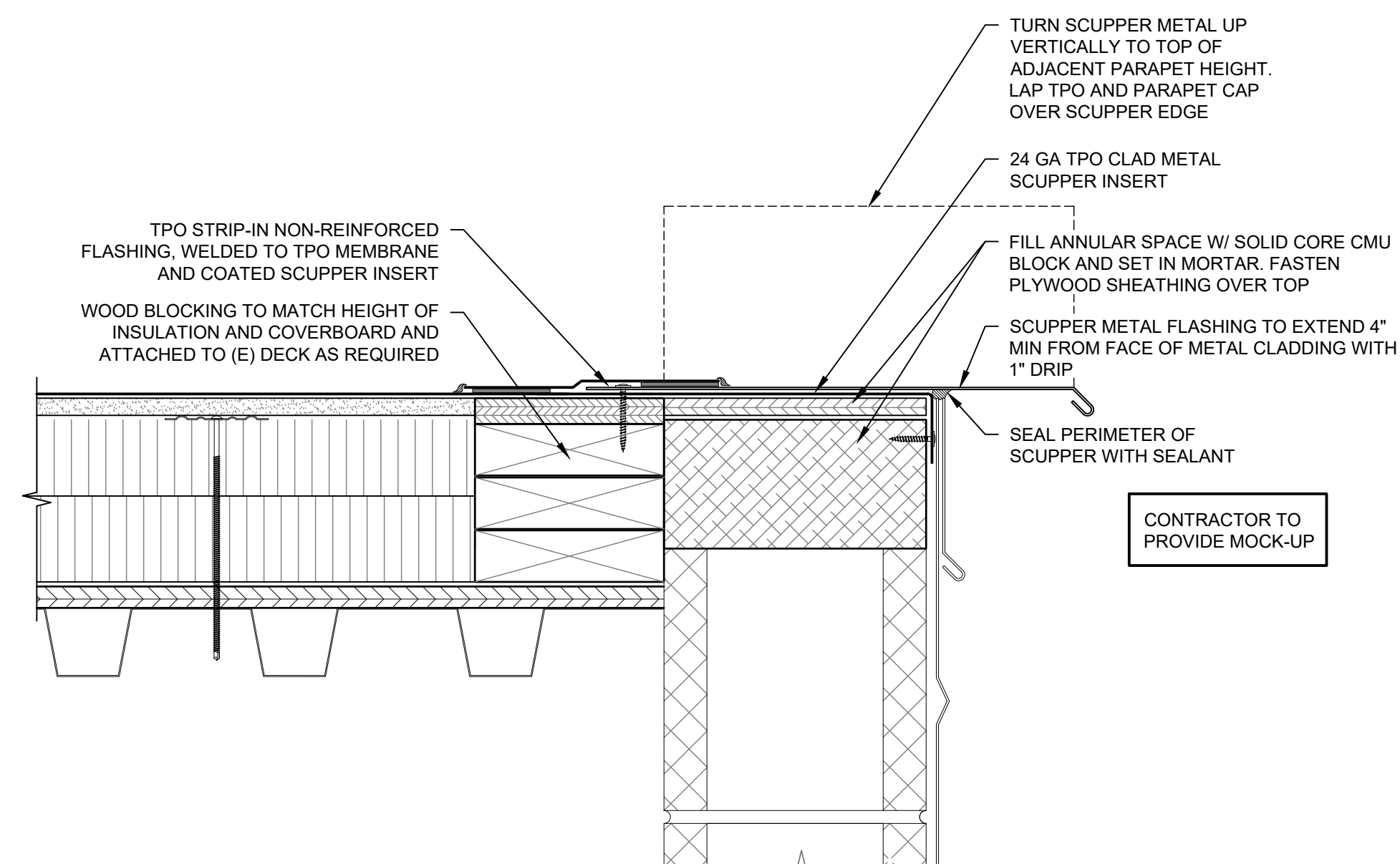
TITLE:  
**R301**  
SHEET No.:



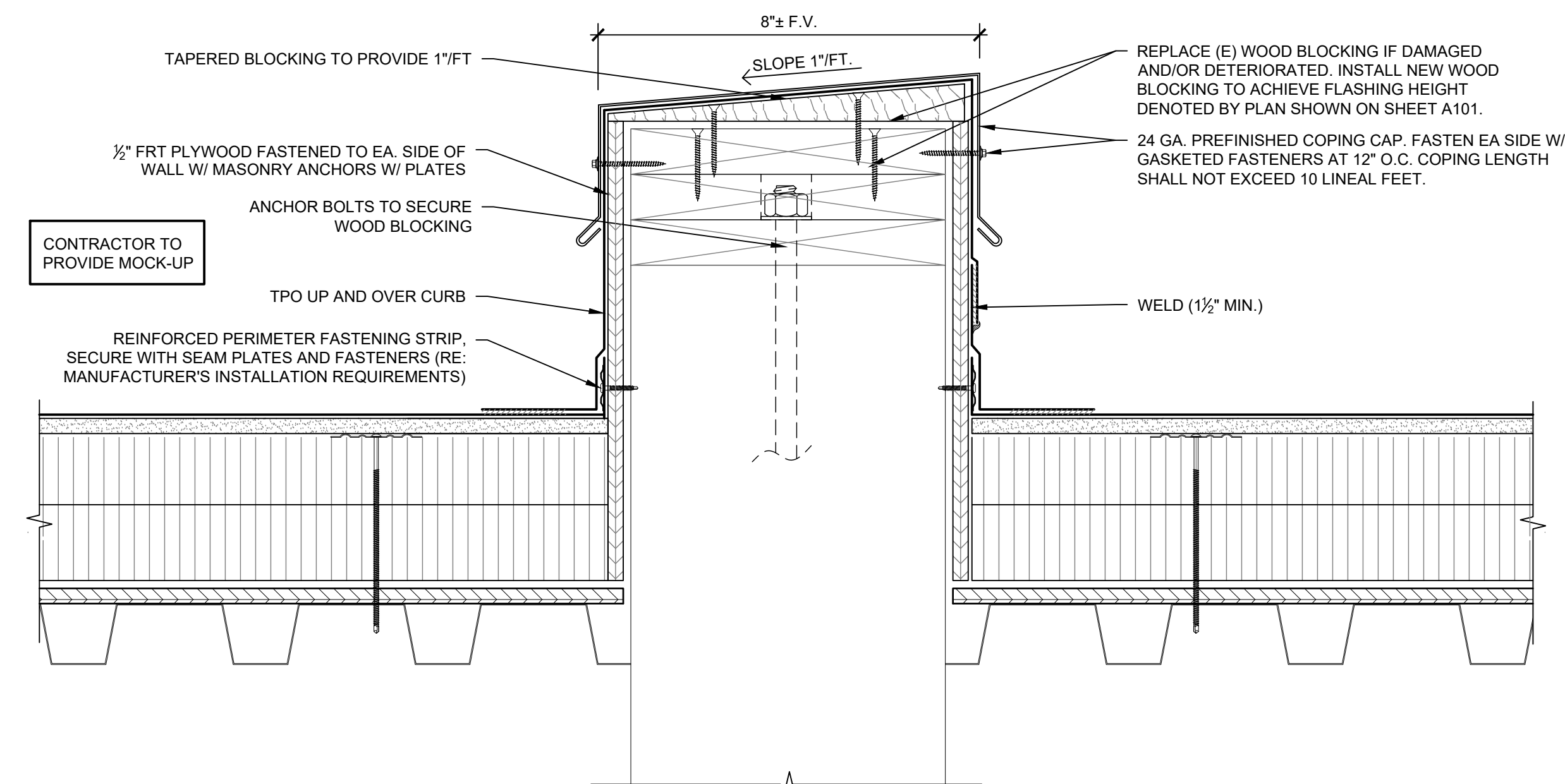
4 Detailing at Coping Intersection  
SCALE: N.T.S.



3 Flashing Termination at Flue Pipe > 12" Ø  
SCALE: 3" = 1'-0"



2 Scupper with Collector Head and Downspout  
SCALE: 3" = 1'-0"



1 Roof Area Divider Curb  
SCALE: 3" = 1'-0"

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**MECHANICAL ROOF PENETRATION NOTES**

1. THESE GENERAL NOTES APPLY TO ALL MECHANICAL, ELECTRICAL, OR PLUMBING (MEP) PENETRATIONS, AND ROOF MOUNTED ACCESSORIES OR EQUIPMENT.
2. ALL MECHANICAL EQUIPMENT OR ACCESSORY CURBS SHALL PROVIDE A MINIMUM CLEARANCE OF 12 INCHES ABOVE THE PLANE OF THE FINISHED ROOF FOR INSTALLATION OF THE BASE FLASHINGS AND COUNTERFLASHINGS. WOOD CURBS SHALL BE USED WHERE POSSIBLE, AND ALL HORIZONTAL BLOCKING SHALL MATCH THE HEIGHT OF THE ROOF INSULATION AT THE CURB LOCATION. ALL SUCH CURBS SHALL HAVE PROPER STRUCTURAL SUPPORT BENEATH THE DECK TO PREVENT DEFLECTION.
3. EQUIPMENT OR OTHER ROOFTOP ACCESSORIES SHALL NOT BE SET IN PLACE UNTIL ALL BITUMINOUS BASE FLASHINGS AND COUNTERFLASHINGS MADE OF COMPATIBLE METAL ARE ON SITE AND READY TO INSTALL. ALL MECHANICAL EQUIPMENT OR ACCESSORY CURBS SHALL HAVE A COUNTERFLASHING INSTALLED MADE OF A COMPATIBLE SHEET METAL MATERIAL. THE GAUGE SHALL BE EQUIVALENT TO 24 GAUGE GALVANIZED STEEL.
4. WHEREVER CONSTRUCTION DOCUMENTS CALL FOR REPLACEMENT, EXTENSION, OR RAISING OF MECHANICAL EQUIPMENT CURBS, SUCH A REQUIREMENT ALSO INCLUDES EXTENDING OR REPLACING CONDUITS, PIPING (INCLUDING GAS PIPING), INTERNAL DUCTS, LOUVERS, AND DAMPERS IN SUCH A MANNER AS TO PROVIDE A COMPLETE OPERATIONAL ASSEMBLY.
5. PITCH PANS OR PITCH POCKETS ARE NOT PERMITTED. WHEREVER A PIPE OR CONDUIT PENETRATES THE ROOF, A HOODED AND WOOD CURBED FLASHING SHALL BE USED. ALL PIPE OR CONDUIT WILL HAVE A 100 DEGREE RIGHT ANGLE BEND TO CAUSE WATER TO DRAIN AWAY FROM THE FLASHING, AND SUCH CONDUITS AND PIPES SHALL HAVE A DRIP LOOP UNLESS SUCH INTERFERES WITH THE NORMAL FUNCTION OF THE LINE.
6. ALL PIPES, CONDUITS, OR OTHER ROOF PENETRATIONS SHALL HAVE AT LEAST AN 12" HORIZONTAL CLEARANCE FROM ANY OTHER PENETRATION, WALL, OR CURB.
7. ALL PIPES OR CONDUITS OF ANY TYPE SHALL BE SUPPORTED WITH PORTABLE PIPE HANGERS OR APPROVED EQUIVALENT HAVING GALVANIZED IRON SUPPORTS AND A COMPOSITE BASE SET ON PADS MADE OF COMPATIBLE APPROVED ROOFING MATERIAL. THE PORTABLE PIPE HANGERS SHALL BE SET AT A MAXIMUM DISTANCE OF 10 FEET APART OR AS STIPULATED BY THE LOCAL CODE ENFORCING AUTHORITY APPLICABLE TO THE PROJECT. WOOD BLOCKING OR PLASTIC BLOCKS ARE NOT PERMITTED.
8. WHERE THE WEIGHT OF EQUIPMENT OR PIPING WARRANTS, PERMANENT CURBED SUPPORTS EXTENDING A MINIMUM OF 12" ABOVE THE PLANE OF THE FINISHED ROOF AND HAVING A METAL CAP WITH PERMANENT ROLLERS SHALL BE USED IN LIEU OF PORTABLE PIPE HANGERS.
9. WHERE EQUIPMENT, PIPING, CONDUITS, OR ACCESSORIES ARE SUPPORTED BY PARALLEL LINEAR WOOD CURBS INSTEAD OF FULL CURBS, SUCH SUPPORTS SHALL BE REPLACED WITH FULL CURBS TO PREVENT DAMMING OF WATER IN HEAVY RAINS, UNLESS FULL CURBS CONFLICTS WITH THE FUNCTION OF THE ITEM.
10. WALKWAY PROTECTION MATERIAL APPROVED BY THE ROOFING MATERIAL MANUFACTURER SHALL BE INSTALLED AROUND THE PERIMETER OF ALL MECHANICAL EQUIPMENT AND ROOF ACCESS POINTS.
11. ALL PRIMARY DRAINS SHALL BE SUMPED A MINIMUM OF 48" SQUARE. ROOF INSULATION SHALL NOT BE THINNER THAN 3" AT THE DRAIN. CAST IRON OR CAST ALUMINUM STRAINERS SHALL BE USED WITH ALL ROOF DRAINS. PLASTIC STRAINERS ARE NOT ACCEPTABLE. ANY MISSING OR DAMAGED STRAINER SHALL BE REPLACED WITH COMPATIBLE STRAINERS.
12. WHERE WOOD BLOCKING IS REQUIRED TO SUPPORT CURBS OR OTHER PENETRATION FLASHINGS, SUCH WOOD SHALL BE KILN-DRIED (KD) WITH ALL BLOCKING LAYERS LAPPED AND SECURED WITH HOT-DIPPED GALVANIZED, STAINLESS STEEL, OR OTHER CORROSION-RESISTANT SCREWS, NOT NAILED.
13. ALL WOOD CURBS SHALL BE CONSTRUCTED OF A SIZE AND DIMENSIONS TO PROVIDE 1" CLEARANCE ON EVERY SIDE BETWEEN THE I.D. OF THE EQUIPMENT FLANGE AND THE O.D. OF THE CURB, TO ALLOW FOR THE BUILD-UP OF FLASHING MATERIAL AT THE CORNERS. GOUGED ROOF FLASHING CORNERS ARE NOT ACCEPTABLE.
14. EXTEND PLUMBING VENTS 11" ABOVE THE PLANE OF THE FINISHED ROOF. RELOCATE ANY VENT CLOSER THAN 12" TO ANY VENT, CURB, WALL OR OTHER PROJECTIONS. RELOCATION OF VENTS INCLUDES EXTENDING VENTS, REPAIRING DECK, CORING DECK, INTERIOR REPAIRS & FINISHES TO PROVIDE A COMPLETE CONNECTION.

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 14 Midland Avenue  
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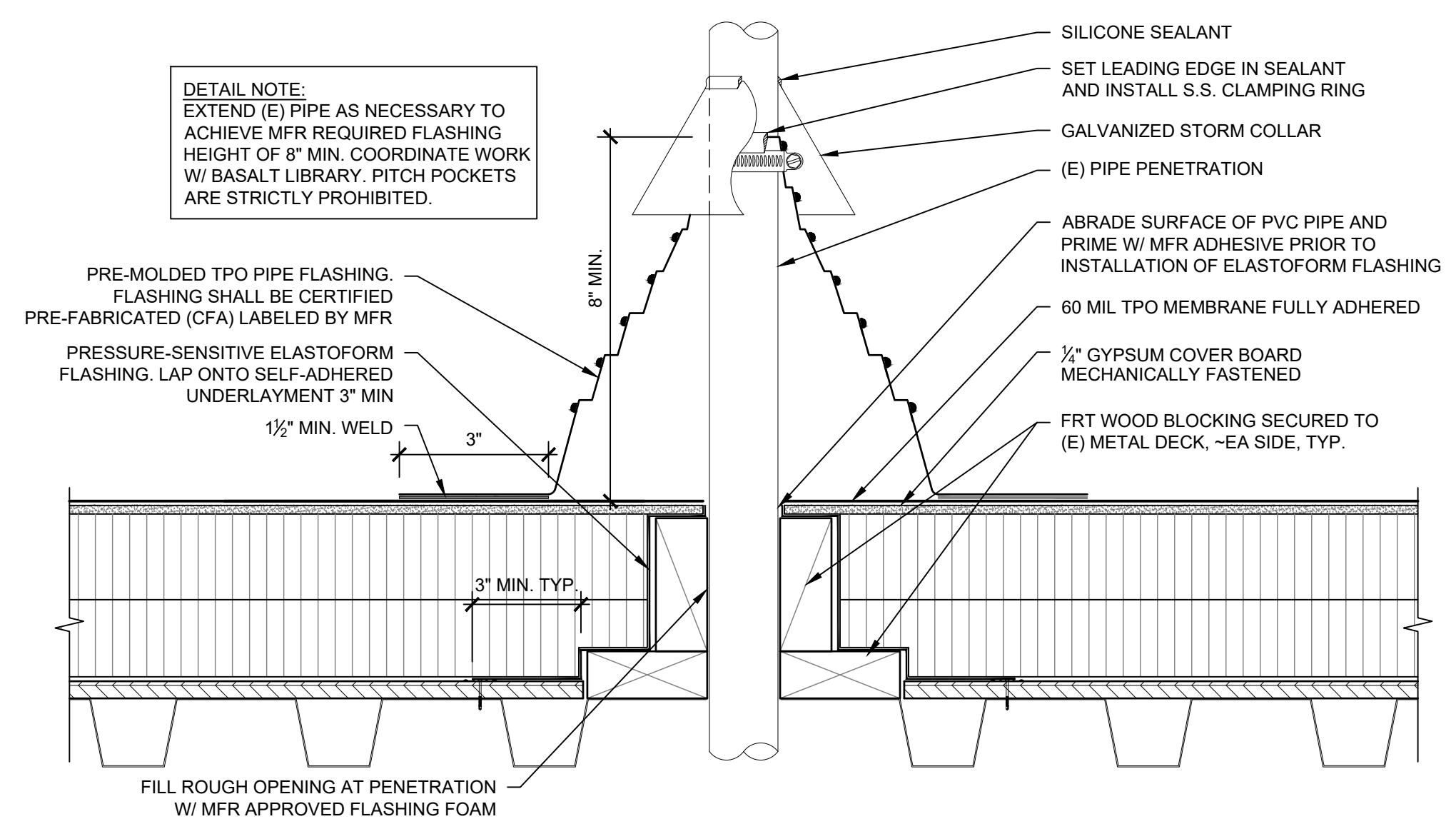
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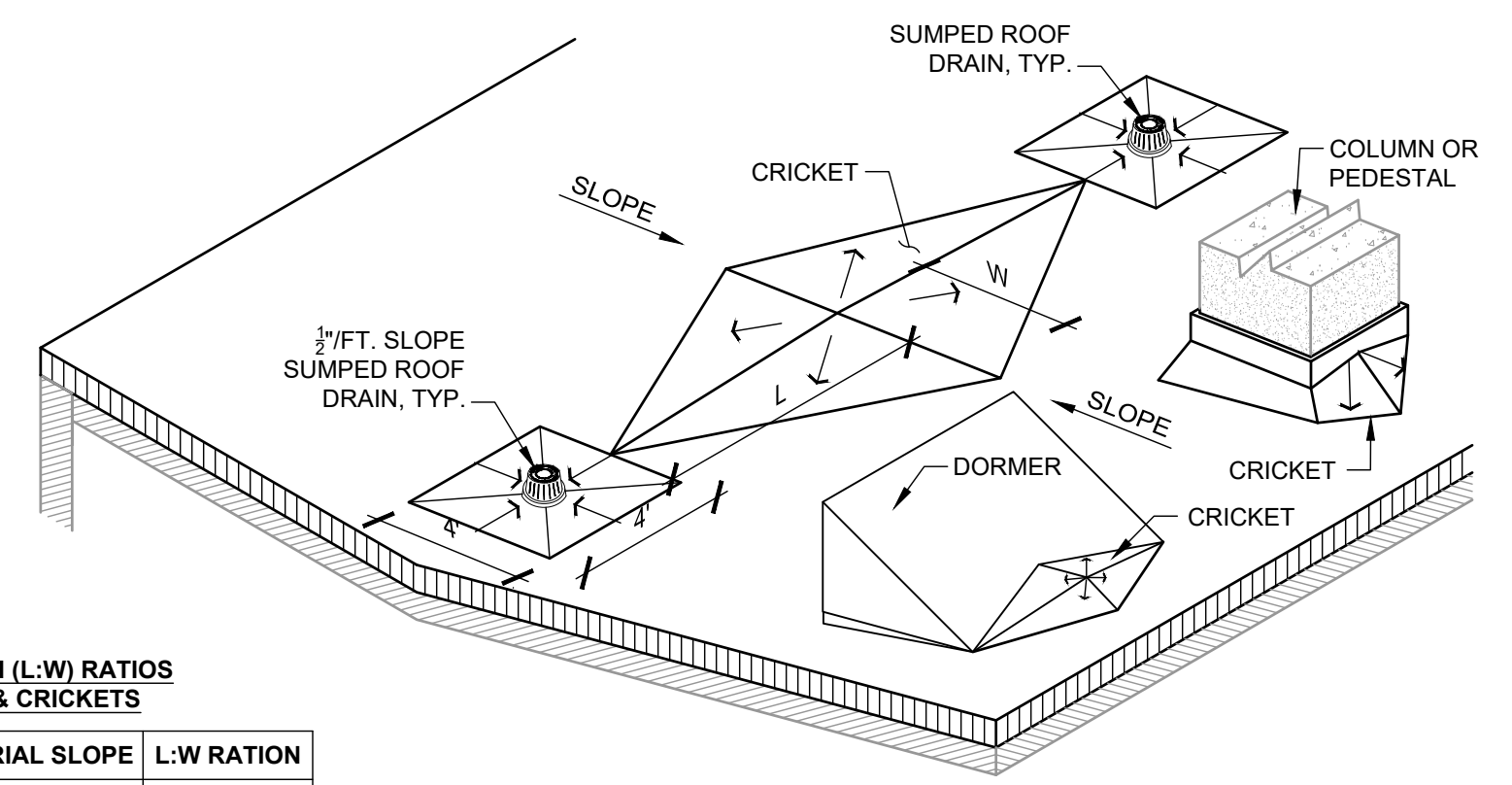
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 SCALE: AS NOTED

