

**LESSONS LEARNED REGARDING INSURANCE CLAIMS FOR  
CODE UPGRADE COSTS AFTER THE  
EAST TROUBLESOME FIRE IN GRAND COUNTY  
COLORADO IN OCTOBER 2020**

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**GRAND COUNTY BUILDERS ASSOCIATION**

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This publication is for general information only. It is not intended to constitute legal advice. The information in this document may not be completely up to date or accurate. It is strongly recommended that you consult with an attorney to ensure that you have the correct information.

## **BACKGROUND**

In late October of 2020, the East Troublesome Fire destroyed approximately 400 residences in Grand County, Colorado. In response to that disaster, the Grand County Builders Association (GCBA) formed a subcommittee of members to use their local experience and expertise in assisting homeowners to rebuild their homes and to collect fair reimbursements from their homeowners insurance policies.

Most residential insurance policies include basic coverage or an endorsement for “Code Upgrades” or “Ordinance and Law” or some similar name. Such coverage allows the owner to be reimbursed for “**increased** costs to repair or rebuild the damaged structure in compliance with more stringent codes which have been adopted since initial construction of the damaged structure.”

Most policies will have a separate policy limit for the maximum reimbursement allowed for “Code Upgrades.” A common limit is 10% of policy limits on Dwelling Coverage A. For example, if Coverage A, policy limit were \$800,000, then “Code Upgrade” limit would be \$80,000. It is important for homeowners to read the detailed language of their policy to get a clear understanding of their coverage (if any) for Code Upgrades.

## **HOW TO DOCUMENT A CLAIM FOR “CODE UPGRADES”**

Unfortunately, insurance companies have no standard form for this type of claim. It is up to the insured to make a best guess as to what should be submitted and see how the insurance company responds. Later in this document, there are several examples of claim submittals which were acceptable to different insurance companies. These examples are only to provide a general idea of pertinent topics and rough idea of dollar values for different topics.

Do not try to copy these examples and submit them for your house. They will not be directly applicable. If your damaged home is more than 20 years old, there have been several building code revisions since its original construction. In that case, your project will often qualify for your policy limits on code upgrades. If your damaged home is only a few years old, your allowable reimbursement will probably be less than policy limits but could still be several thousand dollars.

If your builder uses a typical “Schedule of Values”, then the easiest submittal would be to have the builder (or you) submit a spreadsheet (like the examples on pages 5 and 6) and hope that your insurance company (or your adjuster) accepts that form. The two examples were submitted to the same insurance company and paid in full without question. However, a different builder submitted similar documentation (to the same insurance company) and a different adjuster rejected that claim. He requested additional information to identify the specific code paragraphs associated with each line item.

If your builder’s spreadsheet doesn’t satisfy your adjuster, you might need to hire an independent cost estimator or a public adjuster to prepare a detailed Xactimate estimate based on what your

insurance company already did in their 100 page +/- summary of loss. That kind of independent estimate will probably cost a few thousand dollars, but if you get paid the policy limits, it could be money well spent.

The most costly “Code Upgrade” items that apply to most houses are recent energy-code items such as higher quality windows, wall insulation, roof insulation, air sealing, ventilation, and electrical. You should focus first on those items until you get to your policy limits. Actually, it would be best for a homeowner to document upgrade costs that exceed their policy limits by 20-40%. In that case, even if the insurance company denies some of the items, you can probably still receive the policy limits.

These are complex and messy items to deal with, but hopefully these examples are helpful in submitting your claim to maximize the money that you are owed under terms of the policy

## **HOW CAN YOU HELP YOUR ADJUSTER ACCEPT YOUR CLAIM?**

Adjusters generally aren’t well versed in “Code Upgrades” for a specific region. They are often inexperienced, overworked or not familiar with local codes. The more detailed your estimate is and the more justification you can provide, the more likely you can get your “Code Upgrade” limit paid.

Every adjuster’s skill level and experience is different. Some adjusters are aware of building codes in your area and will have the knowledge to add to your claim. However, most adjusters will not know building codes specific to your situation. In major disasters, adjusters usually come from different regions of the country. They will not have knowledge of local building codes. You will benefit by providing maximum building code details to your adjuster.

Adjusters often handle 30-40 claims at any given time, so the more work you can do for them the more likely that your claim items will be paid. The more detailed you are with code items, (i.e. providing specific code language and where to find in the code book) the less work the adjuster must do to justify payment for the items. All payments must be reviewed by management, so if you provide the justification for payment to your adjuster, it will have a better chance of being paid.

Isolate “Code Upgrade” items from normal re-build items on your estimates. This takes a lot of work off the adjuster’s plate. Insurance companies want to close claims quickly. Doing their work for them increases chances of getting the settlement amount you need to re-build.

