

## MULTI-UNIT HOUSING: STRUCTURAL BUILDING FACTORS AND RECYCLING SUCCESS

The Multi-Unit Study (MUS) was a discrete portion of the overall WCS that focused on understanding the relationship between characteristics of 156 apartment buildings - such as size, recycling area setup and signage, and demographic features of the surrounding neighborhood - and the building's success at recycling (how much, how well). Characteristics were assessed through site visits to buildings and by consulting New York City agency databases that keep records on buildings. Recycling success was assessed by separately collecting, weighing, and **sorting** each building's refuse and recycling setouts over a one-week period. Multiple regression analysis tested the effect of many independent variables (the building characteristics) on three types of dependent variables (the building's recycling rate, capture rate, and **contamination rate**).

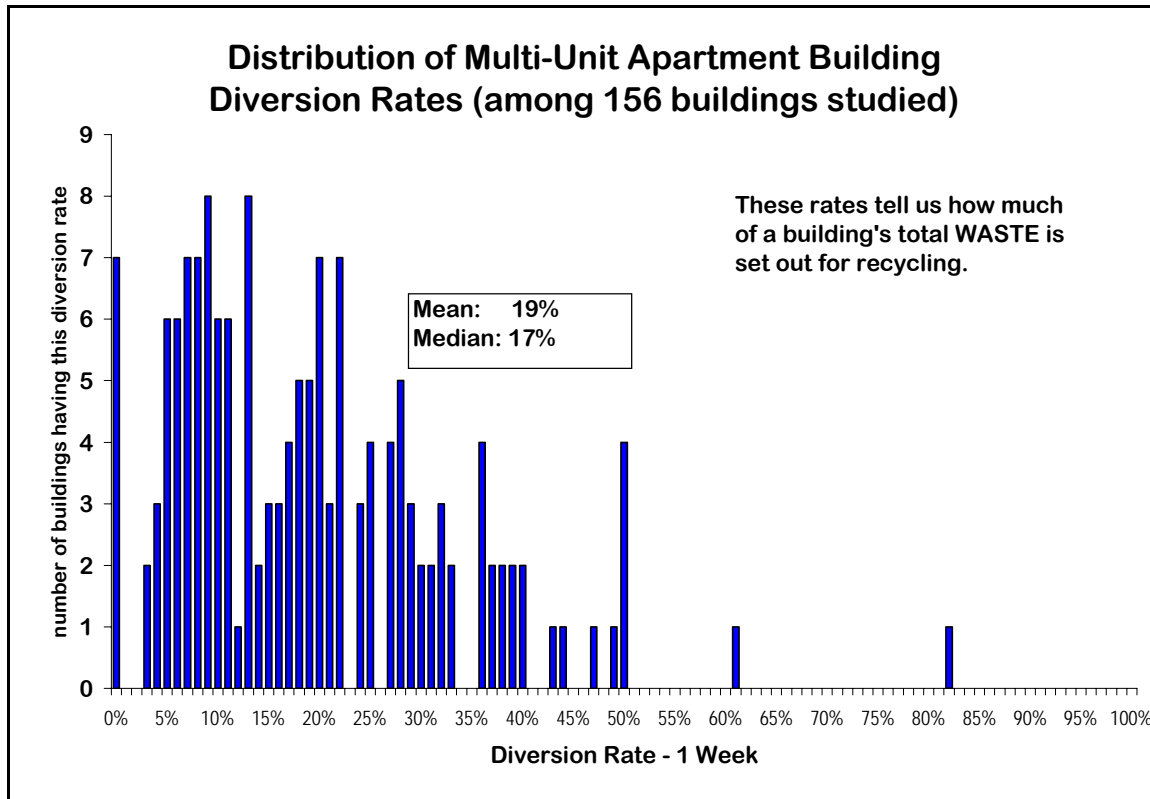
It should be stressed that the MUS was not the only study of multi-unit buildings in the WCS. To the contrary, the overall WCS characterized refuse and recycling of thousands of NYC buildings in exactly the same manner, and with the same level of accuracy, as it characterized waste from smaller residences by using the 8 density/Income strata. The MUS should be seen as a supplement to the much more comprehensive study of all building types that was undertaken in the WCS.

In addition, the MUS was not an enforcement effort. The MUS examined waste generation and recycling rates at the building level. To do this meant inspecting buildings; measuring a building's diversion, capture, and contamination rate; and verifying through an examination of waste contents that the materials collected came from that building, and not a neighboring one. Variations in compliance with DSNY signage and recycling requirements were treated as data points, not a basis for ticketing.