**STANDARD ROOF DETAILS**

TITLE: **R400**  
 SHEET No.:



**2 FLASHING TERMINATION AT EXISTING PIPE PENETRATION**  
 SCALE: 3/4" = 1'-0"



**1 STANDARD TAPERED ISO CRICKET DETAIL**  
 N.T.S.

**LENGTH TO WIDTH (L:W) RATIOS FOR SADDLES & CRICKETS**

ROOF SLOPE	S & C MATERIAL SLOPE	L:W RATION
1/8"	1/4"	2:1
1/4"	1/2"	2:1
1/2"	1/2"	2:1

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# BASALT REGIONAL LIBRARY ROOFING REPLACEMENT PROJECT MANUAL

14 Midland Avenue  
Basalt, Colorado 81621



September 22, 2023  
***Project Record***  
WJE No. 2022.7310.0

*Prepared for:*  
**Ms. Amy Shipley**  
Executive Director  
Basalt Regional Library District

*Prepared by:*  
**Wiss, Janney, Elstner Associates, Inc.**  
3609 South Wadsworth Boulevard, Suite 400  
Lakewood, Colorado 80235  
303.914.4300 tel | 303.914.3000 fax

**SECTION 00 01 10**  
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**END OF SECTION**

**SECTION 00 01 15**

**LIST OF DRAWINGS**

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R200	Overall Roof Plan
R201	Demolition Plan
R202	Uplift Plan
R203	Roof Plan
R300	Details
R301	Details
R302	Reference Photos
R400	Standard Details

**END OF SECTION**

**SECTION 00 70 00**  
**CONTRACTOR WARRANTIES**

**PART 1 GENERAL**

- A. Furnish Owner with written warranty for period of two (2) years from date of Notice of Final Completion that all work is in accord with the Contract Documents and without defects in labor or materials. If repairs or changes are required in connection with the warranted Work within the warranty period, the Contractor shall, promptly upon receipt of notice from the Owner and without expense to the Owner, comply with the following:
  - 1. Place in satisfactory condition in every particular, all of such warranted Work and correct all defects therein.
  - 2. Make good all damage to the building or site, which is the result of the condition needing said repairs and changes.
  - 3. Make good any Work disturbed or new work created in fulfilling any such warranty.
- B. If repairs are required in connection with warranted Work within warranty period and notice thereof is given within such period, the warranty shall continue as to Work requiring repair until the repairs required are completed, and the termination of the warranty period shall not apply thereto.
- C. Corrections of defects, imperfections, and faults shall not relieve the Contractor from his responsibility for additional corrective work during the remaining time period of the warranty.
- D. No provision in the Contract Documents nor any special or general warranty shall be held to limit, as to time or scope of liability, the Contractor's liability for defects, or the liability of his sureties, to less than the legal limit of liability under laws having jurisdiction.
- E. The Contractor will not be held responsible for defects due to misuse, negligence, willful damage, improper maintenance, or accident caused by others.
- F. The delivery of any warranties shall not relieve the Contractor from any obligation assumed under any other provision of the Contract Documents.
- G. The obligations of the Contractor under this Section shall survive termination of the Contract.

**END OF SECTION**

**SECTION 01 11 00****SUMMARY OF WORK****PART 1 GENERAL****1.1 WORK COVERED BY CONTRACT DOCUMENTS**

- A. The intent of this Section is to generally summarize the nature and extent of work to be performed without in any way limiting the specific requirements of the Contract Documents. The Contractor shall provide all labor, material, supplies, equipment, services, facilities, and appurtenances which are indicated or reasonably implied by the Drawings, or as specified, or that are required for the work described in the Contract Documents.
- B. This contract provides for the following roofing system replacement:
- C. Demolition:**
1. **At Roof Areas A, B, and C:** Temporarily remove photovoltaic panels and associated electrical system and store all materials in a controlled environment for reinstallation.
  2. **At Roof Areas A through F:** Remove and legally dispose of off-site (discard) the existing TPO roofing membrane and cover board. Salvage all existing polyiso insulation.
    - a. Remove and discard existing sheet metal parapet copings, counter flashings, sheet metal scuppers, conductor heads, ladders and downspouts in all areas.
  3. **At Roof Area G:** No demolition, except temporary removal of flashings that will intersect with adjacent roof replacement.
  4. Temporarily move all gas piping and electrical conduit for access to existing roof, as needed.
- D. New Construction:**
1. If areas of wet/damaged insulation are found, contractor to replace areas of wet/damaged polyiso insulation, thickness to match the existing and slope to match in-kind.
  2. Contract to have HVAC sub-contractor to lift and reset mechanical units for the installation of the new TPO roofing system. Roofing contractor shall coordinate work with Owner so facilities remain operational.
  3. **At Roof Area A through F:** Furnish and install a new adhered 80-mil TPO roofing system at the specified roof area, consisting of:

- a. Remaining polyisocyanurate insulation mechanically fastened through all layers of insulation down to roof deck, one layer of 1/2 inch thick gypsum cover board adhered in low-rise foam adhesive, and one layer of adhered 80-mil TPO (color – white).
4. **Add Alternate at Roof A and B:** At the steep-sloped section of A and B, install a new double locked standing seam coated metal roof system that is similar to existing Roof Area G. New standing seam roof will include high temperature underlayment, eave and rake flashing, and transition to TPO roof system. Existing PV system will be secured to stand seams utilizing PV clamps.
5. TPO membrane shall come with the manufacturer’s protective film (Carlisle Apeel or similar) and 6-inch cover tape to achieve 100% coverage of the TPO surface and to guard the surface of the TPO from scuffs and dirt throughout the duration of the work. Protective film shall be removed at the completion of the work.
6. Furnish and install new tapered insulation crickets to direct water towards scuppers. Install insulation crickets at all roof curbs wider than 24 inches (upslope side of curb) and at other locations as necessary to create positive drainage.
7. Install sheet metal copings, flashings, counterflashings, ladders, etc.
8. Install photovoltaic system.
9. Install new heat tape at locations identified on Drawings.
10. TPO Manufacturer’s Warranty:
  - a. Manufacturer’s no dollar limit (NDL) warranty: 20 years from the date of substantial completion (re: specifications). Manufacturer’s warranty shall include a wind speed rider of 80 mph.
11. Contractor’s Warranty: 2 years from the date of substantial completion for both roofing systems (re: specifications).
12. Mockup: At locations designated by WJE and as indicated on the drawings, the contractor shall perform mock-ups to demonstrate aesthetic affects and quality of materials and execution. Leave portions of work unfinished for observation by WJE. Contractor shall provide WJE 48-hour notice prior to execution of mock-up.
  - a. If WJE determines mock-up does not comply with requirements, modify mock-up or construct new mock-up until mock-up is approved. Do not proceed with work until mock-up is approved.
  - b. Approved mock-up will be acceptance of standard for remainder of work.



- c. Approved mock-up may become part of completed work if undisturbed at time of substantial completion.

**END OF SECTION**

**SECTION 01 21 00**  
**ALTERNATES AND ALLOWANCES**

**PART 1 GENERAL**

**1.1 REFERENCES**

- A. FM Global Class I

**1.2 ALTERNATES**

- A. Alternate Bid prices for items listed below include all work indicated in the Drawings and Specifications for the scope of work indicated.
- B. Alternate No. 1**
1. Replacing skylight flat acrylic glazing with new domed acrylic glazing.
  2. Added price for 80-mil TPO in-lieu of 60-mil TPO at all roof areas.
  3. Replacing all metal flashing and counterflashing that interfaces with TPO replacement.

**1.3 UNIT PRICES**

- A. Unit prices for items listed under allowances shall be additive and deductive, and applied first against the allowances where such items are applicable. Where such allowances are not used up, the Owner will be credited for the unused portion of the allowances at the unit prices listed on the Contractor's Proposal Form. The Contractor will receive no compensation for unit priced items until the allowances have first been used up.
- B. WOOD NAILERS**
1. Unit prices for treated kiln dried (KD) wood nailers shall assume the cost of replacing wood nailers with new nailer if deterioration is uncovered. Per linear foot.
- C. POLYISO INSULATION**
1. The unit price for 4 x 8 piece of polyiso insulation and like type thickness replacement. Per square foot.
- D. COPPER METAL FLASHING**
1. Unit price for replacing copper metal flashing and counterflashing. Per linear foot.

**1.4 TABLE OF ALLOWANCES**

- A. Use the Table of Allowances for this project and include the cost of such in the Base Proposal and each Alternate.

**PART 2 PRODUCTS**

**2.1 NOT USED.**

**PART 3 EXECUTION**

**3.1 NOT USED.**

## TABLE OF ALLOWANCES AND WORKSHEET - SECTION 01 21 00

Contractor shall use this Table of Allowances to calculate the Unit Priced Allowance included in their proposal and later to calculate the cost adjustments for actual quantities used versus the quantities identified in the Construction Documents.

Description	Polyiso Insulation  Square Foot	2X Wood Nailer/Blocking  Linear Foot	Copper Metal Flashing  Linear Foot
<b>(1) Total Allowances</b>			
<b>(2) Times (x) Unit Price on Proposal Form</b>			
<b>(3) Total Allowance Cost</b>			
<b>(4) Actual Quantities Used</b>			
<b>(5) Times (x) Unit Price on Proposal Form</b>			
<b>(6) Total Actual Cost</b>			
<b>(7) Balance or Credit to Owner, Line (3) – Line (6)</b>			

**END OF SECTION**

## **SECTION 01 43 00**

### **MOCKUPS**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. The first type of each unique installation will be considered a mockup. Location of mockups shall be coordinated between Contractor and Architect/Engineer. The purpose of these individual mockups is to provide the Contractor, Owner's Representative and Architect/Engineer with a unified understanding of the type, quality, and finished appearance of Work that will satisfy the requirements of the Project.
- B. All Work must be performed with tools similar to those that will be used on the remainder of the Project.
- C. If in the course of erecting and reviewing the mock-up, changes are required to satisfy the Project requirements or existing conditions, such changes shall be observed and documented by Architect/Engineer. Such documented changes will be additional technical requirements of the Project.
- D. When completed and approved by the Architect/Engineer and Owner's Representative, the mock-ups shall become the standard of quality for the remainder of the Project. All concealed portions of the mock-ups may be inspected by the Architect/Engineer and, if approved, photographed for future reference. The completed mockup areas may become part of the finished repair of the building.

##### **1.2 QUALITY ASSURANCE**

- A. All portions of each section of the specifications are to be followed for each item or procedure utilized in the construction of the mockups.

**END OF SECTION**

## **SECTION 01 50 00**

### **TEMPORARY FACILITIES AND CONTROLS**

#### **1.1 TEMPORARY CONSTRUCTION UTILITIES**

- A. The Owner will provide and pay for necessary electrical power and water used on site during the course of construction. The Contractor shall be responsible for providing temporary facilities required to deliver such utility services from their existing location on the site to point of intended use. Contractor shall verify characteristics of power available. Where power is not currently available or where power of different voltage, phase or current is required, Contractor shall be fully responsible for providing such service and shall pay all costs required therefore.

#### **1.2 TEMPORARY FIRE PROTECTION**

- A. Portable equipment, extinguishers and general fire protection required by the Contractor shall be furnished by the Contractor. Contractor shall comply with the job-site fire regulations that are issued by the fire protection agency having jurisdiction. Contractor may be subject to periodic fire protection inspections and any deficiency or unsafe condition shall be corrected by the Contractor to the satisfaction of the Owner.

#### **1.3 SANITARY FACILITIES**

- A. The Contractor shall provide, pay for, install and maintain for the duration of the work, necessary toilet and sanitary facilities for workmen. Such facilities shall be kept in a clean and sanitary condition and shall conform to applicable codes and regulations governing such facilities. Sanitary facilities in the buildings shall not be used by the Contractor.

#### **1.4 REMOVAL OF EXISTING MATERIALS**

- A. In the removal of roofing, membrane materials, flashings and related roofing materials, no area of removal shall be greater than the area which can have a watertight surface installed during the same working day. The Contractor shall furnish all closures, tents and other means necessary to protect the building from damage from inclement weather.

#### **1.5 PROJECT SIGNS**

- A. Project and Contractor signs are not permitted unless approved by Owner.

### **PART 2**

#### **2.1 SAFETY AND SECURITY**

- A. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment, and all hazards shall be guarded or eliminated in accord with recommended safety provisions established by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law. The Contractor shall protect hazards with adequately constructed guard rails and/or barricades and shall provide lanterns, warning lights, and the like, as necessary. The Contractor shall eliminate attractive nuisances from the work and from the site. To this end, he shall so dispose, store, guard, and

protect the premises and all work, materials, equipment and both permanent and temporary construction as to preclude the unauthorized use thereof by children or others and, particularly, to eliminate possible consequent injury to unauthorized persons.

- B. The Owner or Consultant will not be responsible, under any circumstances, for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, nor shall the Owner or Consultant be responsible for Contractor's failure to employ proper safety procedures.

## **2.2 SCAFFOLDING AND HOISTS**

- A. Contractor shall furnish, maintain, and be responsible for hoists, staging, rigging, scaffolding, and runways required in the prosecution of the Work under this Contract. Such temporary work shall be erected, equipped and maintained in accord with statutes, laws, ordinances, rules or regulations of the State or other authorities and insurance companies having jurisdiction.

## **2.3 ACCESS AND CONTRACTOR USE OF PREMISES**

- A. Contractor shall have access to the site at staging areas selected and approved by the Owner.
- B. Access to the interior of the building by the Contractor, including material suppliers and employees, is expressly prohibited, except as specifically authorized, scheduled and supervised by the Owner on a daily basis.
- C. Work hours are limited to those stipulated by the local jurisdiction. Generally, 8:00 A.M. to 5:00 P.M. Monday through Friday, excluding legal holidays. Additional work hours or time may be arranged if approved by the Owner.
- D. Control work activities and sequences to accommodate Owner use of property.
- E. Contractor shall purchase parking permits from parking and transportation services (970-491-7041, 1508 Center Avenue in Fort Collins, Colorado) for all vehicles during construction. Provide adequate signage that reads "Construction Parking" at all parking spaces rented during construction.

## **2.4 MAINTENANCE OF EXITWAYS**

- A. Contractor shall provide safe access to building at all times. Maintain all exitways clear and free of debris or obstructions at all times.

## **2.5 CONSTRUCTION DUST AND NOISE**

- A. Contractor shall note that the building will remain in continuous operation and use during the entire construction period. He shall take all reasonable precautions to eliminate dust and unsightly conditions, to minimize noise related to construction operations, and to minimize disruption and inconvenience to users of the building.

## **2.6 PROTECTION OF BUILDING AND GROUNDS**

- A. All building surfaces interior and exterior, walkways, curbs and paving, landscaping, trees, shrubs and other plantings within project area and adjacent thereto shall be protected from damage due to construction operations. Damaged items shall be restored or replaced to Owner's satisfaction.

## **2.7 MATERIAL STORAGE**

- A. Contractor shall store materials in a defined, secured area on site. Storage area shall be coordinated with the owner.

## **2.8 EXISTING DRAINAGE AND UTILITY LINES**

- A. The Contractor shall maintain in operation, at his expense, for the duration of Contract, all drainage and utility lines within working areas.
- B. Contractor shall notify City's project manager of all plans to move, or disrupt service of utilities or equipment.
- C. All connections to or modifications of utility lines and cameras shall be made and maintained in such manner as to not interfere with the continuing use of same by the Owner or others during the entire progress of the Work.
- D. Contractor shall verify that all drains in or adjacent to work areas are open and flowing freely prior to the start of the work (including stocking the job). Any plugged drains and damage caused by them will be the sole responsibility of the Contractor.
- E. Contractor shall verify that all utility lines, cameras, and equipment are functional and acceptable to the City at the completion of the project. All cost for this work is the Contractor's responsibility.

## **2.9 ROOFING CONSTRUCTION CONTROLS**

- A. All staging and setup areas shall be enclosed with 6 foot high chain link fencing and weighted with sandbags. Chain link fencing shall be locked when the Contractor is not on-site.
- B. Smoking, tobacco use of any kind, and illegal drug use, are prohibited on the premises.
- C. Workmen shall wear a shirt at all times.
- D. Workmen shall refrain from using rude comments or whistles at passersby.
- E. Building permit shall be posted.
- F. There shall be a full height tarp on building at all staging areas.
- G. All debris shall be removed via crane or full height tear-off chute (no debris shall be thrown over side of building).
- H. A spotter shall be used whenever a vehicle is moved on the property.