Educate yourself on your policy limits and submit “Code Upgrade” estimates that are 20-40% above your policy limit. Showing that you have certain policy limits and total “Code Upgrade” amounts that exceed limits will often prompt the adjuster to pay the limits quickly. When they go to management and show those calculations, management will say “pay it”.

## **BRIEF HISTORY OF GRAND COUNTY BUILDING CODES**

The 1997 Uniform Building Code (UBC) was the last version of the Uniform Codes. It was replaced by the 2000 Edition of the International Residential Code (IRC). There have been eight substantial revisions to the IRC. Those code revisions were published in 2000, 2003, 2006, 2009, 2012, and 2015. The most recent IRC adopted by Grand County is the 2015 edition, but portions of the 2018 and 2021 codes are being considered for adoption in 2023. It will be important that your insurance claim incorporates requirements from the code edition that will be in force when your new plans are submitted to the local building department for review.

## **OTHER RESOURCES FOR INFORMATION ON CODES AND INSURANCE**

United Policy Holders	<a href="https://uphelp.org">https://uphelp.org</a>
National Association of Home Builders	<a href="mailto:gehrlich@nahb.org">gehrlich@nahb.org</a>
Home Innovation Research Labs	<a href="https://www.homeinnovation.com/">https://www.homeinnovation.com/</a>
Grand County Builders Association	<a href="https://gcbaco.com">https://gcbaco.com</a>
Grand County Building Department	<a href="https://www.co.grand.co.us/1120/Applying-for-a-Building-Permit">https://www.co.grand.co.us/1120/Applying-for-a-Building-Permit</a>

## **ACKNOWLEDGEMENT**

With appreciation to the Grand Foundation which provided funding and support to the Grand County Builders Association for their East Troublesome Fire Focus Group and preparation of this publication.

**THE FOLLOWING PAGES CONTAIN EXAMPLES OF DOCUMENTS THAT WERE SUCCESSFULLY SUBMITTED FOR REIMBURSEMENT FROM DIFFERENT INSURANCE COMPANIES**

**Builder’s Schedule of Values Submittal**

**Pages 6 & 7**

This is the simplest form of submittal. The builder used its normal schedule of values spreadsheet and simply added a column of costs defining “Code Enhancements.” These two submittals were successful in getting reimbursement of \$67,000 and \$54,000 respectively. The insurance company paid these amounts without any questions.

**Sample Xactimate Estimate**

**Pages 8 thru 10**

This sample submittal uses Xactimate software, which is favored by most insurance companies, so the adjuster will probably view this favorably. However, few home builders use this software. Submittal was for \$76,000.

**Detailed Log Home Claim**

**Pages 11 thru 16**

The owner-builder did this submittal using his own format. The construction materials and costs are unique to that log home. Code references were very specific including code section numbers and page numbers so the adjuster could easily see that the information was credible. Although the documents identified \$156,000 of code upgrades, the policy limits for this claim were \$104,000 which was paid without question.

**Santa Rosa, CA Claim**

**Pages 17 & 18**

This is the most detailed submittal and includes specific notes to back up each line item, so the adjuster had all the required references on the three pages. Many of the code upgrade items are unique to California codes which are more complex and expensive than other areas. That explains the “Code Upgrade” claim amount of \$256,000 for a 2000 sf home.

