

Mattresses and Landfills

Why recycling mattresses makes more sense economically than landfilling!

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Conigliaro Industries recently built a Mattress Shredding and Recycling Plant at our Framingham, Massachusetts Facility. While landfills receive thousands of mattresses each year, there are many reasons to recycle mattresses and boxsprings, rather than landfill them:

1) Lost Revenue - each cubic yard of landfill space generates a certain amount of revenue. Historically, landfill compaction rates for trash were 800 - 1000 pounds/cubic yard. More recently, with better equipment, landfill operators have achieved compaction rates of 1200 - 1400 pounds/cubic yard. Some landfills have even achieved compaction rates of up to 1600 pounds/cubic yard due to larger equipment. For our analysis we shall use a 1500 pounds/cubic yard rate. Most landfills continue to charge a per ton tip fee regardless of the material, including mattresses. This certainly applies to mattresses mixed in with typical trash and C & D loads. For our analysis we shall use a trash tip fee of \$75/ton.

Conigliaro Industries performed tests at our facility to gauge the maximum compression of a typical 12" thick mattress. We were able to achieve a maximum of 66% compression by volume. Based on all of these facts, a typical landfill will lose revenue by taking in mattresses:

120 cubic yards of uncompacted mattresses equals 10,000 pounds = 83 pounds/cubic yard

Assuming MAXIMUM Compression of 66%, which is very conservative, this equates to 83 pounds/cubic yard x 3 = 250 pounds/cubic yard

The revenue generated is therefore:

250 lbs/cubic yard [divided by 2000 lbs/ton] x \$75/ton = \$9.38 per cubic yard of landfill space.

This compares unfavorably to the same cubic yard of landfill space without compressed mattresses:

1500 lbs/cubic yard [divided by 2000 lbs/ton] x \$75/ton = \$56 per cubic yard of landfill space.

2) Shortened Lifespan - the inclusion of mattresses in a landfill with shorten its lifespan. In Massachusetts alone, close to 150,000 retail mattresses and boxsprings are wasted each year. This amounts to 144,000 cubic yards of landfill space uncompressed and 47,520 cubic yards of landfill space assuming perfect compression. This is space that is extremely difficult to build given the many barriers to entry including permits, capital costs, nimby, etc....

3) Operational Issues - Mattresses are a very difficult material to process at a landfill or transfer station. They do not compact well in reality and they do not retain their daily cover very well. Once exposed during the compaction process, the springs of a mattress have a tendency to disable landfill and transfer station equipment.

4) Recycling Issues - The Commonwealth of Massachusetts has very aggressive recycling goals spelled out over the next five years. As part of their 70% recycling rate goal, the possibility of banning easily recyclable items such as mattresses and boxsprings is very real. Our experience has shown that a typical resident is very much willing to pay a fee to recycle something as identifiable as a mattress or boxspring. Conigliaro Industries has built a facility capable of handling up to 150,000 units per year. We have demonstrated an ability to achieve recycling rates of at least 60% and as high as 90% for this very difficult material.

For all of the above reasons, the recycling of mattresses makes sense for landfills and transfer stations.

OTHER MATTRESS RECYCLING PROGRAM FACTS:

Conigliaro Industries normally places a trailer for the collection of mattresses at a landfill locations. The customer may place all types of twin, full, queen and king size mattresses on each trailer. Boxsprings may also be placed on the trailer, however due to the fact that they are easily compacted (no springs), most landfills will continue to process and landfill them. The trailer shall be forty-five feet in length and have a capacity of 120 cubic yards. Based on our experience you may expect to fit 10,000 pounds of mattresses on each trailer. We expect you to fit an average of 125 units of mixed sizes on each trailer as follows (although up to 140 units per load is not unreasonable):

| <u>SIZE</u> | <u>% OF LOAD</u> | <u>NUMBER OF UNITS</u> |
|-------------|------------------|------------------------|
| Twin | 33% | 55 |
| Full | 23% | 27 |
| Queen | 34% | 35 |
| King | 10% | 8 |
| | 100% | 125 units |

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