**END OF SECTION**



## **SECTION 01 74 00**

### **CLEANING UP**

#### **1.1 GENERAL**

- A. The Contractor shall, at all times during the course of this Contract, keep the building, the Owner's premises, and the adjoining premises, including streets and other areas assigned to, or used by, the Contractor, free from accumulations of waste materials and rubbish caused by his employees or Work, or by the employees or Work of his Subcontractors. All waste materials and debris shall be legally and safely disposed of off the Owner's property.

#### **1.2 CLEANING MATERIALS**

- A. The Contractor shall be fully responsible for any damage to any surface or substrate caused by the improper use of cleaning techniques or materials.

#### **1.3 EXECUTION**

- A. Final Cleaning: At completion of the Work, and prior thereto if so required by job-site conditions, remove from the premises, tools, appliances, surplus materials, debris, and temporary construction. Remove marks, stains and soil from building surfaces when such have resulted from work under this Contract.
- B. If the Contractor, upon request by the Owner, does not attend to cleaning with reasonable promptness, the Owner may cause such cleaning to be done by others and charge the cost of same to the Contractor or deduct the said cost from payments still due the Contractor under the Contract.

**END OF SECTION**

## SECTION 02 41 20

### ROOF TEAR-OFF AND DECK PREPARATION

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Applicable Deck and Substrate Type - The Work covered under this Specification Section applies to all roof decks encountered within the scope of work of this project.
  - 1. Protection of work to remain
  - 2. Removal of certain building components
  - 3. Preparation of substrate for roof application

##### 1.2 REFERENCES

- A. Perform all Work in accordance with the building code of the governing body having jurisdiction, the governing State Industrial Safety Orders, and the requirements of the Occupational Safety and Health Administration.
- B. U.S. Product Standard
  - 1. USPS - PS 1
- C. American Plywood Association (APA)
  - 1. APA PRP-108 Performance Standards

##### 1.3 PROJECT/SITE CONDITIONS

- A. Be responsible for stability and safety of all existing structures on the site or on adjoining properties. Promptly repair or replace existing property damaged during this Work to the original state at no extra cost to the Owner.

##### 1.4 SCHEDULING

- A. Provide a construction progress schedule to the Architect/Engineer in advance of starting construction work. Verify that occupants of building are notified at least twenty-four (24) hours prior to commencing work on the building.
- B. Confer with the Owner through Architect/Engineer regarding the sequencing and phasing of the performance of various parts of the Work. Cooperate fully and if necessary, so that certain facilities and services will be maintained in operation until immediately before their removal is required to permit installation of new work.
- C. Submit proposed methods and operations of partial roof demolition to Architect/Engineer for review prior to start of Work.
- D. Ensure through protection and good rooftop management practices that traffic and loads imposed on the roof are such that the deck will not be crushed, broken, pulverized, or otherwise damaged in such a manner as to render it unsuitable to receive the roofing system. Any such damage performed by the Contractor, his employees, or subcontractors, shall be repaired in a manner acceptable to the Architect/Engineer.

## **1.5 SUBMITTALS**

- A. Shop Drawings - Provide project-specific shop drawings of all project materials. Submittals shall be submitted as one package on the approved submittal forms found in these project documents. Submittals will not be reviewed if the submittal package is not complete.

## **PART 2 PRODUCTS**

### **2.1 COVER BOARD REPAIR MATERIALS**

- A. Gypsum Cover Board – Refer to 07 54 23 Single-Ply Membrane Roofing.

## **PART 3 EXECUTION**

### **3.1 FIELD CONDITIONS**

- A. Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces. Report to the Architect/Engineer all conditions that prevent proper execution of this Work.
- B. Prior to performing Work, inspect all objects designated for removal and protect the limits of demolition. Verify with the Architect/Engineer.
- C. Locate all active utility lines and provide for their protection. Leave them in operating condition.

### **3.2 PROTECTION**

- A. Lowering material - Provide hoists and enclosed chutes as required to lower removed material. Throwing, dropping, or permitting the free fall of material and debris from heights that would cause damage to Work, or to plantings, or cause undue noise or nuisance, or excessive dust, is expressly prohibited.
- B. Work to remain - Provide protection as may be necessary to prevent damage to existing equipment.
- C. Existing roofing - Protect the existing roof whether scheduled for removal and replacement or not with plywood runways over all equipment or foot traffic areas.
- D. Existing decking - During the tear-off and demolition operation, the existing deck is to be protected from storage, abuse, impact, or excessive traffic which might tend to damage the decking. Any decking damaged in any of the foregoing ways shall be replaced with matching decking in accordance with the manufacturer's original installation specifications.

### **3.3 TEAR-OFF AND DEMOLITION WORK**

- A. Workmanship - Have indicated items removed by skilled and properly equipped workers. Have materials and equipment to be salvaged removed under the direction of or by the crafts persons who would normally install these items.
- B. Limited Daily Tear off - The Contractor shall tear off only as much roofing daily as can be replaced securely and completed the same day, or before the onset of inclement weather. All work

shall be fully completed daily except for flashing and trim work. However, all work shall be completely weather tight to be free from leaks or water infiltration at the end of each workday.

- C. Cut Roof into Sections - Using a power roof cutter, cut the roof and insulation into squares no larger than 36 inches by 36 inches for ease of handling. Set the roof cutter blade so that it will cut through the roof and well into the insulation, but not so deep as to touch the deck itself. No chopping or hammering with an ax or other impact tools or devices is permitted.
- D. Operation - Upon tearing roof off, remove all tear-off debris from the roof into containers and dumpsters immediately. Do not store on the roof. Do not concentrate tear-off debris in any area that may overload the structure. Use no equipment or machinery that imposes excessive loads, deflections on the deck, or damages to the surface of the deck. Dispose of all debris in a legally licensed landfill.
- E. Wet and/or Rotted Decks - Notify Architect/Engineer if deck is found to be wet and/or rotted.

### **3.4 DECK PREPARATION FOR ROOFING**

- A. Clean Deck - Clean the deck thoroughly and remove any nails or fasteners which protrude. Do not bend over or hammer down protruding screws or fasteners. Chip off rough spots that may impede adhesion of the roof insulation, or wood nailer installation.
- B. Dead or Unused Penetrations - Close all equipment or pipe penetration holes as shown in the Drawings or as otherwise directed by the Architect/Engineer. Ensure that the holes are closed in such a manner as to preclude leakage of primer or hot bitumen through the hole.
- C. Wood Decks – Repair holes larger than 12 inches in diameter in the existing wood deck using deck materials to match the existing unless other wise noted herein.
  - 1. New deck repair material must span three joists. Holes small than 12-inches are to be repaired with 20-gauge galvanized iron flat sheet, securely fastened to the wood deck 4-inches on-center, minimum 2 fasteners per side.
  - 2. Installation – Install with the long dimension or strength axis of the panel across supports, except where noted, and with panel continuous over two or more spans. Suitable edge support shall be provided where indicated on the Drawings or in recommendations of the American Plywood Association by use of panel clips, tongue-and-groove edges, or lumber blocking between joists. Panel end joints shall occur over framing. Allow 1/8-inch-spacing at panel ends and edges, unless otherwise recommended by the panel manufacturer. Nail 6-inches on-center along supported panel edges and 12 inches on-center at intermediate supports, except that when supports are spaced 48 inches on-center or more, space nails at 6 inches on-center at all supports. Use 6d common nails for panels ½-inch and less and 8d nails for greater thickness, except that when panels are 1-1/8 inches, use 8d ring shank or 10d common nails.

**END OF SECTION**

**SECTION 06 10 00**  
**ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. This Section covers all wood blocking, curbs, nailers, and edges carpentry work as may be required for roofing work to comply with the Drawings and industry standards.
- B. Section Includes:
  - 1. Replacement of damaged or rotten wood nailers, blocking, or equipment curbs.
  - 2. Nailers, blocking, and equipment curbs to raise flashing heights to industry standards, or to meet FM Global requirements for compliance with FM Global Bulletin 1-49, ANSI/SPRI ES-1, and the Drawings. Fastening requirements shall comply with the most stringent standard applicable to the geographical area.
  - 3. Addition of new nailers, blocking, or equipment curbs to accommodate increased heights corresponding with added roof insulation thickness above that existing prior to work under these documents.
  - 4. Lumber and plywood shall not be treated and shall be kiln dried. Lumber and plywood may be fire-treated, if required by local building codes.
- C. Related Sections
  - 1. 07 20 00 Roof Insulation
  - 2. 07 54 23 Thermoplastic-Polyolefin (TPO) Roofing
  - 3. 07 62 00 Sheet Metal Flashing and Trim

**1.2 REFERENCES**

- A. General
  - 1. All standards current edition as of the date of this Specification.
- B. American Plywood Association (APA)
  - 1. APA PRP-108 Performance Standards
- C. American Society of Testing Materials (ASTM)
- D. American Soft Wood and Lumber
  - 1. Standard PS 20
- E. FM Global
  - 1. FM Global Bulletin 1-49
- F. National Roofing Contractors Association (NRCA)
  - 1. NRCA Roofing and Waterproofing Manual, 5th Edition, published in 2001
- G. U.S. Products
  - 1. U.S. Products Standards PS 1

### 1.3 QUALITY ASSURANCE

- A. For each use, comply with the American Soft Wood and Lumber Standard PS 20 by the United States Department of Commerce. Nominal sizes are shown or specified; provide actual sizes complying with the minimum size requirements of PS 20 for the moisture content specified for each use.
- B. Grading rules and trademarks
  - 1. Southern Pine Inspection Bureau - SPIB
  - 2. Western Wood Products Association - WWPA
  - 3. American Plywood Association - APA
  - 4. American Wood Preservers Institute - AWPI
  - 5. American Lumber Standards Committee
  - 6. United States Products Standards (PS 1)
  - 7. National Forest Products Association (NFPA) – National Design Specification for Wood Construction
- C. Local Building Codes - All applicable provisions. This includes, but is not limited to, compliance the International Building Code, the applicable Codes for the municipal jurisdiction, Underwriters Laboratory U.L.-90 and ANSI/SPRI ES-1 - whichever is more stringent. Whenever a particular attachment methodology is to be employed for fastening wood blocking or nailers to structural elements of the building, the standards, methodology, gauges, thickness, and frequency of attachment shall be as specified in FM Global Bulletin 1-49, or its successor document.

### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated, include material descriptions, and dimensions of individual components and profiles.
- B. Photograph plywood grade stamp (or allow A/E to observe on site).

### 1.5 MARKINGS AND LABELS

- A. All wood products shall be clean and free of all surface deposits.
- B. Each piece shall be indelibly ink stamped with the Quality Mark of an approved independent third party inspection agency having a follow-up testing and inspection service at the plant over the quality of the product, and whose service is certified by an approved overview agency such as SPIB or TPI.
- C. Quality Mark Stamp shall include the following in a legible format:
  - 1. Logo of the overview agency
  - 2. Logo of the inspection agency, the quality standard
  - 3. The initials KD (Kiln Dried)
- D. All lumber products specified for structural uses shall bear an indelible ink stamp, signifying that the lumber has been marked by, or under the supervision of, an inspection agency certified by the ALSC and conforms to the requirements of the applicable grading rules.
- E. All plywood products specified shall bear an indelible ink stamp indicating conformance to a plywood grade description contained in the current issue of U.S. Products Standards PS 1.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Wood products that are to be painted or required to be kiln dried shall be stored off the ground and under cover at the job site and protected from the weather until used.
  - 1. Keep lumber and plywood dry.

## 1.7 COORDINATION

- A. All wood products shall be kiln dried (KD) to a maximum moisture content of 19 percent for lumber and 18 percent for plywood.
- B. The Engineer has designated all structural uses for treated wood products based on the applicable species and grade in accordance with the National Design Specification for Wood Construction of NFPA, and the Plywood Design specification of APA. Use only the species and grade specified for each use application.

## PART 2 PRODUCTS

### 2.1 DIMENSIONAL LUMBER

- A. New framing/blocking shall be 2x framing lumber, air or kiln dried (KD15 or MC15), S4S, well seasoned "No. 1 Grade", Hem-Fir with a minimum FB (Bending Fiber Stress) of 975 psi, and "E" (Modulus of Elasticity) of 1,500,000 psi, sizes as shown in the drawings, or as required for construction and in compliance w/ FM Global where required.

### 2.2 PLYWOOD - ALL PLYWOOD SHALL MEET THE FOLLOWING REQUIREMENTS:

- A. Each construction and industrial panel shall be identified with the appropriate trademark of the APA, and shall meet the requirements of the latest edition of U.S. Product Standard PS 1 or APA PRP-108 Performance Standards.
- B. All panels which have any edge or surface permanently exposed to the weather shall be classed "Exterior."
- C. Panel thickness, grade, and Group Number of Span Rating shall be at least equal to that shown on the Drawings. Application shall be in accordance with the recommendations of the APA.
- D. Plywood used on the roof shall bear the following designation "APA C-C PLUGGED, EXPOSURE DURABILITY CLASSIFICATION: Exterior." Note that this is not "Exposure 1" or "CDX." Do not use preservative treated plywood.
- E. Plywood permanently exposed to weather shall be classed "Exterior." Install with the long dimension or strength axis of the panel across supports, except where noted, and with panel continuous over two or more spans. Suitable edge support shall be provided where indicated on the Drawings or in recommendations of the APA by use of panel clips, tongue-and-groove edges, or lumber blocking between joists. Panel end joints shall occur over framing. Allow 1/8-inch spacing at panel ends and edges, unless otherwise recommended by the panel manufacturer. Nail 6 inches on-center along supported panel edges and 12 inches on-center at intermediate supports, except that when supports are spaced 48 inches on-center or more, space nails at 6 inches on-center at all supports. Use 6d common nails for panels 1/2 inch and less and

8d nails for greater thickness, except that when panels are 1-1/8 inches, use 8d ringshank or 10d common nails.

## 2.3 FASTENERS

- A. For Attachment of Lumber, or Plywood to Wood Members - Use Type 316 stainless steel, flat head, torx drive, Deck-Drive DWP Wood SS Screws, with countersinking nibs, available from Simpson Strong-Tie. Length shall be 10 x 2", minimum, or as required to penetrate into blocking member at least 1-1/2 inches.
- B. For Attachment of Lumber or Plywood to Concrete and Masonry - Use flat-head, hot-dipped galvanized or polymer acrylic coated double threaded masonry screws as manufactured by Buildex, OMG, or equal. Holes are to be pre-drilled in masonry to a depth 1/2 inch deeper than the fastener is to penetrate.
- C. For Attachment of Unsupported Plywood Edges - Use H-clips at 16 inches on center at plywood edges unsupported by solid wood blocking.
- D. Refer to the Drawings and Section 07 62 00 for fasteners and requirement for roof edge securement. In the case of conflict, the fastening requirements shown in the Drawings will govern.

## PART 3 EXECUTION

### 3.1 FABRICATION AND INSTALLATION

- A. All wood members are to be fastened using screws as specified or as indicated in details.
- B. Where necessary, pre-drill holes to ensure no splitting of wooden members occurs. The use of self-drilling brass double concentric thread screws is permitted in lieu of pre-drilling.
- C. Screw guns and drills shall be calibrated and adjusted in such a way as to prevent over-drilling or stripping of holes or threads. Insert fasteners flush with surface or slightly recessed (not to exceed 1/8 inch). Do not over tighten metal-to-metal components such that fasteners strip, or on metal-to-wood such that the visible metal 'puckers' more than 1/64 inch.
- D. All wood nailers and fastener requirements including size, frequency, pattern, and gauge shall be installed in accordance with the details shown in the Factory Manual Loss Control Bulletin 1-49, ANSI/SPRI ES-1, or the National Roofing Contractors Association Roofing and Waterproofing Manual, whichever is most stringent.
- E. All nailers are to be installed straight and shimmed when necessary to ensure tight fit and finish. Contractor may reuse existing wood nailers where such nailers are not rotten or deteriorated and are in good repair. In such cases, however, nailers must be supplemented with additional blocking to raise nailing height to 1/4 inch below top of new insulation. Contractor shall rip lumber or otherwise add blocking so that blocking is 1/4 inch below height of insulation. "Step-ups" from insulation to nailers are not acceptable.
- F. When installing pieces in multiple components, end joints shall be staggered a minimum of 24 inches. All joints are to be staggered in such a way that a joint does not ever fall over a joint.



- G. Where necessary, pre-drill holes to ensure no splitting of members occurs. The use of self-drilling brass double concentric thread screws is permitted in lieu of pre-drilling.
- H. Fiber cants may be used at walls except where wood blocking is needed to support scuppers, vertical wood nailers, curbs, or other mechanical or equipment supports.
- I. All scupper openings shall be framed with a minimum 2 by 6 at the base, or otherwise framed in such a manner that the flange of the scupper rests on wood, not roof insulation. The wood blocking and wood cant shall extend for a distance of 12 inches on either side of the scupper outside opening.
- J. Unless otherwise noted on the Drawings, anchor wood blocking and nailers to structure at:
  - 1. 4 feet on center with ½-inch anchor bolts at CMU and concrete walls, except two feet on center for 8'-0" from outside building corners (or the dimension of the corner wind zone, whichever is greater).
  - 2. 4 feet on center with ½-inch through-bolts or ½-inch welded, threaded studs at steel angles or channels, except two feet on center for 8'-0" from outside building corners (or dimension of the corner wind zone, whichever is greater).
  - 3. 2 feet on center, staggered, with #10 screws to metal roof deck. Provide a 5/8-inch galvanized steel washer under screw heads where wood blocking is parallel to deck flutes.
- K. Level and Continuous Nailers – The Contractor is cautioned to ensure that during the installation of all wood blocking and continuously level and smooth elevation is provided to ensure a simplicity of installation.

**END OF SECTION**

**SECTION 07 20 00****ROOF INSULATION****PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1-Specification sections, apply to work of this section.

**1.2 DESCRIPTION**

- A. Work Included: Work consists of furnishing all labor, materials and equipment necessary to effectively install the roof insulation as shown on the drawings, including, but not necessarily limited to, the following:
1. Self-adhered underlayment.
  2. Polyisocyanurate board type roof insulation.
  3. Preformed Polyisocyanurate tapered insulation crickets, saddles, and kick-backs.
  4. Impact resistant cover board.
  5. Wood blocking and plywood sheathing.
  6. Fasteners and contingent materials.
- B. Related Work Specified Elsewhere
1. Roof Tear-Off and Deck Preparation 02 41 20
  2. Sheet Metal Flashing and Trim: Section 07 62 00.
  3. Thermoplastic Polyolefin (TPO): Section 07 54 23.
  4. Roof Accessories: Section 07 72 00.
  5. Joint Sealants: 07 92 00.