RESIDENCE SCHEDULE OF VALUES

Item #	Description	Original Budget	Code Upgrades	Revised Budget	Previous Applications	This Application	Total Completed To Date	Percentage Complete
1	10% Overhead & Fee	132,052.00	6,130.00	138,182.00				0%
2	General Liability Insurance	17,873.00	757.00	18,630.00				0%
3	3% Contractor's Contingency	38,484.00	1,763.00	40,247.00				0%
4	Temp Sanitation, Tools & Safety	4,201.00		4,201.00				0%
5	Earthwork & Utilities (Includes Septic/Leach & 1" Water)	95,947.00	3,373.00	99,320.00				0%
6	Site Maintenance & Dumpsters	8,109.00		8,109.00				0%
7	Allowance - Boulder Retaining Wall	9,175.00		9,175.00				0%
8	Foundation & Flatwork	60,841.00	6,290.00	67,131.00				0%
9	Exterior Site Concrete	11,179.00		11,179.00				0%
10	Structural Steel & Steel Connections	31,937.00		31,937.00				0%
11	Corrugated Wainscot/Siding	15,310.00		15,310.00				0%
12	Rough Carpentry	190,977.00		190,977.00				0%
13	Exterior Siding & Trm (Includes Prestain)	89,254.00		89,254.00				0%
14	Finish Carpentry	54,564.00		54,564.00				0%
15	Allowance - Cabinets & Built-ins	55,945.00		55,945.00				0%
16	Allowance - Cabinet Hardware	1,765.00		1,765.00				0%
17	Allowance - Countertops (Laminate & Granite)	26,750.00		26,750.00				0%
18	Roofing, Roof Accessories, Chimney Cap & Flashings	46,465.00	5,911.00	52,376.00				0%
19	Insulation & Damp Proofing	25,927.00	22,992.00	48,919.00				0%
20	Doors & Hardware	15,963.00		15,963.00				0%
21	Overhead Doors & Operators	5,467.00	746.00	6,213.00				0%
22	Allowance - Exterior Windows & Doors	73,230.00	19,466.00	92,696.00				0%
23	Allowance Shower Door	2,892.00		2,892.00				0%
24	Drywall (Level 4)	42,189.00		42,189.00				0%
25	Interior Paint & Stain	53,129.00		53,129.00				0%
26	Allowance - Tile (Labor & Material)	11,772.00		11,772.00				0%
27	Allowance - Stair Treads (Labor & Material)	1,950.00		1,950.00				0%
28	Allowance - Carpet & Pad (Labor & Material)	3,350.00		3,350.00				0%
29	Concrete Floor Finishes (Labor & Material)	18,825.00		18,825.00				0%
30	Interim & Final Cleaning	7,325.00		7,325.00				0%
31	Finish Protections	4,444.00		4,444.00				0%
32	Allowance - Fireplaces	12,946.00		12,946.00				0%
33	Allowance - Bath Accessories	1,000.00		1,000.00				0%
34	Allowance - Mirrors	1,200.00		1,200.00				0%
35	Building Address Signage	165.00		165.00				0%
36	Allowance - Appliances	24,000.00		24,000.00				0%
37	Plumbing System	55,116.00		55,116.00				0%
38	Allowance - Plumbing Fixtures	14,377.00		14,377.00				0%
39	Venting System & Garage Unit Heater	13,647.00		13,647.00				0%
40	Heating System	37,682.00		37,682.00				0%
41	Snow Melt System	5,305.00		5,305.00				0%
42	Electrical System & Secondary Lateral	55,892.00		55,892.00				0%
43	Allowance - Light Fixtures	13,269.00		13,269.00				0%
44	Structured Wiring & Security	19,885.00		19,885.00				0%
45	Building Permit Fees	4,147.00		4,147.00				0%
46	EGFD Fire Impact Fees	1,239.00		1,239.00				0%
47	Survey	5,317.00		5,317.00				0%
48	Allowance - Winter Conditions	12,600.00		12,600.00				0%
49	Allowance - Propane Tank & Service	2,500.00		2,500.00				0%
50	Allowance - Mountain Parks Electric Fees (By Owner)	-		-				N/A
51	Allowance - Pump & Accessories	15,000.00		15,000.00				0%
<b>Totals</b>		<b>1,452,578.00</b>	<b>67,428.00</b>	<b>1,520,006.00</b>	-	-	-	0%

