



Photo by FEMA

## Dealing with Debris From Hurricane Harvey

*The floodwaters of Hurricane Harvey have receded, but the work to clean up in the storm's aftermath has just begun. One thing left in Harvey's wake is a tremendous amount of debris -- people's belongings and furniture, parts of buildings, trees, and boats destroyed during the hurricane.*

### **How much debris did Hurricane Harvey create?**

Hurricane Harvey damaged and destroyed countless structures, including 111,884 homes and counting.<sup>1</sup> This destruction resulted in huge amounts of debris, but the Texas Commission on Environmental Quality (TCEQ) said it is still too early to tell just how much. Comparing this hurricane's reach to that of Hurricane Katrina, however, they estimate that Harvey could leave 200 - 300 million cubic yards of waste behind ~ two to three times as much as the debris left by Katrina.<sup>2</sup> That's enough waste to fill Houston's NRG Stadium 60 to 90 times over, and it's two to three times the volume of compacted trash landfilled by the entire state in all of 2015.<sup>3</sup>

### **What is in the debris? Is it dangerous?**

Structural debris contains substances that are harmful to human health or that can become harmful after being soaked by floodwaters.

- Absorbent materials, like **cloth, wood and paper**, may need to be discarded after being wet for more than 48 hours because they can grow mold, which causes respiratory problems, especially for those with asthma.<sup>4</sup>
- **Asbestos**, common in cement, floor tiles, roofing materials, and insulation ~ particularly in buildings from before 1975 ~ can cause respiratory diseases and cancer.<sup>5</sup> As people pull apart damaged areas of their homes, they can be exposed to asbestos.<sup>6</sup>
- Household products ~ **cleaning solutions, pool chemicals, pesticides**, etc. ~ may leak during flooding; they can be harmful if people come into contact with them and can lead to dangerous chemical reactions if they mix.<sup>7</sup>

Homeowners should assume that materials damaged by floodwater are contaminated and should wear gloves, long sleeves and long pants while handling them. Respirators should be worn during cleanup activities to protect from mold, asbestos and other harmful substances.

## **Who is responsible for cleaning up debris after a natural disaster?**

- **FEMA** is responsible for waste that threatens public health and safety, like downed power lines and toxic waste. FEMA is also responsible for debris that threatens public property or interferes with recovery efforts, like downed trees on major streets or debris that blocks public shelters.<sup>8</sup> FEMA works with state agencies, EPA workers and other government bodies to facilitate this cleanup ~ in the case of Harvey, the Texas Commission on Environmental Quality (TCEQ) and the U.S. Coast Guard.<sup>9</sup>
- **Municipalities**, working with public and private contractors (such as local waste management companies), are responsible for cleaning up debris in their municipality that is not on private property.<sup>10</sup>
- **Residents** are responsible for collecting debris on their property, sorting it and placing it by the curb to be picked up.

## **Who pays for the cleanup?**

Costs for waste removal are largely shared between federal, state, and local governments. For the first 60 days of cleanup after Hurricane Katrina, FEMA reimbursed local governments and state and municipal contractors for 100 percent of their expenses related to the cleanup of public property, and 75 percent thereafter.<sup>11</sup> Residents bear the cost of cleaning up their own property, but can receive reimbursement for property damages from their insurance; typically, up to 25 percent of a storm damage insurance claim can be used for cleanup.<sup>12</sup> FEMA does not provide financial assistance for individual residents' cleanup costs, but will provide some disaster relief funds for residents who lack homeowner's insurance.<sup>13</sup>

## **What should I do with my debris?**

To ensure that your waste is picked up promptly, you must sort it. Storm-related debris should be sorted into five categories: vegetative debris (logs, tree branches, etc.), construction debris (including furniture, mattresses, pipes), appliances, electronics, and household hazardous wastes. These should all be placed in an unobstructed place near the curb.<sup>14</sup> Visit <http://www.houston.tx.gov/solidwaste/CurbsideDebrisPDF.pdf> for instructions. You should put your household garbage out for pickup according to your normal schedule. Recycling collection is suspended until further notice, but recyclable materials can be brought to your neighborhood recycling and depository center; locations are listed at <http://www.houston.tx.gov/solidwaste/depositories.html>.

## **What are the best ways to dispose of storm-related debris?**

It's a lot to deal with, but by applying some general principles of sustainable waste management, we can minimize long-term problems. Regulators, waste handlers, and citizens should work to:

1. **Keep different types of waste separate** from one another from the start.
  - This is the most important step because it will set the waste up to be handled properly.
  - If mixed together, trash that rots, like food, can contaminate materials that could otherwise be reused or recycled.
  - When waste is mixed together, hazardous waste can end up in regular landfills, where it can more easily leach toxins into the environment. To avoid this, New York sent sanitation trucks around neighborhoods to specifically pick up appliances for recycling after Hurricane Sandy.
2. **Do not burn trash in the open.**
  - Open burning releases toxins into the air that can have long-term health impacts for residents.<sup>15</sup>
3. **Salvage, recycle and compost** as much material as possible.
  - It makes economic sense to reuse material rather than replace it.
  - Example: Use wood debris to make wood chips.
4. **Incinerate and landfill as little trash as possible.**
  - Incinerators and landfills have negative impacts on the environment and public health.
  - When landfilled, drywall can create hydrogen sulfide, a toxic gas.<sup>16</sup>
  - Organic material produces greenhouse gases, contributing to global warming, when it degrades in landfills instead of being composted.

## How long will cleanup take?

TCEQ currently estimates that Harvey cleanup will take 12-18 months.<sup>17</sup> After Katrina, 65 percent of debris was removed after a month, but overall cleanup took more than three years.<sup>18</sup>

## Who should I call if I have questions?

- For disaster assistance, call FEMA at 800-621-3362
- For information on cleanup efforts call TCEQ at 1-888-777-3186
- For non-emergency information call 3-1-1
- Contractors interested in helping with debris removal should call 1-888-721-4372

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