**1.3 SYSTEM DESCRIPTION**

- A. Roof Area A-1:
1. Two layers of 2.6-inch thick polyisocyanurate insulation (5.2-inch in total), and ½-inch thick high-density (HD) polyisocyanurate cover board. The insulation system shall be in

compliance with the criteria of UL “Class A” and FM 1-90 (minimum), manufacturer’s requirements for attachment, and compatible with the TPO membrane system for guarantee by the manufacturer.

B. Roof Area A-2:

1. Self-adhered underlayment, two layers of 2.6-inch thick polyisocyanurate insulation (5.2-inch in total), and ½-inch thick high-density (HD) polyisocyanurate cover board. The insulation system shall be in compliance with the criteria of UL “Class A” and FM 1-90 (minimum), manufacturer’s requirements for attachment, and compatible with the TPO membrane system for guarantee by the manufacturer.

#### 1.4 QUALITY CONTROL

- A. Requirements of Regulatory Agencies: The Work under this section shall be subject to all applicable provisions of the state and local building and safety codes.
- B. Reference Standards: Except as modified by the Drawings and Specifications, the following documents, or applicable portions thereof, govern the work.
  1. National Roofing Contractors Association (NRCA) "Roofing and Waterproofing Manual - Fifth Edition."
  2. American National Standards Institute (ANSI)/Single Ply Roofing Industry (SPRI):
    - a. ANSI/SPRI FX-1: Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners.
  3. American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI):
    - a. ASCE/SEI 7: Minimum Design Loads for Buildings and Other Structures.
  4. National Roofing Contractors Association (NRCA) "Roofing and Waterproofing Manual - Fifth Edition."
  5. NRCA “2019 Membrane Roof Systems.”
  6. Factory Mutual (FM) Global Standards
    - a. FM Global Property Loss Prevention Data Sheet 1-28 Wind Design.
    - b. FM Global Property Loss Prevention Data Sheet 1-34 Hail Damage.
    - c. FM Global Property Loss Prevention Data Sheet 1-49 Perimeter Flashing.
    - d. FM Global Roof Nav ([www.roofnav.com](http://www.roofnav.com)) Roof Assemblies.

C. Qualifications

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Roofing Replacement

1. Prior to the Notice of Award, the Contractor shall submit evidence that his existing company has five (5) years continuous successful experience in applying specific material(s) and is currently an approved applicator for the specific material manufacturer(s).
  2. Reference Section 07 54 23 for additional requirements.
- D. UL Listed Products - Provide insulation materials for roofing work which have been tested and listed by UL, and bear UL label on each package, or are shipped to the project with a UL certification of compliance.
- E. Fire and Insurance Ratings: Comply with ratings as required by governing authorities and codes, and comply with the following:
1. Underwriters Laboratories (UL) "Class A."
  2. Factory Mutual (FM) 1-90 minimum rating.
- F. Additional Performance Standards: All roofing system components shall be manufactured, labeled, or specifically approved in writing by the membrane manufacturer issuing the roofing system warranty. In such cases where conflicting requirements exist between FM Global, Underwriters Lab, the project design pressures listed on the Drawings (ASCE 7-16), and the manufacturer's requirements, the most stringent requirements shall govern.

## 1.5 SUBMITTALS

- A. Provide submittals in advance of the Pre-Roofing Conference. Any materials ordered prior to receiving written approval of submittals shall be at the Contractor's risk.
- B. Product Data
1. Product Data: Submit Product Data sheets, Manufacturer's literature, Material Safety Data Sheets and application instructions for all items proposed to be furnished and installed under this Section including manufacturer's specifications, recommended installation procedures, and data demonstrating compliance with the specified requirements.
  2. Provide manufacturer's recommended fastening patterns for field, perimeter, and corner conditions, certified for the appropriate substrate to meet the FM Global wind uplift requirements.
  3. Provide manufacturer's fastener pull-test report to show compliance with manufacturer and wind uplift requirements.
  4. Where UL or FM requirements are specified, provide documentation that shows that the roofing system to be installed is UL-Classified or FM-approved, as applicable; include data itemizing the components of the classified or approved system.

## a. Factory Mutual Global Standards:

- 1) Roof Areas A-1 – A-2 shall utilize the roofing assembly and meet specified wind uplift classification (including system manufacturer's specified board insulation, cover board, and accessories) required in *FM Global RoofNav Assembly No:*

a) *Carlisle 353875-0-0*

b) *Firestone*

c) *Johns Manville*

## C. Shop Drawings

1. Detailed shop drawings, including plan views and sections, of the new tapered cricket insulation system. Tapered insulation layouts shall be prepared in advance and submitted as a part of the submittal package.

## D. Required After Completion of Work

1. Contractor's warranty per Section 00 70 00.
2. Manufacturer's NDL warranty.

**1.6 PRODUCT DELIVERY AND STORAGE**

- A. Delivery of Materials: Deliver material to jobsite in sealed, undamaged containers. Identify each container with material name, date of manufacturer, and lot number.
- B. Keep all materials dry while they are transported, stored and installed. Reject any new materials which exhibit evidence of moisture during application, or have been exposed to moisture.
- C. All materials shall be stored in enclosed trailers on the ground, except a one-day supply of materials which may be stored on the roof on raised platforms with weather protective coverings. The manufacturer's standard packaging and covering is not considered adequate weather protection. Tarpaulins are required for protection of all roof materials. MATERIAL STORAGE PROCEDURES WILL BE CONSTANTLY MONITORED AND STRICTLY ENFORCED.
- D. Materials stored on roofs shall be limited to the safe loading of installed materials, decking and structural framing.

**1.7 JOB CONDITIONS**

- A. All dimensions and existing details shall be field-verified by contractor prior to bidding and acquisition or installation of materials. Contractor shall notify the engineer of any existing

condition found to be different than that indicated in the contract documents. Engineer shall review the situation and inform contractor of necessary changes, if any.

- B. Install materials in strict accordance with all safety and weather conditions required by manufacturer, product literature, Material Safety Data Sheets, or of local, state, and federal rules and regulations.

## 1.8 PROTECTION

- A. Temporary tie-offs and water cut-offs shall be provided by the Roofing Contractor at the end of each day, and where and when a danger exists that water caused by precipitation may get under the new roofing membrane. Temporary tie-offs and water cut-offs shall extend beyond new insulation and membrane and be adhered to the existing roof system. All temporary tie-offs and water cut-offs shall be removed prior to proceeding with the work by uncovering the edge of the insulation and removing all temporary materials.
- B. When installing temporary tie-offs or water cut-offs, do not cut any staggered insulation pieces that are already installed. Rather, straighten the staggered insulation with unattached pieces of insulation. Remove all temporary insulation pieces prior to proceeding with the work.

## 1.9 WARRANTIES

- A. Warranty (by contractor to the Owner). Applies to all reroofed areas (refer to Section 00 70 00).
- B. Manufacturer's 20-year "No Dollar Limit" Roof System Guarantee (by Materials Manufacturer to the Owner). Applies to all reroofed areas.
  - 1. Wind speed warranty shall be 80 miles per hour.
  - 2. Contractor must contact membrane manufacturer prior to bidding to confirm that all proposed system components are acceptable.
  - 3. Paid for by contractor.

## 1.10 CHANGES IN THE WORK

- A. During reroofing work, the contractor may encounter existing conditions which are not now known or are at variance with the Drawings or Specifications (discovery). Such conditions may interfere with reroofing work and may consist of damage or deterioration to the deck or surrounding materials or components which could jeopardize the integrity of the new roof. The contractor shall notify the Engineer of all discoveries he/she believes may interfere with proper execution of the work or jeopardize the integrity of the new roof prior to proceeding with work related to such discoveries.
- B. In the event of discrepancies within the Drawings, within the Specifications, or between the Drawings and Specification, the more stringent of the two items shown or described shall be

considered to be shown or specified at all locations where the discrepancies occur. The Engineer shall be notified of such discrepancies.

- C. When a substitute or alternate is requested by the Contractor, and such substitute or alternate is accepted by the Engineer, the Contractor shall bear all additional costs which may arise directly or indirectly from the use of the substitute or alternate.

## **PART 2 PRODUCTS**

### **2.1 INSULATION BOARD**

- A. Polyisocyanurate Insulation Board - Rigid, closed-cell, polyisocyanurate insulation board having an "LTTR" R-value equal to 5.6 per inch thickness excluding the facer sheet. The factory-applied facer sheet shall be fully adhered to both sides of the insulation board and shall be low-rise foam adhesive compatible. The following additional criteria shall apply:
1. Board density shall be 2.0 pounds per cubic foot when measured in accordance with ASTM D1622.
  2. Compressive strength shall be 20 pounds per square inch minimum when measured in accordance with ASTM C209 or ASTM D1621.
  3. Board insulation shall comply with water absorption requirements when measured in accordance with ASTM C209.
  4. Acceptable manufacturers shall be the following:
    - a. Carlisle, Carlisle, PA
      - 1) HP-H Polyiso Board
    - b. Firestone, Carmel, IN
      - 1) ISO 95+
    - c. Johns Manville Corp., Denver, CO
      - 1) ENRGY 3
  5. Insulation board stock larger than 4 feet by 4 feet is not acceptable under any circumstances.
  6. Thermal Value: the combined "R" value over conditioned space shall be equal to or greater than 30.00. That value shall be achieved as follows:
    - a. Roof Areas:

- 1) Two layers of 2.60-inch polyisocyanurate board as specified, in sheets not to exceed 48 inches by 48 inches.
- 2) One layer of 1/2-inch HD polyisocyanurate cover board as specified.

## 2.2 TAPERED INSULATION CRICKETS

- A. Tapered Rigid Insulation Crickets factory-fabricated from approved manufacturer. Use in roof areas shown on drawings.
  1. All crickets shall have a counter-slope of twice the underlying slope or a slope sufficient to result in a 1/4-inch per foot counter-slope, unless otherwise approved.
- B. Tapered edge strips, 1/2-inch to 0-inch, rigid perlite insulation transition pieces shall be installed along the roof “kickers” as needed to create a smooth transition.

## 2.3 COVER BOARD

- A. High-Density Polyisocyanurate Roof Board Cover Board - Rigid, hard, impact and moisture resistant cover board shall be low-rise adhesive compatible and approved by manufacturer of specified roofing system.
  1. Acceptable products and manufacturers listed below are intended to be equivalent in performance:
    - a. Cover Board:
      - 1) High-Density polyisocyanurate board, 1/2-inch thick as manufactured by Carlisle Syntec (SecurShield HD Polyiso)
      - 2) High-Density polyisocyanurate board, 1/2-inch thick as manufactured by Firestone (ISOGARD HD Cover Board)
      - 3) High-Density polyisocyanurate board, 1/2-inch thick as manufactured by Johns Manville (ProtectoR HD)

## 2.4 INSULATION ADHESIVE MATERIALS AND FASTENERS

- A. Low-Rise Foam Adhesives - The following foam adhesive products are approved for such applications provided they meet wind uplift requirements.
  1. Carlisle, Carlisle, PA
    - a. Flexible FAST Insulation Adhesive
  2. Firestone, Carmel, IN
    - a. ISO Twin Pack Insulation Adhesive



3. OMG, Agawam, Massachusetts
  - a. OlyBond Adhesive Fastener
4. Adhesive recommended by roof system manufacturer for their rated assembly.

## **2.5 SELF-ADHERED UNDERLAYMENT**

- A. The following self-adhered underlayment shall be approved by manufacturer of specified roofing system provided they meet wind uplift requirements.
  1. Carlisle, Carlisle, Pennsylvania
    - a. VapAir Seal 725TR Air and Vapor Barrier
  2. Firestone, Carmel, Indiana
    - a. V-Force Vapor Barrier Membrane
  3. Johns Manville, Denver, Colorado
    - a. JM Vapor Barrier

## **PART 3 EXECUTION**

### **3.1 COORDINATION**

- A. Coordinate installation of insulation with work specified in Section 02 41 20, Section 07 54 23 Thermoplastic-Polyolefin (TPO) Roofing, and Section 07 62 00-Sheet Metal Flashing and Trim.
- B. Do not install more insulating material than can be made watertight by the end of the work day.
- C. Do not install roofing materials when rain is imminent. Do not remove excessive quantity of existing roof membrane ahead of reroofing.

### **3.2 INSPECTION AND PREPARATION OF SUBSTRATE**

- A. Examine the surface condition of the substrate and the conditions under which roofing work is to be performed. Do not proceed with the new installation until unsatisfactory conditions have been corrected in a manner approved by the Owner.
- B. Clean the substrate of projections and substances detrimental to the work. Voids, cracks and holes shall be filled with an approved material and be struck flush with adjoining surfaces.
- C. All surfaces must be clean, dry, hard, and able to withstand the minimum pullout resistance necessary to meet the wind uplift requirements of the Specifications.

- D. Proceeding with the work shall signify the Contractor's acceptance of the substrate being covered by the new installation.

### 3.3 POLYISOCYANURATE INSULATION INSTALLATION

- A. Insulation, having been protected as stipulated elsewhere in these Specifications, shall be installed in the following manner in accordance with the manufacturer's printed instructions:
1. Edges - At edge details, or where edge nailers are present at the perimeter, butt the outside edge of the insulation terminating piece against the roofside edge of the nailer. Do not extend the insulation out onto the nailer.
  2. Where wind uplift requirements or standards require wood nailers to be installed at the perimeter, such nailers shall be attached by using suitable fasteners with pre-drilled holes. Attachment with nail guns is not permitted. Joints shall be staggered and subsequent layers attached with screws, not nails. The combined thickness or height of nailers shall be equivalent to the combined layers of all insulation and cover boards.
  3. Perimeter and corner fastening of insulation shall be in conformance with assemblies tested according to project wind uplift requirements. The Contractor shall submit the fastening pattern and testing report with other submittals.
  4. Where field observation determines fasteners to be installed at a greater spacing than specified, one additional fastener shall be installed between each existing fastener as remedial measure. Failure to install fasteners at the required spacing interval will be considered a serious act of defective workmanship and may cause replacement of the entire roof system.
  5. Joints of all layers of insulation shall be tight, square, and not exceeding 1/4-inch. Joints shall be staggered half the length of the board in both directions. If alignment gets out of square, do not continue. Stop the installation, lay a chalk line, cut the insulation smoothly using a power cutter or other device, and square up the installation. After obtaining a straight and square installation resume laying the insulation in a pattern to accommodate the revised and squared up alignment. All corner pieces should be carefully mitered to product a snug fit without excessive voids at penetrations, projections, curbs, or terminations.
- B. Over the existing steel deck (where applicable and shown on Drawings), mechanically attach base layer of 2.60-inch thick polyisocyanurate insulation. Fasten insulation according to project wind uplift requirements.
1. Unless more stringent fastening quantities are required by roofing manufacturer and/or FM Global; increase fastening at perimeter (50% increase over field) and corners (100% increase over field). Using a power screwdriver, drive the fastener until a slight depression is visible in the insulation around the plate or a dimple is visible in the surface of the plate.

Take care not to overdrive the fasteners and fracture the facer sheet of the insulation. Fasteners must be tight enough that the plate does not turn.

- C. Polyisocyanurate Insulation Attachment (Base Layer to Wood Deck)
  - 1. Mechanically attach the base layer of polyisocyanurate insulation boards with heavy-duty deck screws and 3-inch metal plates. Quantity and spacing of fasteners to provide wind uplift resistance according to project wind uplift requirements. Reference uplift plan on Sheet A102 of the Drawings.
    - a. Zone I (Field Pressure) FM1-90
    - b. Zone II (Perimeter Pressure) FM1-90
    - c. Zone III (Corner Pressure) FM1-90
- D. Polyisocyanurate Insulation Attachment: Over the base layer of insulation, install layer of polyisocyanurate insulation, tapered insulation crickets, and HD cover board, in a uniform ribboned layer of Carlisle Flexible FAST low-rise adhesive (or approved equal). Adhesive

application to comply with U.S. Class A and FM Class 1A-90 (minimum) fire and uplift. “Walk-in” the individual boards before the adhesive dries to ensure maximum contact. Keep each individual board weighted until maximum adhesion is achieved (minimum of 10-15 minutes). The time required for adhesive foam to rise before setting the insulation varies by manufacturer and with weather conditions. Confirm adhesive installation requirements with the manufacturer prior to installation.

1. Unless more stringent ribbon spacing are required by the roofing manufacturer for specified wind uplift Classification, the minimum low-rise adhesive pattern shall be:
    - a. Zone I – 12-inch on-center
    - b. Zone II – 6-inch on-center
    - c. Zone III – 4-inch on-center
  2. Uplift Pressures (noted on Drawings)
- E. Any boards with non-attached corners or interior areas (that can be lifted by hand) will be considered defective workmanship and will be rejected.
- F. Stagger seams and end joints of rows of insulation a minimum of 12-inches and staggering top layer of insulation of a minimum of 12-inches from bottom layer.
- G. The top surface of each layer shall be broomed clean of debris prior to the installation of each subsequent layer.
- H. Do not install more polyisocyanurate insulation than can be covered with completed roofing in the same day. Under no circumstances shall applied insulation be left overnight without covering in place. Any roof insulation installed, but not covered by roofing material prior to the end of the work day, shall be torn off and replaced the following day.

### 3.4 TAPERED INSULATION CRICKETS

- A. Over the base insulation, install tapered polyisocyanurate crickets to provide positive drainage upslope of curbs greater than 24-inches in width and between roof drainage scuppers as shown on the Drawings. All crickets shall have a counter-slope of twice the underlying slope or a slope sufficient to result in a 1/4-inch per foot counter-slope, unless otherwise approved.
- B. Crickets are to be installed in sequence with the insulation, not after the cover board or roof membrane is installed. No cover board or roofing are to be installed between the cricket materials and the top layer of insulation.

**3.5 CLEANUP**

- A. Perform final cleanup per Division 1 - Section 01 74 00 and Division 2 - Section 02 41 20 requirements.
- B. Remove trash, debris, and equipment from the jobsite.
- C. Repair damage and remove stains caused by the Work.

**END OF SECTION**

## SECTION 07 50 00

### ROOFING SPECIAL REQUIREMENTS

#### PART 1 GENERAL

##### 1.1 INSPECTION OF SITE

- A. Inspection of Site – The Contractor shall carefully inspect the Project site, and that from the Contractor’s own investigation, the Contractor shall satisfy itself as to the nature and location of the Work and the character, quality, quantities, materials, and difficulties to be encountered; the kind and extent of equipment and other facilities needed for the performance of the Work; the general and local conditions and other items which may in any way affect the Work or its performance; and the Contractor has correlated the Contractor’s site observations with the requirements of the Contract Documents. The Contractor shall make such tests of its own to satisfy itself of hidden conditions insofar as is reasonably practicable; if roof cores are taken, the core and the repair must be performed and repaired in a manner acceptable to the manufacturer of the existing roofing system (when applicable). The Contractor understands and accepts the difficulties and costs associated with the Work and the Project site and the potential delays, disruptions in Work, and costs associated therewith, and has included such considerations in its construction schedule and the bid amount.
- B. Coordination with Other Trades - The Contractor shall coordinate all Work with other Trades and employers to integrate properly all Work into the intent of the Specifications in compliance with industry authorities including, but not limited to the National Roofing Contractors Association.

