

# What is the true cost of sandbagging?



## Stop and think about it.

What is the true cost of sandbagging?

Sandbags may seem cheap to purchase, but they are expensive to use. Sandbag walls have inefficient trapezoidal or triangular cross-sections, requiring up to twice as much fill as square walls. Sandbags require enormous amounts of physical labor which, while it is often provided by "free" volunteers, is often compensated after the flood event as part of disaster relief. Sandbag walls can only be used once and are costly to dispose of, typically being hauled off to landfills at great expense. And in stockpiling sandbags, there is almost always some loss to vermin and mildew.

But beyond the hidden monetary costs of sandbags, consider the true cost of relying on sandbags.

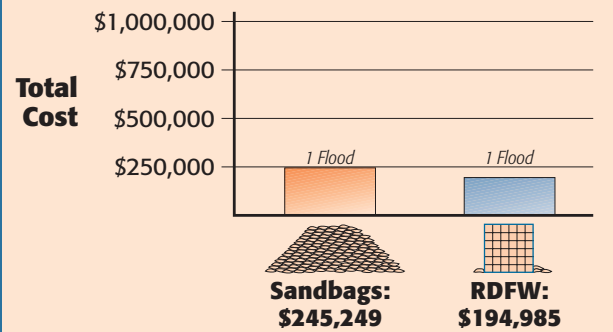
Sandbags have proven insufficient defense against flooding time and again. The slow, manual rate at which sandbag walls can be constructed has resulted in billions of dollars in flood damages, year after year. But more significant than any amount of dollars is the trauma resulting from flooded homes and the loss of life that occurs annually as the result of flooding. *That* is the true cost of sandbags.

Even in its first use, Geocell's Rapid Deployment Flood Wall (RDFW) is cheaper than sandbagging. As RDFW is re-used multiple times, it becomes dramatically cheaper than sandbagging. Depending upon exposure, RDFW may be re-used up to six times.

# 1

Use

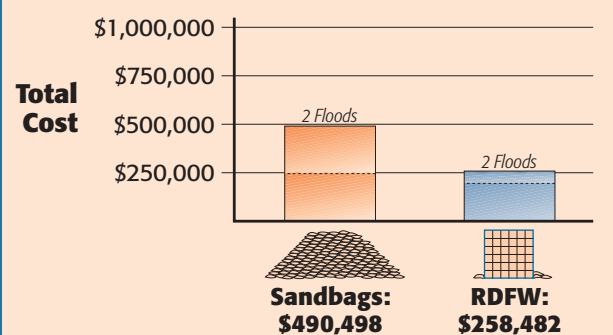
### Cost Comparison (RDFW 1st Use): 1,000-foot wall, 4 feet high



# 2

Uses

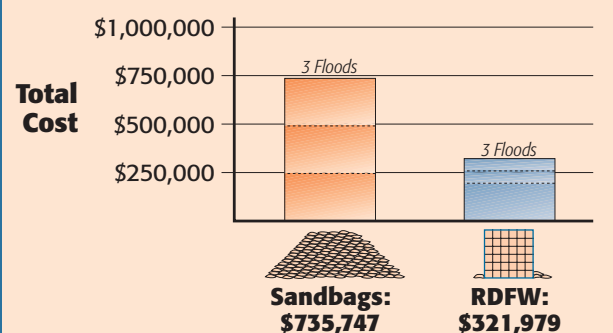
### Cost Comparison (RDFW 2nd Use): 1,000-foot wall, 4 feet high



# 3

Uses

### Cost Comparison (RDFW 3rd Use): 1,000-foot wall, 4 feet high



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With RDFW, a crew of six laborers and one loader operator can build a wall 100 feet long, four feet wide and four feet high in one hour. An equivalent sandbag wall requires 35 laborers over 19 hours to construct. RDFW is highly cost-competitive with sandbags.



Geocell Systems Inc.

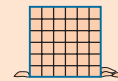
**TRUE COST OF  
SANDBAGGING**

*The re-use cost of an RDFW operation, including cleanup and recertification, is only about 1/4<sup>th</sup> the cost of a sandbagging operation.*

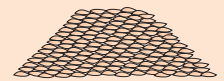
*RDFW is cost-competitive with sandbags in its first use. When re-used it becomes dramatically cheaper.*

## How the Costs Stack Up

Comparison Scenario: 1,000-foot wall, 4 feet high



**RDFW:**  
1,740 RDFW units  
70 workers  
1 hour  
70 man-hours



**Sandbags:**  
103,320 sandbags  
350 workers  
19.5 hours  
6,825 man-hours

<b>RESPONSE</b>	RDFW Units	\$174,000	n/a	
	Sandbags	\$1,000	\$25,807	
	Sand Fill	\$11,860	\$23,720	
	Equipment Rental	\$125	\$1,800	
	Hand Tools	\$200	\$4,000	
	<i>Material Costs Subtotal</i>	<i>\$187,185</i>	<i>\$55,327</i>	
	Labor	\$1,400	\$136,500	
	<b>Response Subtotal</b>	<b>\$188,585</b>	<b>\$191,827</b>	
	<b>RECOVERY</b>	Equipment	\$4,000	\$5,000
		Transport	n/a	\$14,000
Dump Fees		n/a	\$32,022	
Labor		\$2,400	\$2,400	
<b>Recovery Subtotal</b>		<b>\$6,400</b>	<b>\$53,422</b>	
<b>RE-USE</b>	<b>Total Cost</b>	<b>\$194,985</b>	<b>\$245,249</b>	
	RDFW Recertification	\$17,400		
	RDFW Units (replace 20% per event)	\$34,800		
	Sandbags	\$1,000		
	Sand Fill (20% stockpile loss)	\$2,372		
	Equipment	\$125		
	Labor	\$1,400		
<b>Re-Use Deployment Subtotal</b>	<b>\$57,097</b>			
Cleanup/Recovery	\$6,400			
<b>Re-Use Total Cost</b>	<b>\$63,497</b>			

**Sandbags  
Not  
Re-Usable**

**Assumptions:**

Sand weight.....100 lbs/cf	Laborer.....\$20.00 per hour
Sandbag weight.....31 lbs. (.31 cf)	Trucking.....\$70 per truck per hr
Sandbag Cost.....\$0.25 each	Dump Fee.....\$27 per cy
Sand Cost.....\$20.00 per cy	Recovery Crew.....2 Laborers & Operators
Loader.....\$125.00 per hr	Recertification.....\$10 per grid
Shovels.....\$20.00 each	Loss of RDFW Grids.....20% per use
RDFW Panel.....\$100.00 each	Loss of Sand (Re-Use)....20% per use