SCHEDULE OF VALUES

August 2021

Building SF 3600

Item #	Description	Original Budget	Code Upgrades	Revised Budget	Previous Applications	This Application	Total Completed To Date	Percentage Complete
1	Overhead & Fee	143,145.00	5,803.00	148,948.00				0%
2	Contractor's Contingency (2%)	23,440.00	948.00	24,388.00				0%
3	General Liability Insurance	16,790.00	585.00	17,375.00				0%
4	Temp Sanitation, Tools & Safety	3,425.00		3,425.00				0%
5	Earthwork & Utilities	51,015.00	2,780.00	53,795.00				0%
6	Site Maintenance & Dumpsters	12,029.00		12,029.00				0%
7	Allowance - Boulder Retaining Walls	8,400.00		8,400.00				0%
8	Exterior Concrete Aprons & Patios	6,098.00		6,098.00				0%
9	Foundation & Flatwork	50,192.00	3,777.00	53,969.00				0%
10	Main Level Gypcrete	7,072.00		7,072.00				0%
11	Stone Work (Interior & Exterior)	25,838.00		25,838.00				0%
12	Structural Steel & Steel Connections	7,142.00		7,142.00				0%
13	Allowance - Interior/Exterior Railings	8,550.00		8,550.00				0%
14	Exterior Metal Wainscot	10,116.00		10,116.00				0%
15	Rough Carpentry & Timbers	257,151.00	7,953.00	265,104.00				0%
16	Exterior Trim & Decking (Includes Prestain)	43,346.00		43,346.00				0%
17	Finish Carpentry	49,340.00		49,340.00				0%
18	Allowance - Cabinets & Built-ins	43,256.00		43,256.00				0%
19	Allowance - Cabinet Hardware	602.00		602.00				0%
20	Allowance - Countertops (Granite)	18,000.00		18,000.00				0%
21	Roofing & Flashings	23,624.00	4,650.00	28,274.00				0%
22	Insulation & Damp Proofing	28,540.00	11,122.00	39,662.00				0%
23	Allowance - Interior Wood Doors & Access Panels	10,560.00		10,560.00				0%
24	Allowance - Entry Door	1,559.00		1,559.00				0%
25	Allowance - Door Hardware	2,850.00		2,850.00				0%
26	Overhead Door & Operator	6,921.00	365.00	7,286.00				0%
27	Allowance - Exterior Windows & Doors	33,716.00	4,280.00	37,996.00				0%
28	Allowance - Shower Doors	6,614.00		6,614.00				0%
29	Stucco & Trim Bumpouts	44,102.00		44,102.00				0%
30	Drywall	39,356.00		39,356.00				0%
31	Interior Paint & Stain	44,084.00		44,084.00				0%
32	Allowance - Floor Coverings	58,696.00		58,696.00				0%
33	Interim & Final Cleaning	6,481.00		6,481.00				0%
34	Finish Protections	1,875.00		1,875.00				0%
35	Allowance - Fireplaces	18,157.00	783.00	18,940.00				0%
36	Allowance - Bath Accessories	1,000.00		1,000.00				0%
37	Allowance - Mirrors	1,031.00		1,031.00				0%
38	Building Address Signage	161.00		161.00				0%
39	Allowance - Appliances	19,000.00		19,000.00				0%
40	Plumbing Systems	45,759.00	2,921.00	48,680.00				0%
41	Allowance - Plumbing Fixtures	11,702.00	880.00	12,582.00				0%
42	Venting System & Garage Unit Heater	8,918.00	882.00	9,800.00				0%
43	Heating Systems	30,985.00	2,694.00	33,679.00				0%
44	Electrical System	43,105.00	1,333.00	44,438.00				0%
45	Allowance - Light Fixtures	13,408.00	972.00	14,380.00				0%
46	Allowance - Structured Wiring & Security	19,924.00		19,924.00				0%
47	Building Permit Fees	3,653.00		3,653.00				0%
48	Survey	4,299.00	1,434.00	5,733.00				0%
49	Allowance - Winter Conditions	14,000.00		14,000.00				0%
50	Allowance - Propane Tank Setup & Lateral	3,500.00		3,500.00				0%
51	Allowance - Mountain Parks Electric Fees (If Required)	3,500.00		3,500.00				0%
<b>Totals</b>		<b>1,336,027.00</b>	<b>54,162.00</b>	<b>1,390,189.00</b>	-	-	-	0%

**SAMPLE XACTIMATE CODE UPGRADE ESTIMATE**

Insured: NAME  
Property: ADDRESS  
PARADISE, CA 95969

Claim Rep.: ADJUSTER NAME  
Company: INSURANCE COMPANY  
Business: ADDRESS

Business: (800) 333-333-3333  
Fax: (800) 333-3333  
E-mail: adjuster@insurance.com

Estimator:  
Company: ESTIMATOR NAME & ADDRESS  
Business:

Business: (800) 333-3333  
E-mail: adjuster@insurance.com

**Claim Number:** 50000088888

**Policy Number:** 222-222222

**Type of Loss:** Fire

Date 11/8/2018  
Contacted:  
Date of Loss: 11/8/2018  
Date Inspected:  
Price List: CASA8X\_MAR20  
Restoration/Service/Remodel  
Estimate: NAME  
Date Received: 11/8/2018  
Date Entered: 4/15/2020 10:52 AM

**INFORMATION PAGE**

**ORDINANCE AND LAW / CODE UPGRADES:** Many homeowner's policies contain an endorsement that adds coverage for any upgrades required to bring your damaged or destroyed property up to current building code standards. The coverage is usually shown as a percentage of your Coverage A - Dwelling limit - typically 10%, 25%, or 30%, etc. This limit applies only to the increased amount you are required by state or local regulations to rebuild your home, and typically covers items such as fire sprinklers, solar panels, (if required in your area) energy saving devices, and safety measures.