##### 1.2 VERIFICATION OF DRAWINGS AND SPECIFICATIONS

- A. Notification of Conflicts in Drawings and Specifications - In the event the Contractor determines that such field conditions exist which may prevent or interfere with the execution of the Work required hereunder, the Contractor shall notify the Architect/Engineer in writing of such field conditions or any deficiencies in the Drawings and Specifications which may require changes at least four (4) days prior to the opening of proposals. Failure to notify the Owner of conflicting field conditions or contradictions in advance of commencement of Work shall indicate that the Contractor determines no conditions exist which will hinder satisfactory performance of the Work as specified and for the price proposal.
- B. Notification of Conflicts with Warranty Requirements - The Contractor shall make such investigations and inspections as required to verify that no conditions exist which may conflict with requirements for obtaining warranties by roofing material manufacturers, and should such conditions be found to exist, the Contractor shall notify the Architect/Engineer in writing in time for adjustments to be made to accommodate such conditions or manufacturers' requirements. If contradictions were found to exist between these Specifications and manufacturer’s requirements, the most stringent requirements shall govern except where such more stringent requirements would interfere with the issuance of a warranty by the manufacturer in which case the manufacturer’s requirements shall govern.
- C. All Dimensions Approximate - All Specifications and Details are intended to reflect the intent of compliance with accepted industry authorities and to that end all dimensions are intended to be approximations. Prior to commencement of Work, the Contractor shall verify all dimensions, and

if field conditions require significant deviations from such dimensions, the Contractor shall submit a Request for Information (RFI) in advance of commencing Work.

### 1.3 ROOFING CONSULTANT'S AUTHORITY

- A. The Contractor is advised that the Roof Consultant's Field Observer has the following limitations on his/her authority.
  - 1. The Field Observer has no authority to change the Contract, Construction Documents, or design.
  - 2. The Field Observer has no authority to create or enforce safety requirements.
  - 3. The Field Observer has no authority to approve any item involving an increase in cost to the Owner.
  - 4. The Field Observer has no authority to approve any reduction in scope without an appropriate credit to the Owner.
  - 5. The Field Observer has no authority to "trade" one requirement for another.
  - 6. The Contractor shall not proceed with any proposed change without written approval of the Consultant and Owner.
  - 7. The Contractor proceeds with any verbal authorization of any change, no matter how minor, at his own risk in the absence of a signed written approval by an authorized person.
  - 8. "Fit and finish" conditions can be interpreted in the field by the Field Observer and is not considered a change to the contract documents.

### 1.4 ROOFING CONSULTANT FEES REIMBURSEABLE BY CONTRACTOR TO OWNER.

- A. After Contractual Date Of Substantial Completion - The Owner will be responsible for Roof Consultant and field inspection fees in connection with the satisfactory completion of the job up to and including the ***Contractual Date of Substantial Completion***. The Contractor shall reimburse the Owner for all consulting Roof Consultant and field observation fees plus travel and incidental expenses incurred after the ***Contractual Date of Substantial Completion*** adjusted for time extensions granted pursuant to the Contract. Such fees and expenses shall be charged at the rates in the agreement between the Owner and the Roof Consultant. Such fees and expenses will be charged to the Contractor as a credit Change Order prior to release of final payment or retainage. If Contractor's failure to complete the closeout or final punch list causes the Roof Consultant to make more than three field observation trips to the site to verify or confirm completion of the punch list, the Contractor shall reimburse the Owner the Roof Consultant's time and expenses for such trips.
- B. Overtime, Weekends, And Holidays for Contractor's Convenience – If Roof Consultant or field observation Work is requested by the Owner for the Owner's convenience to be performed on overtime, weekends, or holidays, the Owner shall be responsible for payment for such fees and expenses to the Roof Consultant. However, if the Contractor requests to work on overtime, weekends, or holidays to catch up or make up time due to the Contractor's failure to maintain the schedule in this agreement, or otherwise for his convenience, the Contractor shall be responsible for Roof Consultant and field observation fees and expenses incurred by the Roof Consultant.

### 1.5 ROOF MEETINGS

- A. Pre-Roofing Conference - ***Upon approval of all roof-related submittals including items requested for resubmittal***, but prior to delivery of any roofing materials to the jobsite, the Contractor shall arrange a Pre-roofing Conference at the jobsite a minimum of two (2) weeks prior to delivery of materials and commencement of roofing Work, and shall arrange for the following firms or individuals to be represented:

1. Owner's Representative
  2. Roof Consultant
  3. Roofing Contractor
  4. Roofing Material Manufacturer's Technical Representative
  5. Mechanical Contractor (if applicable)
  6. Plumbing Contractor (if applicable)
  7. Masonry Contractor (if applicable)
  8. Stucco Contractor (if applicable)
  9. EIFS Contractor (if applicable)
  10. Lightning Protection Contractor (if applicable)
- B. Agenda - The pre-roofing conference will be scheduled upon completion, receipt, and complete approval of all roof related submittals. No pre-roofing conference will be scheduled until such conditions are met in full. The purpose and agenda of the pre-roofing conference shall be to cover the following points, and all parties shall be informed of this agenda and be prepared to discuss such items:
1. Drawings and Specifications
  2. Preparatory Work such as decking, carpentry, and mechanical curbs
  3. Roof protection from damage by other Trades
  4. Roofing materials
  5. Sheet metal materials and details
  6. Material delivery and storage
  7. Field supervision
  8. Owner convenience matters
  9. Equipment set-up and protection
  10. Parking
  11. Job-site safety
  12. Personal protective clothing
  13. Leak prevention during Work
  14. Cutting, patching, and tie-in with other roofing
  15. Building entry and exit requirements
  16. Daily cleanup and housekeeping
  17. Project sequence and scheduling
  18. Project quality control/required mock-ups
  19. Inspection and testing requirements
  20. Fire protection and prevention procedures
  21. Punch list completion
  22. Warranty documentation

## **1.6 PERFORMANCE STANDARDS**

- A. Safety - The contractor is responsible for meeting all Federal, State, Local, Owner, and other applicable safety requirements for the specific location and construction type. Any safety related topics discussed herein are simply suggestions for contractor review. WJE maintains that everyone has the right to stop any work or activities that appear to endanger anyone onsite.
- B. Brand Names - Specific brand names are intended to impute a quality and performance standard, and are not intended to discriminate against products not specifically listed.
- C. UL and FM Global Approved Products - All materials, products, systems, and components shall comply with UL and FM Global standards for fire rating and wind blow-off resistance.



- D. Wind Resistant Construction - Where the geographical location of the Project is in coastal or other high wind areas as defined by the International Building Code, the local code authority, or FM Global, all attachments of roof and related components shall comply with the most stringent applicable method. All edge details shall comply with FM Global Bulletin 1-49 at a minimum.
- E. Roofing Membrane Manufacturer Components - In addition, all roofing system components shall be manufactured, labeled, or specifically approved in writing by the membrane manufacturer issuing the roofing system warranty. In such cases where conflicting requirements exist between FM Global, Underwriters Lab, and the manufacturer's requirements, the most stringent requirements shall govern.

## 1.7 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following Record Documents; record actual revisions to the Work:
  - 1. Drawings
  - 2. Specifications
  - 3. Addenda
  - 4. Change Orders and other modifications to the Contract
  - 5. Submittals
  - 6. Reviewed Shop Drawings, Product Data, and Samples

## 1.8 PROJECT SIGNAGE

- A. Safety Warning Signs
  - 1. The contractor is responsible for meeting all Federal, State, Local, Owner, and other applicable safety signage requirements for the specific location and construction type. Any safety signage related items discussed herein are simply suggestions for contractor review.
  - 2. Safety Warning Signs - Signs to warn the general public of safety hazards involving the Project shall be posted as described herein.
  - 3. Such signs shall be made of exterior grade plywood and at least 4-foot by 4-foot in size.
  - 4. Warning signs shall be painted professionally in letters large enough to be read clearly and legibly from a distance of 75 feet by a person with normal eyesight. The signs shall be firmly attached at an elevation high enough not to be obscured by parked cars or vans.
  - 5. Safety Warning Signs shall be painted "safety yellow" with letters of black or red.
  - 6. The signs shall be posted in the following locations:
    - a. Near the roofing kettle, trash dumpster, and debris removal chute.
    - b. Over entrances or exits in the vicinity of Work.
    - c. In parking areas where cars may be exposed to damage from falling or windblown debris or trash.
  - 7. Signs shall be in sufficient number and located in such a manner as to warn members of the general public approaching from different directions of the hazards or danger.
  - 8. All signs shall be permanently mounted on posts in the ground, or firmly fixed in place on the roof. Supporting signs with roof equipment, materials, or other temporary devices is not acceptable. Such supports shall be capable of withstanding a minimum of 60 mile per hour winds.
  - 9. Signs shall be designed as shown below:

**WARNING**

**ROOF WORK IN PROGRESS**

**FALLING OBJECTS AND DEBRIS**

**STAY CLEAR OF DANGER  
AND  
PARK AT YOUR OWN RISK**

**B. Warranty Notification Signs**

1. Warranty Notification Signs - Upon completion of the job, Warranty Notification Signs shall be located at or near all roof entry points as described herein. There shall be a minimum of one Warranty Notification Sign for each building or discreet, separate roof access point (i.e. roof hatches, fixed roof ladders, etc.)
2. Appearance - The sign shall be constructed of 24-gauge metal, at least 18 inches by 24 inches in size and shall be painted professionally by a person or firm experienced in the trade. Painting procedures shall be in accordance with the industry practice for priming, number of coats, and type of paint normally used for Work of this type.
3. Attachment - Such signs shall be firmly affixed in accordance with standard roofing practice as defined by NRCA details and in such a manner as not to jeopardize the waterproof integrity of the roofing, flashing, or waterproofing system.
4. The signs shall present the information shown herein.

**DO NOT MAKE ALTERATIONS  
OR REPAIRS TO THIS ROOF  
WITHOUT APPROVAL FROM OWNER**

**This roof is under warranty until  
(date)**

**Warranty Number \_\_\_\_\_  
by (Contractor's name  
Manufacturer name,  
address,  
city, state, zip code  
and phone number)**

**1.9 ENVIRONMENTAL PROTECTION**

**A. Landscaping**

1. Landscaping and Grounds Protection - Provide protective coverings as necessary to prevent damage to buildings, grounds, and parking lots. Protect all plants from chemical or mechanical damage. If applicable, cut grass inside of storage area and prevent the growth of weeds or other unsightly vegetation.
2. Trash Dumpster Protection - If commercial trash receptacles are dropped at the site, provide wooden skids as necessary to prevent damage to paved areas and cover receptacles daily to prevent debris from blowing around the site.

3. Return Landscaping to Original Condition - Parking lots, landscaping, yards, beds, or grassy areas shall be repaired in a manner to return the area to the original condition immediately following completion of the Work.
  4. Only Approved Dirt or Replacement Soil - Contractor shall submit samples of proposed soil to be used to repair landscaping in advance with the name and location of the proposed source quarry. The Owner shall have the opportunity to inspect the soil source quarry prior to delivery of any soil to the jobsite, and the Contractor shall not proceed with bringing any such materials on the site until the Owner has provided written approval.
- B. Chemical Storage Protection
1. The contractor is responsible for meeting all Federal, State, Local, Owner, and other applicable chemical storage requirements for the specific location and construction type. Any chemical storage related topics discussed herein are simply suggestions for contractor review.
  2. Chemical Storage - No chemicals, or any materials classified as such, shall be brought on site until all MSDS sheets have been provided to the Owner and both the materials and the storage and maintenance methodology approved in writing by the Owner.
  3. Double Containers - All chemicals shall be stored in double containers for leak protection. The Contractor shall provide a written plan for such protection with his submittals.
  4. Storage Maintenance - Maintain storage in such a manner as to prevent leaking of chemicals, liquids, or other materials, whether hazardous, toxic, or not, and to prevent mixing of chemicals of any sort. Leaking containers shall be immediately removed from the site and all leak residue cleaned up in accordance with all federal, state, and local laws or ordinances.
- C. Noise Protection
1. Noise Control - The Contractor shall take maximum precautions to avoid excessive noise which may disrupt the Owner's normal operations. Instruct all workmen in noise control procedures. Such conditions shall be the Owner's determination.
- D. Air Intake Protection
1. The Contractor shall coordinate with the Architect/Engineer and Owner to create a schedule for all rooftop air handler intake protection during the project.
    - a. Rooftop Air Intakes - The Owner will close or otherwise adjust rooftop air intakes for minimum attraction of roofing material fumes from rooftop work.
    - b. Vent Covers - Contractor shall furnish plastic or other suitable covers for air intake vents, and shall install and remove such covers where requested to do so by the Owner.

## **1.10 WEATHER CONTINGENCIES**

- A. Risk - Means, method, and scheduling are the responsibility of the Contractor within any constraints stipulated elsewhere in the Construction Documents. All weather risks are the responsibility of the Contractor, and protection of materials, building, and contents is the sole responsibility of the Contractor.
- B. Protection Against Sudden Weather Changes - Protection of the building, tenants, and contents shall be a primary concern at all times during construction. At no time shall the Contractor remove more roofing or equipment or expose more of the building or contents to the weather than can be protected immediately in the case of sudden weather changes. If the Contractor must apply temporary measures to protect the building or its contents during sudden weather changes, such

temporary protection or measures shall be removed and replaced prior to commencement of further Work.

- C. Precipitation - Roofing shall not be applied during precipitation and shall not be started in the event there is a probability of precipitation during application greater than normal industry practice.

### 1.11 GOVERNING AUTHORITIES

- A. With respect to industry details, methodology, performance standards, or resolution of conflicts, the most stringent standards of those authorities listed below shall govern for the specific geographical location of the project. Where such governing authorities and standards are listed, it is understood that the latest and most current version of such standards are required, and it is the Contractor's duty to know and understand such standards which are in effect at the time this Project is proposed.
  1. Occupational Safety and Health Administration (OSHA)
  2. FM Global Engineering (FM)
  3. Underwriters Laboratory (UL)
  4. National Roofing Contractors Association (NRCA)
  5. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
  6. ASTM International
  7. International Building Code (IBC), Current Edition
  8. International Plumbing Code (IPC), Current Edition
  9. International Mechanical Code (IMC), Current Edition
  10. International Energy Conservation Code (IECC), Current Edition
  11. Approved Roofing Material Manufacturer
  12. Revere Copper "Copper and Common Sense" Manual

### 1.12 FIELD SUPERVISION

- A. Supervisor Designation - The Roofing Contractor shall designate a Field Supervisor who shall be the Contractor's on-site representative and agent at all times. The Field Supervisor shall be experienced in running Work of this size, type, and complexity. ***The Field Supervisor shall be non-working and on-site full-time during the course of the job, except for rain days.*** On rain days, the Field Supervisor shall show up, confer with the Owner regarding leaks or emergencies, if any, and have available emergency personnel to deal with such eventualities. With the Owner's approval, the Architect/Engineer has the authority to have the Contractor remove a Field Supervisor for being unqualified, or otherwise failing to comply fully with the Construction Documents' requirements, and have a new Field Supervisor assigned acceptable to the Owner and Architect/Engineer.
- B. English-speaking Required - The Field Supervisor shall be English-speaking, and shall by virtue of experience, education, and training be fully qualified to organize, plan, supervise, and manage all phases of the Work. It is not the intent of the language requirement to discriminate against any person, nor to deny any person the right to serve in a supervisory capacity on this Project, but instead to ensure that the Field Supervisor can communicate at all times with the Architect/Engineer/Roof Consultant or Owner's Representative in the interest of safety of the workers and occupants of the buildings.
- C. Scope of Field Supervisor Responsibilities - The Field Supervisor shall be responsible for all on-site activities beginning with the delivery of the materials and job set-up, and shall be available and accessible to the Owner or Roofing Architect/Engineer at all times whether Work is in

progress on a particular day or not. A Working Foreman is not a Field Supervisor, and the Field Supervisor shall be in addition to a Working Foreman.

- D. Safety Enforcement - Safety is the responsibility of the Contractor. The Field Supervisor shall enforce all provisions of the job safety requirements at all times, and shall dismiss from the jobsite any employee failing to comply. Safety of the general public shall be a paramount concern and focus of the Project, and any person failing to comply with OSHA or any other applicable safety requirements may be dismissed from the jobsite.
- E. On-Call Emergency Service - The Contractor shall provide an emergency phone number for weekends and nights and home phone numbers for the Company President and the Field Supervisor. Such emergency access is to be used in the event of severe leakage during progress of the job in a heavy rain at night or on weekends.

### **1.13 CONSTRUCTION PERSONNEL BEHAVIOR**

- A. Contractor personnel and subcontractors shall be instructed in the following behavioral matters:
  - 1. Authorized Company Personnel - Contractor employees must either wear company uniforms or have other forms of visible identification showing they are an authorized employee of the Contracting firm. Unauthorized or unidentified personnel shall be dismissed from the jobsite.
  - 2. Security
    - a. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.
    - b. Coordinate with Owner's security program.
  - 3. Chemical and Tobacco Free - The jobsite is a smoke-free workplace, and smoking is prohibited on the jobsite. No non-prescription drugs, alcohol, or tobacco of any type are permitted on the jobsite.
  - 4. Personal Contact - The Contractor's personnel and subcontractors are to have no contact, verbal or otherwise, with the public or Owner personnel in or around the property or jobsite. The Contractor shall notify all personnel and subcontractors that any person making remarks to any of the above shall be dismissed permanently from the jobsite.
  - 5. Access to Jobsite Facilities - The Contractor's personnel and subcontractors are not to enter school buildings or use Owner's restrooms, telephones, water fountains, or any other facilities unless advance permission is granted and the person is escorted by an authorized Owner's Representative for reasons relating to the Work being performed.
  - 6. Vacate Jobsite at End of Day - At the end of each workday, Contractor employees are to vacate the school grounds, and are not to loiter on school property.

### **1.14 PLANNING AND PREPARATION**

- A. Read the Specifications - The Field Supervisor shall become thoroughly familiar with requirements for the job including, but not limited to, reading and understanding the Drawings and Specifications. The Field Supervisor shall determine the proper sequence and schedule for all Work, and shall determine the proper tools, equipment, means, methods, and techniques to perform the Work in accordance with all Contract Documents and shall ensure timely delivery of all equipment, tools, personnel, materials, and components required for the timely completion of all Work in accordance with the established schedule.
- B. Mechanical and Electrical Equipment Verification - The Contractor shall verify performance and operation of all mechanical and electrical equipment prior to commencement of Work. It may be necessary to extend, retract, relocate, terminate, or otherwise modify the existing mechanical

and/or electrical equipment as part of the project. The contractor is responsible for ensuring all structural and building enclosure details are followed when modified the existing mechanical and electrical systems. The contractor may not begin any mechanical or electrical work until all necessary tools and materials are available for proper installation. The timely execution of this work with minimal shutdown time shall be a priority. The Contractor shall be responsible for ensuring that each piece of mechanical equipment is restored to its former operating condition upon completion of all Work.