## DIVERSION RATES

The tonnage data gathered as shown in the chart on the next page show a wide range of building diversion rates, from a low of 0% to a high of 82%. Readers should interpret these results with caution, since they represent only one week of a building's recycling performance. In the case of the 82% diversion rate for one building, it may have been that an extraordinarily large amount of recyclable paper was being cleared out in that case, or that the superintendent for some reason neglected to set out most of the refuse, but did set out all the recycling. What is more meaningful is that the **mean** and median diversion rates are between 17% and 19%, which is roughly the diversion rate we see in New York City overall. This suggests that the buildings selected in the MUS were representative of NYC residential buildings as a whole.

*The information herein has been compiled, analyzed, and reported by the DSNY Bureau of Waste Prevention, Reuse and Recycling, using data collected by its consultant R.W. Beck. These highlights do not substitute for a thorough review of R.W. Beck's Final Report, which contains more detailed data. Some percentages may not total exactly due to rounding.*



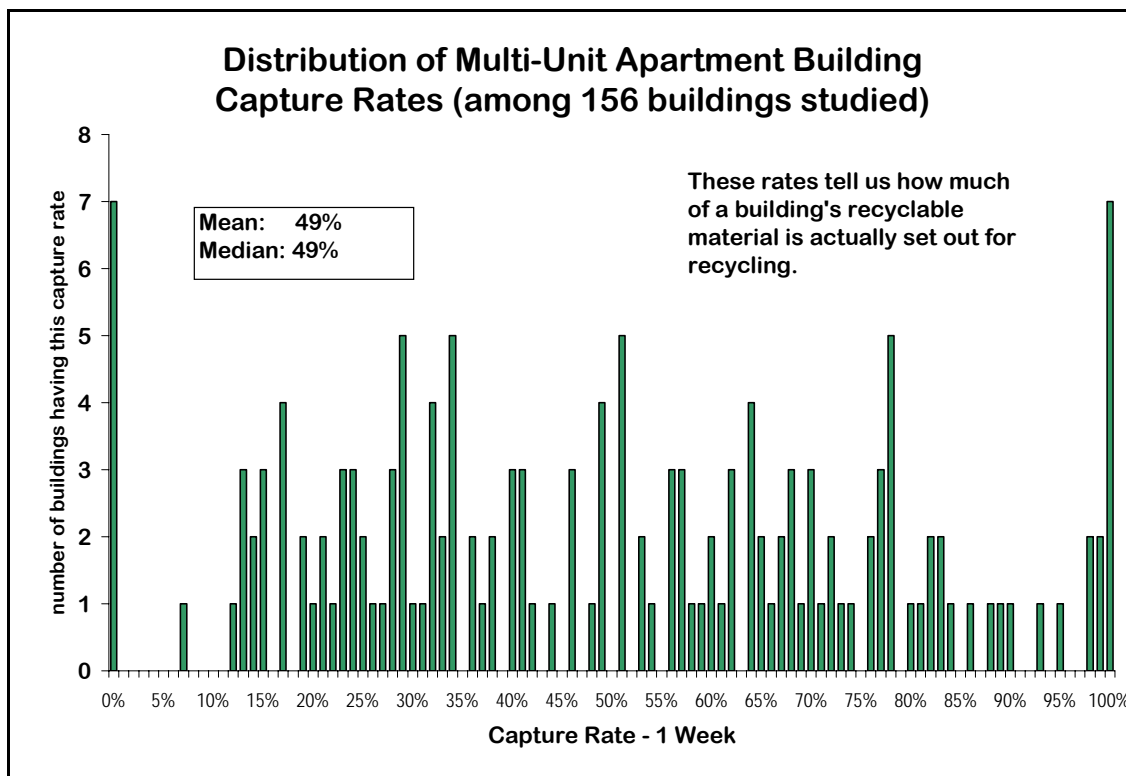
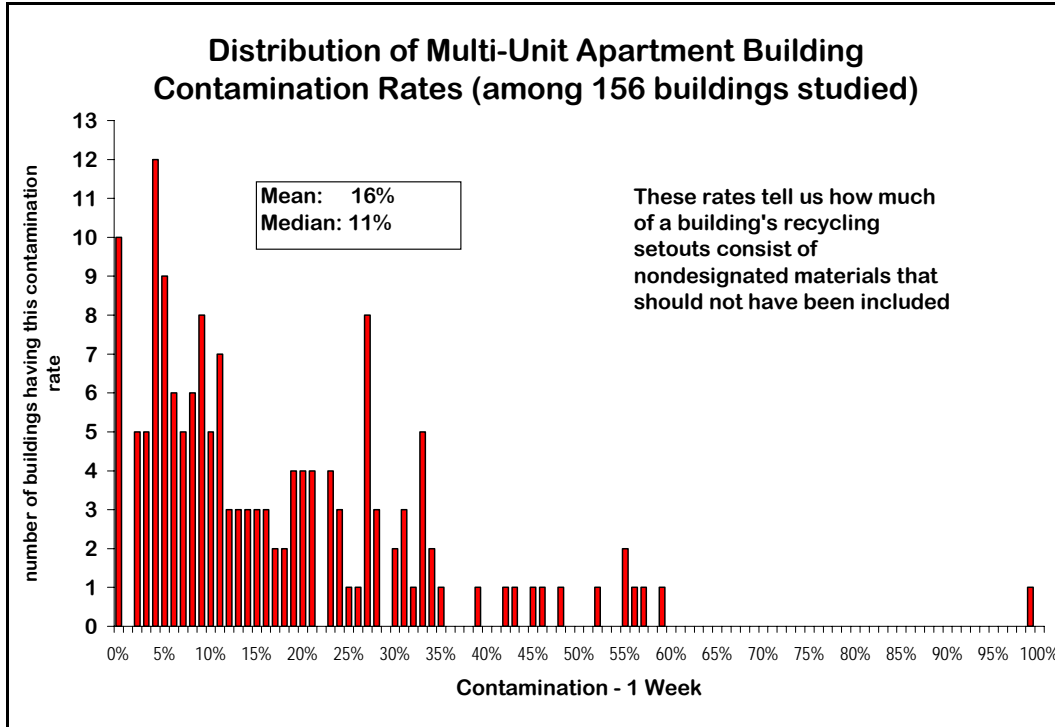
## CAPTURE RATES