## SAMPLE XACTIMATE CODE UPGRADE ESTIMATE

ESTIMATED CODE UPGRADE COST	QUANTITY	UNIT	TAX	O&P	RCV
1. Electrical - Special Systems (Bid Item) SOLAR PANELS*					
14,960.00	1.00 EA		0.00	0.00	14,960.00
2. Fire Protection Systems (Bid Item)					
11,155.00	1.00 EA		0.00	0.00	11,155.00
3. FIRE PROTECTION SYSTEMS					
776.00	1.00 EA		0.00	0.00	776.00
4. Plumbing (Bid Item) CONNECTIONS/FEEDS*					
11,718.00	1.00 EA		0.00	0.00	11,718.00
5. Framing & Rough Carpentry (Bid Item) FRAMING/SHEATHING/*					
8,133.00	1.00 EA		0.00	0.00	8,133.00
6. Framing & Rough Carpentry (Bid Item) ADDITIONAL LABOR TITLE 24 FRAMING ON ROOF*					
2,235.00	1.00 EA		0.00	0.00	2,235.00
7. Insulation (Bid Item) r30 CEILING R19 WALLS*					
4,202.45	1.00 EA		0.00	0.00	4,202.45
8. Electrical (Bid Item) LED/EXHAUST FANS/FIXTURES /CIRCUITS*					
3,635.00	1.00 EA		0.00	727.00	4,362.00
9. Windows - Vinyl (Bid Item) CA GREEN 24*					
3,723.00	1.00 EA		0.00	0.00	3,723.00
10. FOUNDATION*					
3,375.00	1.00 EA		0.00	675.00	4,050.00
11. VAPOR BARRIER CRAWLSPACE*					
1,826.00	1.00 EA		0.00	0.00	1,826.00
12. HVAC*					
4,246.00	1.00 EA		0.00	0.00	4,246.00
13. Painting (Bid Item) CODE*					
2,980.00	1.00 EA		0.00	0.00	2,980.00
14. Drywall (Bid Item) 5/8th ceiling 1/2 walls*					
1,950.00	1.00 EA		0.00	0.00	1,950.00
<hr/>					
<b>Totals: CODE UPGRADE</b>			<b>0.00</b>	<b>1,402.00</b>	<b>76,316.45</b>
<hr/>					
<b>Line Item Totals:</b>			<b>0.00</b>	<b>1,402.00</b>	<b>76,316.45</b>

**SAMPLE XACTIMATE CODE UPGRADE ESTIMATE**

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**RECAP BY CATEGORY**

<b>O&amp;P Items</b>	<b>Total</b>	<b>%</b>
CONCRETE & ASPHALT	3,375.00	4.42%
ELECTRICAL	3,635.00	4.76%
<b>O&amp;P Items Subtotal</b>	<b>7,010.00</b>	<b>9.19%</b>
<b>Non-O&amp;P Items</b>	<b>Total</b>	<b>%</b>
DRYWALL	1,950.00	2.56%
ELECTRICAL - SPECIAL SYSTEMS	14,960.00	19.60%
FLOOR COVERING - WOOD	1,826.00	2.39%
FIRE PROTECTION SYSTEMS	11,931.00	15.63%
FRAMING & ROUGH CARPENTRY	10,368.00	13.59%
HEAT, VENT & AIR CONDITIONING	4,246.00	5.56%
INSULATION	4,202.45	5.51%
PLUMBING	11,718.00	15.35%
PAINTING	2,980.00	3.90%
WINDOWS - VINYL	3,723.00	4.88%
<b>Non-O&amp;P Items Subtotal</b>	<b>67,904.45</b>	<b>88.98%</b>
<b>O&amp;P Items Subtotal</b>	<b>7,010.00</b>	<b>9.19%</b>
Overhead	701.00	0.92%
Profit	701.00	0.92%
<b>Total</b>	<b>76,316.45</b>	<b>100.00%</b>

**OVERVIEW OF BUILDING ORDINANCE & LAW (AKA CODE UPGRADE) ITEMS THAT ARE APPLICABLE TO REBUILDING A HOME IN GRANBY, CO 80446.**

Submitted January 18, 2022

Our former home was one of 366 homes which were destroyed by the East Troublesome Fire on October 21, 2020. That home was permitted in 1998 under requirements of the 1997 Uniform Building Code.

The 1997 Uniform Building Code (UBC) was the last version of that code. It was replaced by the 2000 Edition of the International Residential Code (IRC). In the intervening 23 years since our original construction, there have been six substantial revisions to the IRC that are applicable to our site and our new construction. Those code revisions were published in 2000, 2003, 2006, 2009, 2012, and 2015. Technically, there were also new codes in 2018 and 2021, but Grand County did not adopt those codes, so they are not applicable to our new construction.

The former home was constructed with 4040 square feet of enclosed, heated, and finished space in a beautiful three-story log structure with hand-hewn logs exposed on the interior and exterior. With current inflation of construction costs, we found that we cannot afford to replace that same home.

The new home will have reduced area of 3680 square feet of enclosed, heated, and finished space in a two-story, frame structure with drywall interiors and stucco exterior. Even with the reduced size and quality, the replacement cost for the new home will exceed our policy limits for the former home.

The following pages identify several specific revised code sections and applicable construction costs for each upgraded item.