- C. Inspection for Prior Damage - Prior to commencement of Work, the Contractor shall inspect the interior of the building and all exposed surfaces for damage, scratches, abrasions, leaks, and bitumen drippage, and report such findings to the Owner in writing or supported with photographs as necessary. The Owner reserves the right to hold the Contractor responsible and liable for building damage not reported and confirmed in advance of the commencement of Work.
- D. Location of Fixtures Below Roof Deck - The Contractor shall inspect the underside of all decks and become aware of the locations of all conduit, fixtures, suspended ceiling supports, fire proofing, spray insulation, or other mechanical and electrical equipment supported by or attached to the underside of the deck. The Contractor shall be responsible for reconnecting, replacing, or repairing, any damage to or dislocation of items, fixtures, or supports connected to the deck required by the circumstances of the Project or accidentally caused by Work performed under this Contract.

#### **1.15 DAMAGE TO BUILDING INTERIOR**

- A. Protection From Damage - The Contractor shall take all necessary precautions to prevent damage to the interior of the building or its contents. Dirt, dust, or other contamination of interior surfaces shall be cleaned up by the Contractor or at the Contractor's expense.
- B. Coordination with Occupants - The Contractor's Field Supervisor shall communicate daily with the designated owner contact if power, heating, ventilation, or air conditioning units are to be shut-off, and, subject to the scheduling requirements of the job, the Contractor shall perform Work in a sequence to minimize inconvenience to occupants. Nothing in this paragraph, however, shall constitute interference with or a change to the Contractor's status as an independent Contractor and the Contractor's right to control means and methods and schedule Work in the most efficient manner to comply with the performance requirements of all Work hereunder.

#### **1.16 FIELD OBSERVATION AND TESTING**

- A. Requirements
  - 1. Periodic site observations will be performed by the Architect/Engineer's/Roof Consultant's field observer. The field observer will document the roof installation and note deficiencies or deviations in the installation(s).
    - a. All new roofing operations, new sheet metal mock-ups, and before the installation of cap sheet shall require a site observation by the Architect/Engineer's/Roof Consultant's field observer. The roofing contractor will provide at least 72 hour notice to Architect / Engineer before the site observations are required, including mock-ups and completion of major operations. If the roofing contractor continues operations and moves onto the next phase of roofing without a field observation, the contractor does so at their own risk.
    - b. Contractor shall cooperate with the field observer to facilitate the execution of its required services, including providing safe access to the roof and access to all materials stored on site.

- c. Employment of the field observer shall in no way relieve Contractor's obligations to perform the Work of the Contract.
  2. The Owner reserves the right to employ and pay (except as specified otherwise) for the services of an Independent Testing Laboratory approved by Architect/Engineer to perform specified testing. The Contractor shall pay the cost of re-testing required due to failure.
    - a. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
    - b. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.
- B. Contractor's Responsibilities
  1. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
  2. Provide to the laboratory the preliminary requirements proposed to be used for correct roofing practice, and other materials mixes that require control by the testing laboratory. Costs of all roofing samples shall be the Contractor's responsibility.
  3. Furnish incidental labor and facilities:
    - a. To provide access to Work to be tested.
    - b. To obtain and handle samples at the Project site or at the source of the product to be tested.
    - c. To facilitate inspections and tests.
    - d. For storage and curing of test samples.
  4. Notify laboratory sufficiently in advance of operations to allow for pick-up, laboratory assignment of personnel, and scheduling of tests. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.
  5. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.
  6. Cut or prepare all samples to be tested in the presence of either the Owner's Representative, the Architect/Engineer/Roof Consultant, a registered Deputy Building Inspector, or the Engineer from the testing laboratory, and secure the witness' initials on each sample prepared.
  7. Any tests, inspections, or sampling required by the Building Inspector for the performance of special Trades not included in this Section shall be paid for as a part of the Work of the Trades being tested.

#### **1.17 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary utilities, equipment, facilities, and materials, prior to Substantial Completion/Final Application for Payment inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing and permanent facilities used during construction to original condition.

#### **1.18 CLEANUP**

- A. Daily Cleanup - Daily cleanup is a part of the job. A clean workplace is a safe workplace. The jobsite is to be kept clean and safe from fire or tripping hazards daily.
- B. Trash Containers - Provide trash bags or containers for all trash, debris, and material residue. Trash subject to being blown by the wind shall be stored in a secure container. Trash includes

material containers, wrappers, and covers in addition to food containers, drinking cups, paper bags, and all other trash of any kind resulting from on-going roofing operations. Trash is to be removed from the jobsite daily.

- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned. Clean all bituminous materials from all masonry surfaces, equipment, pipes, conduits, paved areas, and grounds.
- D. Clean debris from roofs, gutters, downspouts, and drainage systems as applicable.
- E. Clean site; sweep paved areas, rake clean landscaped surfaces.
- F. Remove waste and surplus materials, rubbish, and construction facilities from the site. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- G. Broom and vacuum clean interior areas prior to the start of surface finishing, and continue cleaning to eliminate dust.

#### 1.19 DEFINITION OF ROOFING SUBSTANTIAL COMPLETION

- A. Substantial Completion of the roof is defined on this Project as that stage in the progress of the job where all integral components covered under the Contract are in place without material defect and performing their intended function. Substantial Completion requires the following specific performance:
  - 1. All roofing and sheet metal must be installed except for minor field painting or touch up of metal.
  - 2. All construction equipment must be disassembled and/or removed from the jobsite.
  - 3. All leftover or excess materials must be removed from the jobsite.
  - 4. The grounds must be cleaned and repaired in substantial accordance with the Contract Documents.
  - 5. Minor punch list items may still be pending.

#### 1.20 WARRANTIES, GUARANTEES, AND CLOSEOUT DOCUMENTATION

- A. Submit documents to Architect/Engineer with the final Application for Payment. Please check all documents for accuracy and completeness paying particular attention to the following items:
  - 1. Be sure the **Owner's Project Number**, if any, appears on all Applications for Payment and warranties.
  - 2. Check all arithmetic to be sure that columns and rows tabulate and cross-tabulate, i.e. they add up in both directions.
  - 3. Required Documents - Submit one digital copy of the documents listed below for closeout.
    - a. Pending Change Orders - All pending or disputed change orders must be resolved, dismissed, or approved, and a written change order signed by all parties prior to the final application for payment. Such change orders must be noted in the Change Order Summary AIA G702, all having **previously** been approved.
    - b. Reconciliation of Unit Priced Allowances - Using the form required, submit a detailed breakdown of quantities consumed from the Unit Price Allowances. This form should be submitted immediately upon completion of tear-off in the case of reroofing, since by that time all such units should be known.
    - c. Certificate of Substantial Completion - Execute a Certificate of Substantial Completion.



- d. Certificate of Asbestos-Free Construction - Execute and have notarized the Certificate of Asbestos-free construction.
- e. Certificate of Guarantee - The Contractor's two (2) year Certificate of Guarantee must be signed on the form provided in the Specifications, a clean copy of which will be sent with a hard copy of this document. Separate guarantees are to be provided for each campus even where multiple campuses are included on the same Contract. Where **multiple buildings** within a campus are covered, an attached Supplement A listing the specific buildings must be attached to the Guarantee. The effective date shall be the date of substantial completion as certified by the Architect/Engineer.
- f. Manufacturer's Warranty - Provide the manufacturer's warranty on the form required in the Specifications, a clean copy of which will be provided to Contractor. Separate warranties are to be provided for each campus even where multiple campuses are included on the same Contract. Where **multiple buildings** within a campus are covered, an attached Supplement A listing the specific buildings must be attached to the Warranty. The date shall be the same as the Contractor's Certificate of Guarantee.
- g. Manufacturer's Total System Warranty - Provide the manufacturer's total system warranty on the form provided in the Specifications, a clean copy of which will be provided to Contractor. Separate warranties are to be provided for each campus even where multiple campuses are included on the same Contract. Where **multiple buildings** within a campus are covered, an attached Supplement A listing the specific buildings must be attached to the Warranty. The date shall be the same as the Contractor's Certificate of Guarantee.
- h. Consent of Surety - Enclose, or have bonding company send to Architect/Engineer directly, the Consent of Surety form authorizing final payment to be made to the Contractor.
- i. Affidavit of Bills Paid From Mechanic's and Materialmen - The form enclosed in the Contract Documents must be signed and notarized as requested. This form must also be provided from **each and every subcontractor** hired and used on the job.
- j. Final Application for Payment - The final application for payment should include all pending change orders and show credit for the unused portion of the contingency allowance. The contingency allowance will be credited on the final change order, if any. Otherwise a credit change order will be issued at the end of the job for the credit due the Owner and signed by all parties as a regular change order.
- k. Confirmation from the appropriate jurisdiction that permits associated with this project have been closed.

## **PART 2 PRODUCTS**

### **2.1 NOT USED.**

## **PART 3 EXECUTION**

### **3.1 NOT USED.**

**END OF SECTION**

**SECTION 07 54 23****TPO SINGLE-PLY MEMBRANE ROOFING****PART 1 GENERAL****1.1 RELATED DOCUMENT**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01-Specification sections, apply to work of this section.

**1.2 DESCRIPTION**

- A. Work Included: Work consists of furnishing all labor, materials and equipment necessary to effectively install a fully adhered TPO single-ply roofing membrane system, including but not necessarily limited to, the following:
  - 1. Roofing membrane.
  - 2. Miscellaneous accessories.
- B. Related Work Specified Elsewhere
  - 1. Roof Insulation: Section 07 20 00.
  - 2. Sheet Metal Flashing and Trim: Section 07 62 00.
  - 3. Sealants: Section 07 92 00.

**1.3 QUALITY CONTROL**

- A. Reference Standards: Except as modified by the Drawings and Specifications, the following documents, or applicable portions thereof, govern the work.
  - 1. American National Standards Institute (ANSI)/Single Ply Roofing Industry (SPRI):
    - a. ANSI/SPRI FX-1: Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners.
  - 2. American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI):
    - a. ASCE/SEI 7: Minimum Design Loads for Buildings and Other Structures.
  - 3. National Roofing Contractors Association (NRCA) "Roofing and Waterproofing Manual - Fifth Edition."

4. NRCA "2019 Membrane Roof Systems."
  5. Factory Mutual (FM) Global Standards
    - a. FM Global Property Loss Prevention Data Sheet 1-28 Wind Design.
    - b. FM Global Property Loss Prevention Data Sheet 1-34 Hail Damage.
    - c. FM Global Property Loss Prevention Data Sheet 1-49 Perimeter Flashing.
    - d. FM Global Roof Nav ([www.roofnav.com](http://www.roofnav.com)) Roof Assemblies.
- B. Qualifications:
1. Prior to the Notice of Award, the Contractor shall submit evidence of the following:
    - a. Is currently an approved applicator for the specific material manufacturer(s).
    - b. Provide manufacturer(s) applicator certification level:
      - 1) Firestone Master Contractor or Partner in Quality
        - a) Provide Firestone Quality Incidence Rating (QIR) and certification level (Inner Circle, Partner in Quality).
      - 2) Carlisle ESP
        - a) Provide certification level (ESP Premier, Honorary ESP)
      - 3) Johns Manville Peak Advantage
        - a) Provide certification level (Summit, Pinnacle, 5280).
- C. Manufacturer's Products: Obtain roofing materials from only one manufacturer. Provide materials not available from the manufacturer from sources which are recommended and approved by the manufacturer.
- D. Underwriters Laboratories (UL) Listed Products: Provide materials which have been tested and listed by UL, and bear UL label on each package, or are shipped to the project with a UL certification of compliance.
- E. Fire and Insurance Ratings: Comply with ratings as required by governing authorities and codes, and comply with the following:
1. Underwriters Laboratories (UL) "Class A" rating.
  2. Factory Mutual (FM) "1-90" minimum rating.

- F. Roof system must meet uplift requirement for code design wind speed of **V-ult (uplift) = 140 mph** (3-second gust).
- G. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist the factored design uplift pressures calculated according to SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems."
- H. Additional Performance Standards: All roofing system components shall be manufactured, labeled, or specifically approved in writing by the membrane manufacturer issuing the roofing system warranty. In such cases where conflicting requirements exist between FM Global, Underwriters Lab, the project design pressures listed on the Drawings (ASCE 7-16), and the manufacturer's requirements, the most stringent requirements shall govern.

#### 1.4 SUBMITTALS

- A. Required Prior to Commencement of Work
  - 1. Manufacturer's literature, Material Safety Data Sheets and application instructions. All submittals shall be made in triplicate. When submitting manufacturer's literature, highlight all items pertaining to this project.
  - 2. Sample copies of applicable guarantees.
  - 3. Copy of the completed manufacturer's guarantee application.
  - 4. Submit documentation from roofing manufacturer stating that:
    - a. Manufacturer has examined specifications and warranty requirements.
    - b. The products herein specified are acceptable for and compatible with the roofing and flashing system design.
    - c. Manufacturer will issue the specified warranty if the roofing and flashing system is installed in accord with their instructions.
    - d. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
      - 1) base flashings and membrane terminations;
      - 2) tapered insulation, including slopes; and
      - 3) insulation fastening patterns;

5. Where UL or manufacturer's requirements are specified, provide documentation that shows that the roofing system to be installed is UL-Classified and FM-approved, as applicable; include data itemizing the components of the classified or approved system.
  - a. Factory Mutual Global Standards:
    - 1) Roof Areas A-1 and A-2 shall utilize the roofing assembly and meet specified wind uplift classification (including system manufacturer's specified board insulation, cover board, and accessories) required by FM. ***FM Global RoofNav Assembly provided by contractor.***
  - B. Required After Completion of Work
    1. Contractor's warranty per Section 01 77 00.
    2. Copy of membrane manufacturer's guarantee inspection report.
    3. Manufacturer's guarantee per Section 07 54 23.

## 1.5 PRODUCT DELIVERY AND STORAGE

- A. Delivery of Materials: Deliver material to jobsite in sealed, undamaged containers. Identify each container with material name, date of manufacturer, and lot number.
- B. Keep all materials dry while they are transported, stored and installed. Do not allow materials to be exposed to any moisture anywhere, at any time, during transportation, storage, handling and installation. Reject any new materials which exhibit evidence of moisture during application, or have been exposed to moisture.
- C. Store all materials on raised platforms with weather protective coverings. The manufacturer's standard packaging and covering is not considered adequate weather protection. Tarpaulins are preferred for protection of all roof materials. If visqueen coverings are used, venting of each package is required.
- D. Materials stored on roofs shall be limited to the safe loading of installed materials, decking and structural framing. Ballast shall be stockpiled on the roof in small mounds or rows on the completed roofing

## 1.6 JOB CONDITIONS

- A. All dimensions and existing details shall be field-verified by contractor prior to bidding and acquisition or installation of materials. Contractor shall notify the consultant of any existing condition found to be different than that indicated in the contract documents. Engineer shall review the situation and inform contractor of necessary changes, if any.

- B. Install materials in strict accordance with all safety and weather conditions required by manufacturer, product literature, Material Safety Data Sheets, or of local, state, and federal rules and regulations.
- C. Observe all fire, safety and pollution regulations of governing authorities.

## **1.7 PROTECTION**

- A. Temporary tie-offs and water cut-offs shall be provided by the Roofing Contractor at the end of each day, and where and when a danger exists that water caused by precipitation may get under the new roofing membrane. Tie-offs or cut-offs shall extend beyond new insulation and membrane, and be adhered to the new underlayment. All temporary tie-offs and water cut-offs

shall be removed prior to proceeding with the work by uncovering the edge of the insulation and removing all temporary materials.

- B. When installing temporary tie-offs or water cut-offs, do not cut any staggered insulation pieces that are already installed. Rather, straighten the staggered insulation with unattached pieces of insulation. Remove all temporary insulation pieces prior to proceeding with the work.
- C. Avoid heavy traffic on completed work. Schedule and execute work to prevent excessive traffic on completed roof sections.
- D. Restore to original condition or replace all work and materials damaged by roofing operations.
- E. Protect paving and building surfaces adjacent to hoists and other roofing equipment.
- F. Do not disrupt activities in occupied spaces.
- G. Remove protection upon completion of roofing work.

## **1.8 WARRANTIES**

- A. Warranty (by contractor to the Owner). Applies to all reroofed areas (refer to Section 00 70 00).
- B. Manufacturer's 20-year "No Dollar Limit" Roof System Guarantee (by Materials Manufacturer to the Owner). Applies to all reroofed areas.
  - 1. Wind speed warranty shall be 72 miles per hour.
  - 2. Edge-to-Edge Carlisle Golden Seal Total System Roofing Warranty with limited coverage for accidental punctures and hail (or approved equal).
  - 3. Contractor must contact membrane manufacturer prior to bidding to confirm that all proposed system components are acceptable.
  - 4. Paid for by contractor.

## **1.9 CHANGES IN THE WORK**

- A. During reroofing work, the contractor may encounter existing conditions which are not now known or are at variance with the drawings or specifications (discovery). Such conditions may interfere with reroofing work and may consist of damage or deterioration to the deck or surrounding materials or components which could jeopardize the integrity of the new roof.

The contractor shall notify the engineer of all discoveries he believes may interfere with proper execution of the work or jeopardize the integrity of the new roof prior to proceeding with work related to such discoveries.

- B. In the event of discrepancies within the Drawings, within the Specifications, or between the Drawings and Specification, the more stringent of the two items shown or described shall be considered to be shown or specified at all locations where the discrepancies occur. The Engineer shall be notified of such discrepancies.
- C. When a substitute or alternate is requested by the Contractor, and such substitute or alternate is accepted by the Consultant, the Contractor shall bear all additional costs which may arise directly or indirectly from the use of the substitute or alternate.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURERS**

- A. TPO Single-Ply Roofing Membrane
  - 1. Carlisle
  - 2. Firestone
  - 3. Johns Manville

### **2.2 MATERIALS**

- A. General:
  - 1. FM Global Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FM Global Class Number 4450 and 4470 as part of roofing system that are listed in FM Global Approval Guide for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
    - a. Fire/Windstorm Classification: ASTM E108, Class 1A-90.
    - b. Hail Resistance: SH.
  - 2. Roofing-system Design Pressure (Service Level):
    - a. Zone I': 11 psf
    - b. Zone I: 21 psf
    - c. Zone II: 29 psf
    - d. Zone III: 40 psf
  - 3. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing-system manufacturer based on testing and field experience.



4. Source Limitations: Obtain components for roofing system from or approved by roofing-system manufacturer.

B. Single-Ply Membrane

1. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D 6878, with polyester weft inserted reinforcement and the following additional characteristics:
  - a. U.L. Class A, FM "1-90" - fully adhered:
    - 1) Carlisle Sure-Weld TPO with APEEL Protective Film (60-mil).
    - 2) Firestone UltraPly TPO (60-mil).
    - 3) Johns Manville 60-mil TPO
  - b. Thickness: 0.060 inch plus/minus 10 percent, with coating thickness over reinforcement (scrim) of 0.034 inch (0.864 mm) plus/minus 10 percent.
  - c. Sheet width: Provide the widest available sheets to minimize field seaming.
  - d. Puncture resistance: 400 lbf (kN), minimum, when tested in accordance FTM 101C Method 2031.
  - e. Initial Solar reflectance: 0.79, minimum, when tested in accordance with ASTM C 1549.
  - f. Color: White.
2. Pipe and Penetration Flashings
  - a. Manufacturer's standard molded TPO pipe flashing. Use field fabricated seals where molded pipe flashings cannot be installed for roof penetrations.
3. Membrane Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.
4. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches (457 mm) wide.
5. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.
  - a. Thickness: 0.060 inch (1.52 mm) plus/minus 10 percent.