Building capture rates tell us how much of a building's potentially recyclable items were correctly recycled. By "recyclable," we of course mean "designated for recycling under NYC's current recycling Program." The distribution for these findings shows substantial variation in capture rates. Some buildings capture nothing, others 100%, and many fall in between. Once again, the mean and median rates reflect rates measured in the main portion of the WCS. On average, buildings are recycling about half of what they could.

## CONTAMINATION RATES

To what degree are buildings throwing trash out with their recyclables? This question is answered by the contamination rate statistic. As shown on the next page, on average, buildings have a contamination rate of between 11% and 16%. The distribution is skewed towards lower rates, meaning that more buildings have low contamination rates than high ones.

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## 2004-05 NYC Residential and Street Basket Waste Characterization Study

### What Drives These Rates

Why do some buildings have higher diversion, capture, or contamination rates than others? To answer this question, each building was surveyed to assess its structural characteristics - including how many units, floors, elevators, garbage chutes, etc. it had, as well as how well it was set up for recycling. The WCS Final Report, Volume 3, discusses the MUS methodology and findings in detail. Some highlights are:

A clearly labeled recycling area with clearly labeled recycling containers was the biggest predictor of recycling success. Buildings that had both of these features had diversion rates that were, on average, around 7 points higher than those without. They also had higher capture rates and lower contamination rates.

The number of common areas with a refuse container but no recycling bin affected the diversion rate negatively. For each lone trash can, the diversion rate fell about 1.5 percentage points.

Having refuse chutes decreased the contamination level of recyclables by almost 13 points.

However, having a refuse chute in the building also significantly diminished the building's capture rate. On average, buildings with functional refuse chutes had capture rates that were almost 11 points lower than buildings without chutes.

As Volume 3 of the Final Report discusses in detail, there were a several other significant factors in a building's set up that affected recycling success, but to a lesser degree than signage or the presence of trash chutes. These major results have some very clear implications.

First, that the current laws requiring proper signage in common recycling areas, and DSNY's outreach and education approach that focuses on provision of decals and signs to buildings, is warranted and works as a strategy. For this reason, DSNY should continue its approach of relentless outreach targeted at the hundreds of thousands of buildings citywide, to make sure their recycling areas are correctly set up.

Second, there are structural barriers to apartment building recycling in New York City that must be acknowledged. The proximity and convenience of a garbage chute is a strong deterrent to recycling as it will always be easier to throw everything down a chute than separate recyclables in the home and take them to the building's designated recycling area. Many chute "rooms" do not have space for recycling bins at all; and some buildings with chutes do not have staff to collect recyclables from each floor. It is realistic, as opposed to defeatist, to recognize that diversion will never be as high in such instances as it would under other structural arrangements.

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