**SUMMARY OF CODE UPGRADE COSTS AS DOCUMENTED ON FOLLOWING PAGES**

Code Upgrade #1 – Upgraded Log Sizes	\$82,431
Code Upgrade #2 – Upgraded Log Chinking`	\$ 9,958
Code Upgrade #3 – Upgraded Roof Insulation	\$11,721
Code Upgrade #4 – Upgraded Windows & Doors	\$38,988
Code Upgrade #5 – Upgraded Window Fall Protection	\$ 3,278
Code Upgrade #6 – Upgraded Whole House Ventilation	\$ 8,550
Code Upgrade #7 – Upgraded Electrical Arc Fault Breakers	\$ 1,848
<b><u>TOTAL COST OF DOCUMENTED CODE UPGRADES</u></b>	<b>\$156,774</b>

Note: There are numerous additional code upgrades that are not documented here because these seven documented items far exceed the policy limit \$\$\$ for this coverage.

## CODE UPGRADE ITEM #1

### EXTERIOR LOG WALLS – SEE 2015 IRC SECTION N1102.1.3, PAGE 456

The 1997 UBC allowed 9-inch exterior log walls with R=8 in our Climate Zone 7. However, the new energy provisions of the 2015 IRC now require 14-inch exterior log walls with R=16 if the Total Building UA is less than or equal to that required by Table N1102.1.4.

Refer to the next two ALTERNATIVE CALCULATION pages of TOTAL U x A confirming that 14-inch log walls barely meet the 2015 IRC requirements **IF** those walls are assisted by R=54 foam insulation in the entire roof area.

### **COSTS FOR NEW 14 INCH LOG WALL MATERIALS ONLY (From Montana Custom Log Homes)**

3330 linear feet of 14-inch diameter logs with hand-hewn faces and Swedish Cope	\$117,464
Current truck delivery cost = 3 flatbed semi loads x 790 miles x \$3.98/loaded mile	\$ 9,432
Unloading with Cat Telehandler & Operator – 6 hours @ \$120/hour	\$ 720
Unloading help with two laborers – 2 x 6 hours @ \$40/hour	\$ 480
<b>Total delivered 14-inch log material</b>	<b><u>\$128,096</u></b>

### **COSTS FOR FORMER 9 INCH LOG WALL MATERIALS ONLY (From Neville Log Homes in Victor, MT)**

4990 linear feet of 9-inch diameter logs with hand-hewn faces and Swedish Cope	\$ 50,373
Current truck delivery cost with 2 flatbed semi loads x 790 miles x \$3.98/loaded mile	\$ 6,288
Unloading with Cat Telehandler and Operator – 4 hours @ \$120/hour	\$ 480
Unloading help with two laborers – 2 x 4 hours @ \$40/hour	\$ 320
<b>Total delivered 9-inch log material</b>	<b><u>\$ 57,461</u></b>

<b>ADDITIONAL CODE UPGRADE COST FOR DELIVERED LOG MATERIALS = \$128096 – \$57461 = \$ 70,635</b>	
<b>ADDITIONAL OVERHEAD AND PROFIT @ 16.7%</b>	<b>\$ 11,796</b>
<b>Total upgrade cost for log walls</b>	<b><u>\$ 82,431</u></b>

## CODE UPGRADE ITEM #2

### AIR SEALING EXTERIOR LOG WALLS – SEE 2015 IRC SECTION N1102.4.1.2, PAGE 459

The 1997 UBC allowed 9-inch exterior log walls to be chinked only on the exterior in our Climate Zone 7. However, the new energy provisions of the 2015 IRC now require air sealing and testing with a blower door test to limit air leakage to a maximum of 3 ACH (50). Log construction is notoriously leaky at the horizontal joints and at saddle-notched corners. Log builders and chinking contractors have learned that the only way to achieve this low rate of air leakage is to chink all horizontal joints and all corners on the inside and the outside of the walls.

### **COSTS FOR CHINKING UPGRADED 14 INCH LOG WALL JOINTS INSIDE AND OUT**

In that document, 2670 linear feet of chinking is shown to have replacement cost of \$9725 which yields a unit cost of \$3.64/linear foot of log chinking.

3330 linear feet of chinking inside and outside horizontal joints cost  $2 \times \$3.64/\text{lf} \times 3330\text{lf} = \$24,242$   
674 linear feet of chinking inside and outside saddle notch corner joints cost

2 sides x \$3.64/lf x 674 lf	\$ 4,907
<b>Total chinking cost of 14-inch exterior logs</b>	<b>\$ 29,149</b>

### **COSTS FOR CHINKING FORMER 9 INCH EXTERIOR LOG WALLS**

4990 linear feet of chinking outside horizontal joints cost $\$3.64/\text{lf} \times 4990\text{lf}$	\$18,163
674 linear feet of chinking outside saddle notch corners cost $\$3.64/\text{lf} \times 674\text{lf}$	\$ 2,453
<b>Total chinking cost of 9-inch exterior logs</b>	<b>\$ 20,616</b>