- b. Tensile strength: 1550 psi (10.7 MPa), minimum, when tested in accordance with ASTM D 638 after heat aging.
  - c. Elongation at break: 650 percent, minimum, when tested in accordance with ASTM D 638 after heat aging.
  - d. Tearing strength: 12 lbf (53 N), minimum, when tested in accordance with ASTM D 1004 after heat aging.
  - e. Color: Tan.
- 6. Tape Flashing: 5-1/2 inch (140 mm) nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.065 inch (1.6 mm) nominal, as required by Manufacturer.
  - 7. Bonding Adhesive: Nitrile rubber based fluid, formulated for compatibility with the membrane other substrate materials, including masonry, wood, and insulation facings.
  - 8. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing; Pourable Sealer, as required by Manufacturer.
  - 9. Seam Plates: Steel with barbs and Galvalume coating; corrosion-resistance complying with FM 4470.
  - 10. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick, as required by Manufacturer.
  - 11. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed, as required by Manufacturer.
  - 12. General Purpose Sealant: EPDM-based, one-part, white general purpose sealant, as required by Manufacturer.
  - 13. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc., as required by Manufacturer.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer and roofing-system manufacturer's representative for compliance with requirements and for other conditions affecting performance of roofing system.

1. Perform testing according to ANSI/SPRI FX-1 to verify that fastener pull-out values meet or exceed those required by manufacturer and project wind uplift requirements.
- B. Notify Architect in writing of conditions which may adversely affect installation or performance of roof system and recommend corrections.
- C. Commencing roof Work constitutes acceptance of Work surfaces and conditions.

### **3.2 COORDINATION**

- A. Coordinate membrane roofing work with the removal of the existing roofing specified in Section 02 41 20, and installation of new roof insulation, roof boards, and wood blocking specified in Section 07 20 00 - Roof Insulation.
- B. Coordinate base flashing work with new sheet metal installations specified in Section 07 62 00 - Sheet Metal Flashing and Trim.
- C. Do not install roofing materials when rain is imminent. Do not remove excessive quantity of existing roof membrane ahead of reroofing.
- D. Install only as much insulation, roof boards, and roofing as can be covered by TPO membrane and completed by the end of each work day.

### **3.3 PROTECTION**

- A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
- B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- D. Limit access to Work areas.
- E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during work.
- F. Comply with roofing-system manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.
- G. Cover adjacent surfaces with materials that are proven to resist roofing materials.

- H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

### 3.4 PREPARATION OF SUBSTRATE

- A. Examine the surface condition of the substrate and the conditions under which roofing work is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected in an approved manner.
- B. Remove existing roofing system and other materials to expose substrate.
  - 1. Remove only as much of existing roofing as can be prepared and new temporary roof/vapor retarder (if applicable) or new roofing system installed in one day, unless provisions are implemented to maintain watertightness in interim or larger removal areas are approved by Owner's Representative.
  - 2. Provide temporary protection as needed if watertightness is compromised.
  - 3. Do not begin removal of existing roofing system when weather conditions are not conducive to maintain watertightness or for application of new construction.
- C. Clean the substrate of projection and substances detrimental to the work.
- D. Clean and prepare plywood substrate according to roofing-system manufacturer's written instructions. Provide clean, dust-free, and dry substrate for roofing application.
  - 1. Remove and replace plywood that is damaged, that cannot easily be cleaned, or that does not meet the requirements of roofing-system manufacturer. Use exterior-grade plywood that conforms to APA standards.
  - 2. Verify that plywood is fastened with non-projecting screws. If not, supplement existing fastening with new corrosion-resistant screws.
- E. Close off roof drains and other penetrations to prevent materials from entering and clogging drains and conductors, and from spilling or migrating onto adjacent surfaces. Remove roof-drain plugs when no work is taking place or when rain is forecast and prior to the end of each work day.
- F. Comply with the manufacturer's instructions for the preparation of the substrate to receive the roof system. Installer and roofing-system manufacturer's representative shall examine substrate to ensure that it is properly prepared and ready to receive roofing system. Roofing-system manufacturer's representative shall report in writing to Installer and Architect conditions which will adversely affect roofing-system installation or performance. Do not proceed with roofing-system installation until these conditions have been corrected and reviewed by Architect.

- G. Raise and reset all rooftop equipment as required for proper installation of membrane and flashings. Include any electrical, duct, and piping disconnections, reconnections and extensions required to complete the work.
- H. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes. Coordinate all work with Owner.
- I. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease, and other materials that may damage the membrane. Proceed with installation only after unsatisfactory conditions have been corrected. Commencing installation constitutes acceptance of Work surfaces and conditions.

### 3.5 MEMBRANE INSTALLATION

#### A. General

1. Install roofing and flashing system and all accessory items including seaming, adhesives, flashing, self-flashing, reinforcement (if any) and surfacing in strict accord with roofing manufacturer's printed instructions current at date of bidding.
2. Cut sheets to the maximum size possible, in order to minimize seams and to accommodate contours of roof deck and proper drainage across the shingled laps of the sheets.
3. Install flashing accessories and other items as recommended by the manufacturer, even though not shown on the drawings.
4. Flash roof drains and all penetrations in accordance with manufacturer's recommendations. All flashings shall be covered by counterflashing or other appropriate type of covering, as recommended by the manufacturer.
5. Provide adequate protection of completed work until substantial completion. Prevent traffic, storage or movement of materials or equipment on completed roofing.
6. Prevent materials from entering and clogging drains and from spilling or migrating onto surfaces of other work.
7. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
8. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
9. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.

10. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
  - a. Exceptions: Round pipe penetrations less than 18 inches (460 mm) in diameter and square penetrations less than 4 inches (200 mm) square.
11. Install materials in strict accordance with safety requirements required by roofing-system manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations.
12. Follow safety procedures of OSHA and other applicable governing agencies. Assume responsibility for Work area safety at all times.
13. Maintain adequate ventilation during installation of roofing materials. Notify Owner's Representative at least one week in advance of Work with materials with noxious vapors. Review application schedule and venting precautions with Owner's Representative prior to beginning application.

### **3.6 FLASHING AND ACCESSORIES INSTALLATION**

- A. Install flashings including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.

### **3.7 FIELD QUALITY CONTROL**

- A. Architect will perform periodic site visits at various stages of construction to observe the Work.
- B. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e., not a sales person).
- C. Perform all corrections necessary for issuance of warranty.

### **3.8 CLEANUP**

- A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.
- B. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
- C. Collect surplus roofing materials that cannot be reused and deliver to recycling or disposal facility.

- D. Treat materials that cannot be reused as hazardous waste and dispose of in an appropriate manner.

**END OF SECTION**

**SECTION 07 72 00****ROOF ACCESSORIES****PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1-Specification sections, apply to work of this section.

**1.2 DESCRIPTION**

- A. Work Included: Work consists of furnishing all labor, materials and equipment necessary to effectively install new pre-manufactured utility supports and to seal dissimilar materials at critical junctions, but not necessarily limited to the following:
  - 1. Utility supports.
  - 2. Walkway Protection
  - 3. Miscellaneous accessories.
- B. Related Work Specified Elsewhere
  - 1. Selective Demolition (Roof Removal): Section 02 41 00.
  - 2. Thermoplastic Polyolefin (TPO) Roofing: Section 07 54 23
  - 3. Joint Sealants (Roofing): Section 07 92 00.

**1.3 QUALITY CONTROL**

- A. Requirements of Regulatory Agencies: The Work under this section shall be subject to all applicable provisions of the state and local building and safety codes.
- B. Qualifications
  - 1. Prior to the Notice of Award, the Contractor shall submit evidence that his existing company has five (5) years continuous successful experience in applying specified material(s) and is currently an approved applicator for the specific material manufacturer(s).
- C. Reference Standards: Except as modified by the Drawings and Specifications, the following documents or applicable portions thereof, govern the work.



1. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) “Architectural Sheet Metal Manual - Fourth Edition.”
2. National Roofing Contractors Association (NRCA) “Roofing and Waterproofing Manual-Fifth Edition.”

#### **1.4 SUBMITTALS**

- A. Required Prior to Commencement of Work
  1. Manufacturer’s literature, Material Safety Data Sheets and application instructions. All submittals shall be made in triplicate. When submitting manufacturer’s literature, highlight all items pertaining to this project.
  2. Shop drawing of new roof accessory.
- B. Required After Completion of Work
  1. Contractor’s Warranty per Section 00 70 00.

#### **1.5 PRODUCT DELIVERY AND STORAGE**

- A. Delivery of Materials: Deliver material to jobsite in sealed, undamaged containers. Identify each container with material name, date of manufacturer, and lot number.

#### **1.6 JOB CONDITIONS**

- A. All dimensions and existing details shall be field-verified by Contractor prior to bidding and acquisition or installation of materials. Contractor shall notify the engineer of any existing condition found to be different than that indicated in the Contract Documents. Engineer shall review the situation and inform Contractor of necessary changes, if any.
- B. Install materials in strict accordance with all safety and weather conditions required by manufacturer, product literature, Material Safety Data Sheets, or of local, state, federal rules and regulations, and standard practice.

#### **1.7 WORK SEQUENCE**

- A. Do not install roof specialties and accessories materials when rain is imminent. Do not remove excessive quantity of existing materials ahead of re-installing new.
- B. Installation of new roof specialties and accessories shall be coordinated with roof removal operations defined in Section 02 41 00 - Selective Demolition.

## 1.8 CHANGES IN THE WORK

- A. During reroofing work, the Contractor may encounter existing conditions which are not now known or are at variance with the Drawings or Specifications (discovery). Such conditions may interfere with reroofing work and may consist of damage or deterioration to the deck or surrounding materials or components which could jeopardize the integrity of the new roof. The Contractor shall notify the Engineer of all discoveries he/she believes may interfere with proper execution of the work or jeopardize the integrity of the new roof prior to proceeding with the work related to such discoveries.
- B. In the event of discrepancies within the Drawings, within the Specifications, or between the Drawings and Specifications, the more stringent of the two items shown shall be considered to be shown or specified at all locations where the discrepancies occur. The Engineer shall be notified of such discrepancies.
- C. When a substitute or alternate is requested by the Contractor, and such substitute or alternate is accepted by the Engineer, the Contractor shall bear all additional costs which may arise directly or indirectly from the use of the substitute or alternate.

## 1.9 WARRANTY

- A. Contractor's Warranty: (by Contractor to Owner). Applies to all installed roof specialties and accessories (refer to Section 00 70 00).

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Utility Supports
  - 1. Utility Supports: Type suitable for height and size of pipe over utility line as manufactured by Cooper B-Line of Highland, Illinois, or Engineer-approved equal.
  - 2. Modify existing supports to accommodate slope of new roof system.
- B. Walkway Protection
  - 1. Flexible Walkway: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16-inch thick; approved by roofing-system manufacturer.
  - 2. Color approved by Owner.

## **PART 3 EXECUTION**

### **3.1 PREPARATION OF SUBSTRATE**

- A. Examine the surface condition of the substrate under which support is to be installed. Do not proceed with the new installation until unsatisfactory conditions have been corrected in a manner approved by the Architect/Engineer.
- B. Clean the substrate of obstructions and substances detrimental to the work.
- C. Proceeding with the work shall signify the Contractor's acceptance of the substrate being used under supports.

### **3.2 UTILITY SUPPORT INSTALLATION**

- A. Install protection over roofing and under support.
- B. Install new supports as needed; adjust to slope of roof and height of utilities.
- C. Utility lines must be properly supported and will not require raising or lowering for installation of supports.

### **3.3 WALKWAY PROTECTION INSTALLATION**

- A. Install walkways on roof membrane at doors; on three sides of hatches; below equipment and supports; at base and top of roof access ladders; at base of HVAC access ladders; below prefabricated, service-line supports; below duct supports, service lines, and condensate lines; and at other locations indicated.
- B. Installation and location of walkway shall adhere to the requirements of OSHA.
- C. Installation of walkways shall be in strict accordance with the manufacturer's requirements. Any walkway material that is found to be in non-conformance with the contract documents, manufacturer's requirements, or OSHA shall be removed and replaced. If removal is determined to be more detrimental to the work than leaving in-place, the contractor shall reimburse the owner for each walkway pad found to be in non-conformance.
- D. Use only full-size units, except partial units at corners if necessary to provide neat, finished appearance. Walkway material shall not conflict or be installed over membrane detail flashings or field seams.
- E. Provide 2-inches minimum between adjacent units. Extend walkway 6-inches minimum beyond edges of equipment supports.
- F. Sweep loose surfacing material from walkway locations.

- G. Adhere pads or rolls to substrate with compatible adhesive, in accordance with recommendations of walkway and roofing-system manufacturers.

### **3.4 CLEANUP**

- A. Remove trash, debris, and equipment from the jobsite.
- B. Repair damage and remove stains caused by the Work.

**END OF SECTION**

## **SECTION 07 92 00**

### **JOINT SEALANTS (ROOFING)**

#### **PART 1 GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1-Specification sections, apply to work of this section.

##### **1.2 DESCRIPTION**

- A. Work Included: Work consists of furnishing all labor, materials and equipment necessary for complete application of all sealant, as shown on Drawings or described in these Specifications, including, but not necessarily limited to, the following:
  - 1. Surface preparation including primers.
  - 2. Joint backup material.

##### **1.3 QUALITY CONTROL**

- A. Requirements of Regulatory Agencies: Work under this section shall be subject to all applicable provisions of federal, state and local rules and regulations.
- B. Applicator: Company specializing in application of sealants with five (5) years minimum experience and be acceptable to manufacturer.
- C. Adhesion tests: Prior to any sealant application, perform adhesion tests as directed by sealant manufacturer's technical representative.

##### **1.4 SUBMITTALS**

- A. All submittals required under this section will be submitted to the Engineer.
- B. Submittals: Manufacturer's literature, Material Safety Data Sheets and application instructions for each type of material used.

##### **1.5 PRODUCT DELIVERY AND STORAGE**

- A. Delivery: Deliver materials to jobsite in sealed, undamaged containers. Identify each container with material name, date of manufacture, and lot number.

## 1.6 JOB CONDITIONS

- A. Install sealant materials in strict accordance with all safety and weather conditions recommended by manufacturer, product literature, or Material Safety Data Sheets. Do not proceed with installation of sealants under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations for installation. Proceed only when forecasted weather conditions are favorable for proper cure and development of high-early bond strength. Wherever joint width is affected by ambient temperature variations, install elastomeric

sealants only when temperatures are in lower third of manufacturer's recommended installation temperature range.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

#### A. Approved Sealants

1. One-Component polyurethane low-modulus, non-sag sealant: Tremco "Dymonic," Pecora "Dynatrol I," Sonneborn "Sonolastic NP-1," Sika "Sikaflex 1a" or Sikaflex 15 LM."
2. Tape: For concealed metal-to-metal contact, use polyisobutylene type, non-skinning, non-drying tape: 1-inch minimum width, 1/16-inch minimum thickness Presstite "579 Series," PPG" Duribbon 1072, "Tremco "440 TAPE."

#### B. Sealant Primer

1. Use primer recommended by manufacturer of sealant used, for each specific application.

#### C. Backup Material for All Sealants

1. Sealant Backer Rod: Compressible rod stock of closed cell polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible permanent, durable non-absorptive material as recommended by sealant manufacturer for compatibility with sealant used.
2. Bond Breaker Tape: Polyethylene tape or other bond breaker as recommended by sealant manufacturer to be applied to sealant contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape wherever applicable.
3. Expansion Joint Filler: Closed cell polyethylene foam, as recommended by sealant manufacturer and compatible with sealants used.

#### D. Colors: For exposed materials provide color as selected by Owner from manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.

#### E. Compatibility: Before purchase of each required material, confirm its compatibility with each other material it will be exposed to in the joint system.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- A. Preparation must be done in a good and workmanlike manner which meets recommendation of manufacturer and the following minimum requirements or standards.

### **3.2 INSPECTION**

- A. Examine surfaces where sealant is to be applied for:
  - 1. Defects or coatings on substrate that will adversely affect adhesion of sealants, or execution or quality of work.
  - 2. Deviations beyond allowable tolerances for installation of sealants.
- B. Do not start Work until unsatisfactory conditions are corrected.
- C. Beginning of installation means acceptance of substrate.

### **3.3 JOINT DESIGN**

- A. Sealant depth is measured at the center (thin) section of sealant bead.
- B. Install sealants to depths and widths as recommended by sealant manufacturer. Also, conform to the following general limitations if not in conflict with sealant manufacturer's recommendations:
  - 1. For normal moving joints not subject to traffic, fill joints to a depth equal to 50 percent of joint width, but neither more than 5/8 inch deep nor less than 1/4 inch deep.
  - 2. Depth of sealant must not exceed width of joint.
  - 3. Sealant joints shall not be less than 1/4 inch in width and 1/4 inch in depth.

### **3.4 SURFACE PREPARATION**

- A. Preparation work shall result in clean surfaces in all areas where sealant is to be adhered. Such surfaces shall be free of any old sealant, contaminants and impurities which are deleterious to bonding or adhesion of primers or sealant.
- B. Clean ferrous metals of all rust, mill scale and coatings by wire brush or grinding. Any equipment used to remove rust shall be free of oil contaminants.
- C. Wire brush masonry joint surfaces, then blow clean with oil-free compressed air.



- D. Wipe all glass and aluminum surfaces clean per manufacturer's recommendations as needed to remove surface contamination.
- E. Apply primer per manufacturer's recommendations. Allow primer to dry prior to applying sealant.
- F. Do not caulk joints until they are clean, dry, and free of dust, loose mortar, old sealant, foreign matter or other bond inhibiting materials, and in compliance with requirements of manufacturer of materials, details shown on Drawings, and specific requirements of other sections of Specifications.

### **3.5 JOINT BACKING**

- A. Use joint backing to control depth of joint to specified thickness.
- B. Select joint backing size to allow for 25 percent compression of backing when inserted into joint.
- C. Where depth of joint will not permit use of joint backing, or wherever recommended by sealant manufacturer, install bond-breaker tape to prevent three-sided adhesion.
- D. Do not leave voids or gaps between ends of joint backing units.

### **3.6 APPLICATION OF SEALANT**

- A. Apply sealants neatly, in a good and workmanlike manner which meets following minimum requirements or standards. Specific instructions of manufacturer must also be followed.
- B. Apply sealant using a gun with proper size nozzles. Use sufficient pressure to fill all voids and joints solid to backup material, with complete wetting of all joint bond surfaces.
- C. Applied sealant shall form a full, smooth, uniform bead, free of ridges, wrinkles, sags, air pockets and embedded impurities.
- D. After joint has been completely filled with sealant, neatly tool joint sealant to eliminate air pockets or voids, and to provide a smooth, slightly concave, neat appearing finish, with sealant surface slightly below adjoining surfaces. Wetting of finished surface will not be allowed.
- E. Where horizontal joints are located between a horizontal surface and vertical surface, fill joint to form a slight cove, so joint will not trap moisture and dirt.
- F. Protect adjacent surfaces and systems from sealant material. Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### **3.7 CURE AND PROTECTION**

- A. Cure sealants in compliance with manufacturer's instructions and recommendations, to obtain high-early bond strength, internal cohesive strength and surface durability. Protect joint sealers during construction period so they will be without deterioration or damage (other than normal wear and weathering) at time of acceptance by Owner.

### **3.8 JOBSITE CLEANUP**

- A. Sealant applicator must remove all excess materials from jobsite.
- B. Leave all surrounding areas where joint sealant has been applied free of excess sealant, debris and foreign substances.

**END OF SECTION**

## SECTION 23 00 75

### ROOF RELATED MECHANICAL WORK

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Disconnect, rewire, and reconnect all electrical connections, junction boxes, and switches of all kinds relating to the air conditioning or air handling equipment, and reconnect in accordance with all provisions of the International Building Code.
- B. Install new cutoff switches as required for Code compliance.
- C. Disconnect all gas lines on the rooftop and raise all elbows a minimum of 12 inches above the plane of the finished roof. Reconnect and test in accordance with Code requirements.
- D. Furnish all new curbs required for proper sizing of new equipment. Existing curbs may be reused where sizes match.
- E. Install structural bracing as needed beneath each curb for proper support and structural integrity.
- F. Provide new guardrails for any existing or new equipment that is located closer than 10 feet to a roof edge, unless the edge is a parapet that is at least 44 inches high.
- G. Paint all gas lines "safety yellow".

##### 1.2 ROOF MEMBRANE PROTECTION REQUIREMENTS

- A. Wherever a contractor is working on an existing roof membrane, the Contractor shall protect all traffic points where equipment is being lifted, set, or moved across the roof and all work areas by the workers or crews.
- B. Such rooftop protection shall extend to not overloading the structure, denting, deflecting, crushing, or compressing the roof deck or roof insulation beneath the roof membrane.
- C. The Contractor shall set all loads over columns or structural beams designed to support such loads. Wherever equipment is to be set on the roof membrane temporarily, the roof shall be protected in the following manner.
  - 1. 1/2-inch plywood shall be laid over the roof membrane, and the equipment set either on pallets, wood runners, or timbers of a suitable size, resting on the plywood to spread the load over a larger area and avoid point or concentrated loads.
- D. In addition to protecting the roof temporarily from concentrated loads, plywood shall be laid in all areas where workers will be standing or setting tools, or equipment used in the rooftop MEP work. The roof is not to be used as a work surface without 1/2-inch plywood laid over the area. This extends not only to foot traffic, but also to such equipment as sawhorses, pipe cutters, and other similar devices.
- E. Wherever personnel are to traffic, or equipment is to be transported across the roof, plywood runways shall be laid across the roof as a temporary walkway to protect the roof from damage

from such traffic or transportation. At the end of each day, all plywood protection of any type is to be taken up, banded, and bundled in such a manner as to protect it from causing wind damage. Such plywood shall be stored on the roof in a safe and secure manner, and any damage to the roof or other building components or features from blowing of any protection materials or any other loose components, parts, or pieces shall be the responsibility of the Contractor.

- F. Upon completion of the Work, the roof is to be cleaned completely of all debris, trash, pieces, parts, screws, metal slivers, or any other items left over from the Work.

### **1.3 WARRANTY**

- A. Contractor's Warranty - Furnish a two (2) year warranty against defects in workmanship and materials.

### **1.4 QUALITY ASSURANCE**

- A. Authorities - All Work shall be installed in strict compliance with the following authorities:
  1. (NFPA) National Fire Protection Association
  2. (OSHA) Occupational Safety and Health Administration
  3. (NEC) National Electrical Code
  4. (ASHREA) American Society of Heating And Refrigeration Engineers
  5. (IBC) International Building Codes
  6. (EPA) Environmental Protection Agency
  7. (IMC) International Mechanical Codes
- B. Where licenses or certifications are required, all such workers performing said work shall be licensed or certified as required including but not limited to.
  1. Plumbing
  2. HVAC
  3. Electrical
  4. Controls, Data, and Security

## **PART 2 PRODUCTS**

### **2.1 PRODUCTS**

- A. Approved Manufacturers - All replacement parts, components, and fittings shall be as specified by the original manufacturer of the equipment.

## **PART 3 EXECUTION**

### **3.1 FIELD QUALITY CONTROL**

- A. The Contractor shall inspect each piece of equipment prior to commencing Work, verify its performance in the presence of the Roofing Architect/Engineer, and note any deficiencies in performance in writing.

### **3.2 DISCONNECTION**

- A. All electrical and plumbing equipment shall be disconnected by licensed electricians or plumbers and safely deactivated prior to any Work by Contractor's own forces.

### **3.3 TEMPORARY RELOCATION**

- A. Units shall be moved aside and stored on wood blocking and plywood in order to provide access to roofing membrane beneath equipment. All metal flashings tying directly into the existing roof membrane shall be removed and replaced.

### **3.4 CURB-TYPE FLASHINGS**

- A. All penetration flashings shall be replaced with wood curbs fastened securely to the deck with wood cants as detailed elsewhere. All curbs shall extend a minimum of 16 inches above the plane of the finished roof. All curbs shall be sized in such a manner as to permit 1-inch clearance on all sides between the curb and mechanical or electrical device resting on the curb. Such clearance is required to permit proper roofing material flashings without gouging the corners.
- B. Curbs may be prefabricated (such as Thycurb LM) or constructed with lumber and plywood, but the configuration must match the details in the Drawings when finished. Linear curbs are not permitted unless specifically shown and noted on the Drawings.

### **3.5 ELECTRICAL AND PLUMBING CONNECTIONS**

- A. All electrical conduit (flexible or rigid) shall be neatly collected and gathered into one uniform bundle, banded at 6-inch intervals, and run in the most direct way from either end of the connections. However, the conduit and plumbing lines shall not be stretched or laid on the roof membrane itself. Such lines shall be supported as detailed.

### **3.6 DRIP LOOPS**

- A. All conduit or condensation lines run from curb type flashings with metal covers shall be sloped downward from the highest point in such a manner as to cause rain water to flow away from the flashing.

### **3.7 HOODED FLASHINGS**

- A. All conduit and piping shall be flashed using permanent wood or steel curbs with hooded covers. Pitch pans are not permitted for any reason. All hooded flashings shall have all joints and connections soldered or welded as appropriate for the metal gauge being employed. Joints using sealant as the primary waterproofing agent are not acceptable.

### **3.8 COUNTERFLASHINGS**

- A. Equipment cannot be its own counterflashing. All mechanical and electrical devices shall have a two-piece counterflashing/receiver installed over the bituminous roof flashing prior to installation of the mechanical or electrical device.

### **3.9 CLEAN-UP**

- A. All bitumen, plastic cement, primer, and other bituminous material shall be cleaned off all mechanical equipment, sheet metal flashings, and conduit thus providing a neat, clean, and professional appearance.

### **3.10 OPERATION AND TESTING**

- A. Upon reconnection, each unit shall be tested in the presence of the Roofing Architect/Engineer and Owner's representative. All units shall be placed in the operating condition existing upon commencement of the job. Repairs resulting from damage to units from moving, relocation, disconnection, and reconnection shall be the Contractor's responsibility.

### **3.11 HEATER EXHAUST VENTS**

- A. All heater exhaust vents shall be installed in such a manner as to avoid contact between a heated pipe and wood decking or framing of any sort. The hole shall be enlarged and framed as necessary to accommodate the heated pipe with clearances as required to meet the Code.

**END OF SECTION**

**RESOLUTION NO. 2023-02**

**RESOLUTION OF THE BASALT REGIONAL LIBRARY DISTRICT  
IN OPPOSITION TO THE STATEWIDE PROPOSAL, PROPOSITION HH**

WHEREAS, the vast majority of local governments, but not the State of Colorado, levy a property tax to support essential public services and infrastructure;

WHEREAS, special districts are more dependent on property tax revenue than any other type of local government, as it is often their primary or even sole source of revenue;

WHEREAS, inflation from 2020 to 2023 has increased by nearly 18 percent and special districts have not benefitted from increased sales and use tax receipts to offset increased costs of labor, materials, and services;

WHEREAS, special districts played a historic role in responding to the demands of the COVID-19 pandemic, but received few, if any, federal relief funds;

WHEREAS, Proposition HH will mandate reductions in local property taxes for at least ten years, resulting in billions of dollars of lost revenue for local governments without any reduction in service obligations;

WHEREAS, Proposition HH will increase the State's TABOR spending limit, allowing the State to spend billions of dollars more than it did before, while placing a property tax revenue limit lower than allowed by TABOR on local governments;

WHEREAS, the ballot question for Proposition HH indicates that local governments will be reimbursed from state funds for lost property tax revenue, but that those reimbursements are a small percentage of the billions of dollars more that the State will retain, and that most special districts will be ineligible for reimbursements early in the ten-year period of Proposition HH;

WHEREAS, special districts have worked with their local voters to propose and approve property taxes, or to retain and spend revenues therefrom, to support services, facilities and infrastructure needed and desired by the community and, more generally, to support public health, welfare, and safety; and

WHEREAS, Proposition HH undermines the short- and long-range planning efforts of Colorado's special districts that are necessary to absorb inflationary pressures, to increase salaries and compensation for employees, to support existing and grow new public programs, to construct and maintain government infrastructure, and to respond to the needs and emergencies of Colorado's communities.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE BASALT REGIONAL LIBRARY DISTRICT AS FOLLOWS:

1. It is the position of the Board of Trustees of the Basalt Regional Library District that special districts and their constituents are best suited to determine the revenues necessary to meet the needs, expectations, and demands of the communities they serve.
2. The Board of Trustees recognizes that special districts are accountable to their local voters, who may take action if the taxes they pay are not warranted for the services, facilities, and infrastructure provided by special districts in their communities.
3. *[Insert District specific observations and concerns into this list. Will these impacts impair short- or long-term planning? What services may be impacted? What projects will be pushed out or postponed indefinitely? Has your District had recruitment and retention issues? Has your District had difficulty in procurements, purchases, or capital materials due to inflation? Insert as many resolutions in this list as may be necessary to give context to your District's concerns].*
4. For the reasons set forth above, the Board of Trustees concludes that Proposition HH diminishes the ability of Basalt Regional Library District to provide the vital services, facilities, and infrastructure that the public needs, expects, and demands; and, therefore, the Board strongly urges a NO vote on Proposition HH at the statewide election on November 7, 2023.

APPROVED AND ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 2023 by the Board of Trustees of the Basalt Regional Library District.

Signed,

\_\_\_\_\_  
Elaine Nagey, Board President

\_\_\_\_\_  
Jim Albert, Board Trustee

\_\_\_\_\_  
Carolyn Kane, Board Vice President

\_\_\_\_\_  
Enid Ritchy, Board Trustee

\_\_\_\_\_  
Eric Pelander, Board Treasurer

\_\_\_\_\_  
Deb Smith, Board Trustee

\_\_\_\_\_  
Margaret Simmons, Board Secretary



The library has had difficulty hiring for its entry-level positions due to the cost of living and limited housing in our area. The library also finds that employees often cite low pay as a major reason for leaving the library. If Proposition HH passes, it will result in a decrease of \$90,000 in revenue in 2024 which would directly relate to a lower increase to pay for employees. This will directly relate to positions remaining unfilled, and a decrease in services the library is able to provide to the community.



## **BASALT REGIONAL LIBRARY DISTRICT CLOSURE POLICY**

It is the policy of the Basalt Regional Library District (BRLD) to provide library services to the community as many days each year as possible, and the library provides access to information and resources no fewer than fifty-one hours each week. The Board also recognizes some occasions may require the library to be closed during normal open hours for legally recognized holidays, weather-related events, for staff professional development, or for building maintenance. The library may also need to be closed in the unlikely event of an emergency, safety issue, or staffing challenge.

### **NOTIFICATIONS OF CLOSURES:**

Notification upcoming non-emergency closures will be posted on all electronic interfaces (voicemail, website, Facebook, etc.) and at the front doors of the building.

Notification of emergency closures will be posted as soon as possible on all electronic interfaces (voicemail, website, Facebook, etc.) and at the front doors of the building, and library staff will alert local radio stations.

### **HOLIDAYS:**

Basalt Regional Library District will be closed in honor of the following holidays each year:

- New Year's Day
- Easter Sunday
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- The Friday after Thanksgiving
- Christmas Eve (1/2 day)
- Christmas Day

When Independence Day, Christmas, and/or New Year's Day fall on a weekend, at the discretion of the Executive Director, the library may close for a Holiday Observed on a weekday to facilitate holiday scheduling.

### **STAFF TRAINING**

BRLD will be closed two days per year for staff professional development.

### **WEATHER-RELATED CLOSURES:**

To protect our employees from dangerous weather and/or road conditions, BRLD will follow the weather-related closings of RE-1 School District. Therefore, in the event RE-1 closes for a weather-related event, the library will also close for the day at the discretion of the Executive Director.

In the event of dangerous weather and/or road conditions on non-school days, The Executive Director may close the library at his/her/their discretion.

### **BUILDING MAINTENANCE CLOSURES:**

Executive Director has the authority to close the library for routine and preventive maintenance as necessary with adequate notice provided to the library board and patrons.

**PANDEMIC AND EMERGENCY CLOSURES:**

BRLD will close due to a pandemic, natural disaster, or other local emergency on the recommendation of or order by local, county, state, or federal government officials. At the discretion of the Executive Director, BRLD may extend the closure, reduce operating hours, or limit services temporarily due to health or emergency concerns or staffing levels.

1. Although BRLD encompasses territory in both Eagle and Pitkin counties, BRLD’s physical building resides in Eagle County. For purposes of monitoring pandemic outbreaks or other emergencies, BRLD must abide by Eagle County regulations.
2. If the emergency pertains to the flow of populations across counties, then the Executive Director or task force will take into further consideration the emergency status of neighboring counties.



**BASALT REGIONAL LIBRARY DISTRICT Basalt Regional Library District  
CLOSURE POLICY Library Holiday and Closure Policy**

**Board Policy**

It is the policy of the Basalt Regional Library District (BRLD)'s Board of Trustees understands the importance of providing library services to the community as many days each year as possible, and the library strives to provide access to information and resources no fewer than fifty-one hours each week. The Board also recognizes some events-occasions may require the library to be closed during normal service-open hours for legally recognized holidays, weather-related events, for staff professional development, or for building maintenance. The library may also need to be closed in the unlikely event of an emergency, safety issue, or staffing challenge.

**NOTIFICATIONS OF CLOSURES: Administrative Policy**

~~Holidays: A listing of Library Holidays will be~~ Notification upcoming non-emergency closures will be posted on all electronic interfaces (voicemail, website, Facebook, etc.) and at the front doors of the building the building closings

~~Notification of emergency closures will be posted as soon as possible on all electronic interfaces (voicemail, website, Facebook, etc.) and at the front doors of the building, and library staff will alert local radio stations.~~

**Holidays HOLIDAYS:**

Basalt Regional Library District will be closed in honor of the following holidays/~~days~~ each year:

- New Year's Day
- Easter Sunday
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- The Friday after Thanksgiving
- Christmas Eve (1/2 day)
- Christmas Day

~~When Independence Day, Christmas, and/or New Year's Day fall on a weekend, at the discretion of the Executive Director, the library may close for a Holiday Observed on a weekday to facilitate holiday scheduling.~~

~~Holidays: A listing of Library Holidays will be posted on the Library's website and front of the building to alert patrons to upcoming closings.~~

**STAFF TRAINING**

BRLD will be closed two days per year for staff professional development.

• **WEATHER-RELATED CLOSURES:**

~~To~~ **Weather related Closings:** In an effort to protect our employees from dangerous weather and/or road conditions, Basalt Regional Library District BRLD will follow the weather-related closings of RE-1 School District. Therefore, in the event RE-1 closes the Basalt schools for a weather-related event, the library/library will also be closed for the day at the discretion of the Library Executive Director.

In the event of dangerous weather and/or road conditions on non-school days, The Executive Director

may close the library at his/her/their discretion.

In the event of a weather-related closing, library staff will alert local radio stations and a message will be listed on the library's automated phone attendant. A notice outlining the weather-related closing procedures will be posted on the front of the building during the winter months.

**BUILDING MAINTENANCE CLOSURES:**

**Building Maintenance Closings:** ~~Routine building maintenance is required to prevent long-term building issues. The Executive Director is responsible for the maintenance and operation of the physical plant and, therefore, has the authority to close the library for routine and preventive maintenance as necessary given with adequate notice, preferably one month, is provided to the library board and patrons.~~

~~**Holidays:** A listing of Library Holidays will be posted on the Library's website and front of the building to alert patrons to upcoming closings.~~

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~~**Weather related Closings:** In the event of a weather-related closing, library staff will alert local radio stations and a message will be listed on the library's automated phone attendant. A notice outlining the weather-related closing procedures will be posted on the front of the building during the winter months.~~

~~**Building Maintenance:** Notice will be posted as soon as possible on the Library's website and on the front of the building. Notification also will be sent out in the e-mail newsletter and listed on the Library's automated phone attendant.~~

**PANDEMIC AND EMERGENCY CLOSURES:**

BRLD will close due to a pandemic, natural disaster, or other local emergency on the recommendation of or order by local, county, state, or federal government officials. At the discretion of the Executive Director, BRLD may extend the closure, reduce operating hours, or limit services temporarily due to health or emergency concerns or staffing levels.

1. Although BRLD encompasses territory in both Eagle and Pitkin counties, BRLD's physical building resides in Eagle County. For purposes of monitoring pandemic outbreaks or other emergencies, BRLD must abide by Eagle County regulations.
2. If the emergency pertains to the flow of populations across counties, then the Executive Director or task force will take into further consideration the emergency status of neighboring counties.

~~Policy Review Date: April 2015~~

**Basalt Regional Library District**  
**Pandemic and Emergency Policy**

**Board Policy**

It is the policy of the Basalt Regional Library District (“BRLD”) to protect our patrons and staff during a community emergency.

**Administrative Policy**

BRLD will close due to a pandemic, natural disaster, or other local emergency in the event of an order or on the recommendation for closure issued by government officials on the local, county, state or federal level. At the discretion of the Library Executive Director or the Library Board President, BRLD may extend the closure, reduce operating hours, or limit services temporarily due to the concern of maintaining the health and safety of BRLD patrons, staff, and community.

**Procedures**

1. Appropriate or recommended mitigation methods will be employed by the Executive Director and staff in the case of a pandemic or other emergency. A task force committee may be created at the discretion of the Executive Director or the Library Board President to conduct ongoing mitigation methods as needed.
2. Although BRLD encompasses territory in both Eagle and Pitkin counties, BRLD’s physical building resides in Eagle County. For purposes of monitoring pandemic outbreaks or other emergencies, BRLD must abide by Eagle County regulations. If the emergency pertains to the flow of populations across counties, then the BRLD task force will take into further consideration the emergency status of neighboring counties. [Click here to view the District map.](#)
3. To protect the entire BRLD community and prevent the spread of pandemic outbreaks, BRLD employees and volunteers must abide by the vaccination protocol set forth in the Employee Handbook.
4. Notifications of reduced services or closure will be posted on entry doors, and all electronic interfaces (voicemail, BRLD website, Facebook, etc).

Patrons are encouraged to contact a library staff member with any questions or concerns.

Revised and Adopted: March, 2015

Revised and Adopted: September 20, 2021