<b>ADDITIONAL CODE UPGRADE COST FOR LOG CHINKING = \$29149 – \$20616 =</b>	<b>\$ 8,533</b>
<b>ADDITIONAL OVERHEAD AND PROFIT @ 16.7%</b>	<b>\$ 1,425</b>
<b>Total upgrade cost for log chinking</b>	<b>\$ 9,958</b>

### CODE UPGRADE ITEM #3

#### UPGRADE ROOF INSULATION TO R=54 – SEE 2015 IRC SECTION N1102.4.1.2, PAGE 459

Refer to the previous ALTERNATIVE CALCULATION pages of TOTAL U x A confirming that 14-inch log walls barely meet the 2015 IRC requirements **ONLY IF** those walls are assisted by R=54 foam insulation in the entire roof area.

#### **COSTS FOR ROOF INSULATION WITH R=38 INSULATION IN FORMER HOME THAT BURNED.**

Insulated roof area (R=38) of former home was 1860 square feet of surface area as shown on 1998 Permit Drawings A-1 and S-4.

Based on September 21, 2021, quote from Insulation Company that amount of R=38 insulation would cost \$6.50/square foot in the current market.

**Current cost of the former R=38 insulation = 1860 sf x \$6.50/sf = \$12,090**

#### **COSTS FOR ROOF INSULATION IN NEW HOME TO MEET R=54 AS REQUIRED BY 2015 IRC**

Based on September 21, 2021, quote from that amount of R=54 insulation would cost \$11.90 /square foot in the current market.

**Current cost of the required R=54 insulation = 1860 sf x \$11.90/sf = \$22,134**

<b>ADDITIONAL CODE UPGRADE COST FOR ROOF INSULATION = \$22,134 – \$12,090 =</b>	<b>\$ 10,044</b>
<b>ADDITIONAL OVERHEAD AND PROFIT @ 16.7%</b>	<b>\$ 1,677</b>
<b><u>Total upgrade cost for roof insulation</u></b>	<b><u>\$ 11,721</u></b>

**CODE UPGRADE ITEM #4**

**UPGRADE WINDOWS WITH U=0.32 – 2015 IRC TABLE N1102.1.4, PAGE 456**

**COSTS FOR HURD WINDOW MATERIALS ONLY IN FORMER HOME THAT BURNED**

Quote from 25 windows & sliding doors with delivery & tax \$14,091

**COSTS FOR MARVIN WINDOW MATERIALS ONLY AS REQUIRED BY 2015 IRC**

Quote from XYZ Company for 25 windows & sliding doors with delivery & tax \$47,500

ADDITIONAL CODE UPGRADED WINDOWS & DOORS = \$47,500 – \$14,091 =	\$ 33,409
ADDITIONAL OVERHEAD AND PROFIT @ 16.7%	\$ 5,579
<u>Total upgrade cost for windows &amp; doors</u>	<u>\$ 38,988</u>

**CODE UPGRADE ITEM #5**

**PROVIDE WINDOW FALL PROTECTION AT 4 SLIDING DOORS– 2015 IRC SECTION 312.2, PAGE 66**

COSTS FOR MATERIALS, FABRICATION, POWDER COATING, DELIVERY, AND INSTALLATION	\$2,809
OVERHEAD AND PROFIT @ 16.7%	\$ 469
<u>Total for window fall protection</u>	<u>\$3,278</u>

**CODE UPGRADE ITEM #6**

**PROVIDE MECHANICAL VENTILATION TO WHOLE HOUSE – 2015 IRC SECTION M1507.3, PAGE 487**

**INSTALLED COST FOR ERV SYSTEM WITH OH&P FROM CONTRACT FOR NEW HOUSE \$8,550**

**CODE UPGRADE ITEM #7**

**UPGRADE CIRCUIT BREAKERS FOR 15- AND 20-AMP CIRCUITS – 2015 IRC SECTION E3902, PAGE 697**

**ADDITIONAL COST OF 44 ARC FAULT BREAKERS @ \$42 EACH with tax and OH&P \$1,848**



Dwelling specifics: 3/2, 1932 SF conditioned space, built in 1958. 2 car garage

\* Extension items: NIC in this breakdown

Code Upgrades	Home	Extension *	Notes
Pad Prep	\$ 20,000	\$ -	29
Waste Management	\$ 2,500	\$ -	40
Erosion Control	\$ 2,500	\$ -	37
Vapor barrier	\$ 1,500	\$ -	31
Foundations	\$ 20,000	\$ -	3, 21
Retaining walls	\$ -	\$ -	35
Framing/hardware	\$ 35,000	\$ -	4, 21
Radiant Barrier	\$ 700	\$ -	32
Fire Sprinklers	\$ 20,000	\$ -	5, 21, 36
Insulation	\$ 1,750	\$ -	1, 6, 21
HVAC	\$ 5,500	\$ -	1, 7, 21
AFCI, GFI	\$ 3,000	\$ -	28
Lighting/Electrical	\$ 3,500	\$ -	1, 8, 21
Lighting Controls	\$ 2,500	\$ -	1, 9, 21
Future Solar	\$ 2,500	\$ -	30,
Plumbing	\$ 3,500	\$ -	1, 10, 21
Testing / Commissioning	\$ 4,000	\$ -	1, 11
Gutter Covers	\$ 4,000	\$ -	2, 21
Roofing	\$ -	\$ -	2, 12, 22, 38, 42
Ventilation	\$ 2,500	\$ -	2, 13, 21
Exterior Siding	\$ 7,500	\$ -	2, 14, 21, 42
Windows/Doors	\$ 2,500	\$ -	1, 15, 22
Windows/Doors	\$ 2,500	\$ -	2, 15a, 22
Decking/railing	\$ -	\$ -	2, 16, 21
Closed Soffits	\$ 5,500	\$ -	2, 17, 21
Fire Water Storage	\$ 10,000	\$ -	2, 18, 20, 21
Fire Department Turnout	\$ -	\$ -	34
Draft Hydrant	\$ 7,500	\$ -	2, 19, 21
Low VOC materials	\$ 2,500	\$ -	25
Hard pipe downspouts	\$ 3,500	\$ -	26
Tankless water heater	\$ 1,600	\$ -	1
Appliances	\$ 2,500	\$ -	33
Landscape / Irrigation	\$ 1,500	\$ -	41
Future Charging Station	\$ 1,250		1
Fireplace change	\$ 2,500	\$ -	27
Supervision	\$ 9,500	\$ -	39
Subtotal	\$ 195,300	\$ -	
GC Mark-ups	\$ 39,060	\$ -	General liability insurance, profit, company management (20%)
TOTAL	\$ 234,360	\$ -	
Design/Engineering	\$ 20,000	\$ -	23
Other Owner Items	\$ 1,500	\$ -	24
TOTAL	\$ 255,860	\$ -	

Table Notes:

1. CalGreen / Title 24 item
2. Wildland Urban Interface item at County locations
3. To current engineering standards. Includes extra reinforcing, anchor bolts, and hold downs
4. To current standards. Includes shear ply, shear panels, upsized materials for insulation requirements, added
5. Per current standards
6. Upgrade to R-21 at exterior walls, R-38 at roof, R-21 at floors
7. Higher efficiency, zoning. 2 systems, whole house fan
8. LED fixtures and trim, added plugs, hardware smoke detectors, CO2 detectors, exterior motion sensors
9. Switching
10. Water pipe insulation, hot water recirculation, backflow preventer, hammer arrestors, seismic gas shut off
11. Required by County for CalGreen and T-24
12. Upgraded materials for Class A / cool roof
13. Roof and foundation vents
14. Underlayment required if wood siding is desired or upgrade to plaster with foam trim
15. All windows and sliding doors to be double pane with LowE
- 15a. Tempered glass
16. Upgrade to non-combustible decking. Included tile finish in lieu of existing wood. 450 SF decking, 80 LF railing
17. Closed soffits at all locations. Includes additional trim and painting
18. 5000 gallon concrete tank with 2500 reserved for fire department. Includes grading, plumbing, valves, and
19. Draft hydrant for fire department. Includes piping from tank to hydrant location
20. Not used
21. Material and labor
22. Material item only
23. Costs for new design and engineering (including Title 24 and CalGreen) required for the code changes
24. Other Owner Items include all-risk insurance and additional permit fees (value of code upgrades)
25. Low VOC paints, carpet, flooring, cabinet finish
26. Hard pipe to riprap outfall and/or retainage
27. Change to gas appliance. 1 unit
28. Circuit breaker (arc fault circuit-interrupter), GFI outlets
29. Grading and compaction. Required by soil engineer/report
30. Prep for future solar
31. Vapor barrier at crawl space to prevent moisture transfer
32. At roof plywood
33. Energy efficient appliances
34. Turnout required due to length of driveway
35. Structural upgrades
36. Fire sprinklers and design, pump/reservoir, fire alarm
37. Includes recycling of materials
38. Home already had this feature
39. Supervision associated with code upgrades
40. Construction debris separation and disposal
41. Landscape architect design, irrigation controls/timers
42. No cost change

General Notes:

1. These are budget numbers only and are based on higher pricing to deal with anticipated cost increases
2. Costs do not include solar if required to meet T-24 requirements