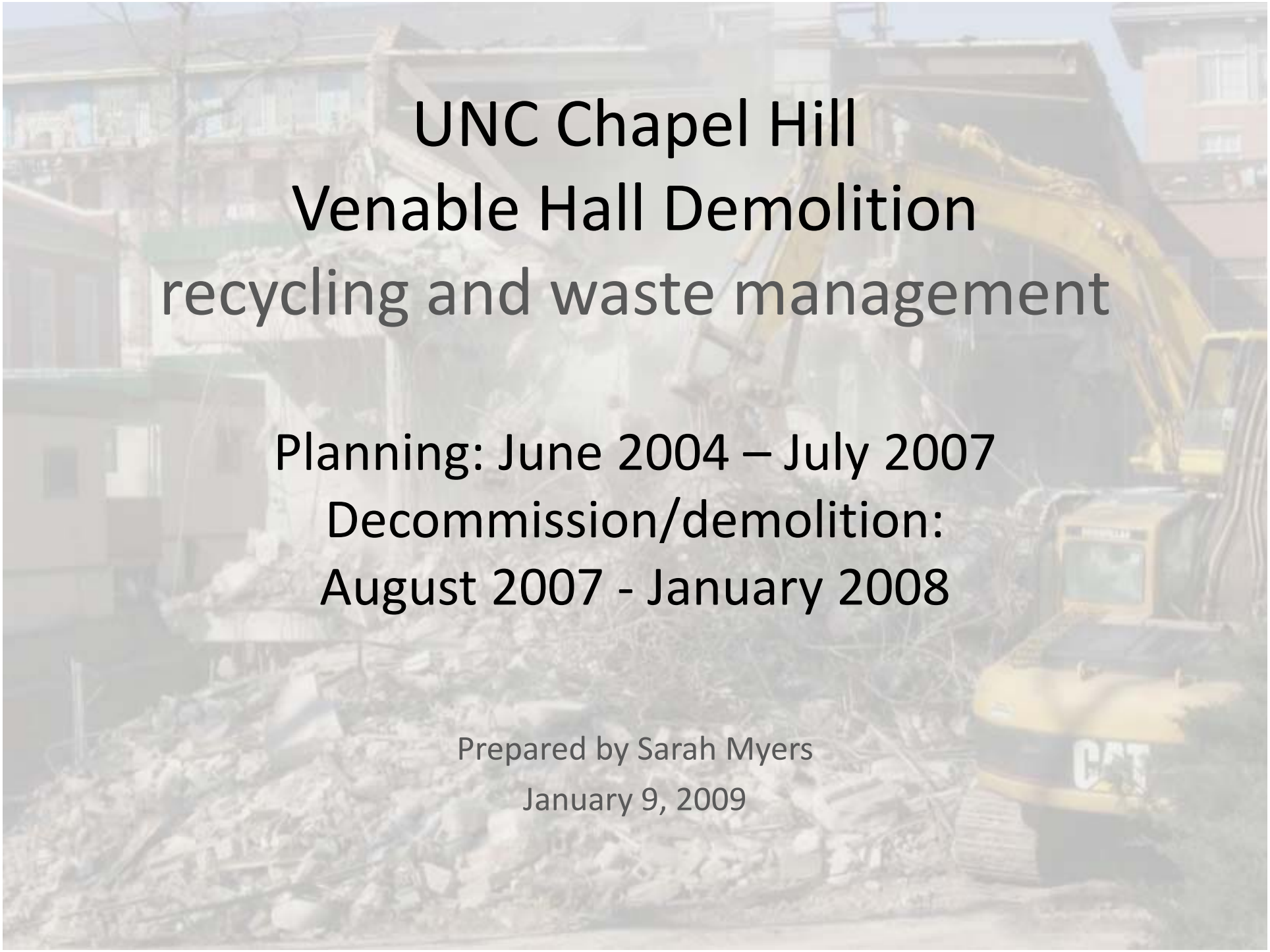


UNC Chapel Hill
Venable Hall Demolition
recycling and waste management

Planning: June 2004 – July 2007
Decommission/demolition:
August 2007 - January 2008

Prepared by Sarah Myers

January 9, 2009

Venable Hall - Background

- Built 1925, addition built in 1953
- Housed Chemistry and Marine Sciences
- Over 100,000 sq ft of labs, classrooms, offices, and shops
- Notoriously cramped and outdated – ripe for demolition

Decommissioning and demolition planning process

- Duration: approximately three years, from 2004 – 2007
- Goal: to ensure that the **contents** and **components** of Venable Hall were disposed of safely and in an environmentally friendly manner.
- **Target: 70% waste diversion**

Decommissioning and demolition planning process

UNC Stakeholders:

- Facilities Planning
- Chemistry Department
- Marine Sciences Department
- Materials Management & Distribution (MMD)
- Facilities Services, Office of Waste Reduction & Recycling (OWRR)
- Environment, Health, & Safety (EHS)
- UNC Legal

Consultants/Contractors:

- Design Collective, Inc (DCI): decommissioning & demolition
- Institution Recycling Network (IRN): surplus assets
- Balfour Beatty: CM-at-Risk
- CST: demolition
- Quantas: move coordinators
- McCollisters Transportation: move contractor

Demolition recycling and salvage planning outcomes

- Consultant submittals
- **Source separation put in specs**
- **Salvage lists and shop contacts** put on drawings (see next slide for snapshot)
- EHS ruled that no lab fixtures could be reused outside the University, but some were reused at UNC

This salvage list was included in the construction documents for the project. This was a first for UNC and a novel approach for projects of this type.

UNC BUILDING MATERIAL OR EQUIPMENT SALVAGE FORM

1/12/2006

Project/Design Manager: Peter Krawchyk
Construction Manager:
Demo/Decom. Designer: Design Collective, Inc., Jim Carroll
CM at Risk: Centex, Frank
Demolition Contractor:
Project Name: Venable Demolition for Science Complex Phase II

(Note: The project name might be different than the building name. Also, there may be more than one building to inventory.)

distribution: each contributor, project manager, construction manager, design team for inclusion in drawings (architect and CM at risk)

note: ME = Mechanical/Equipment Room

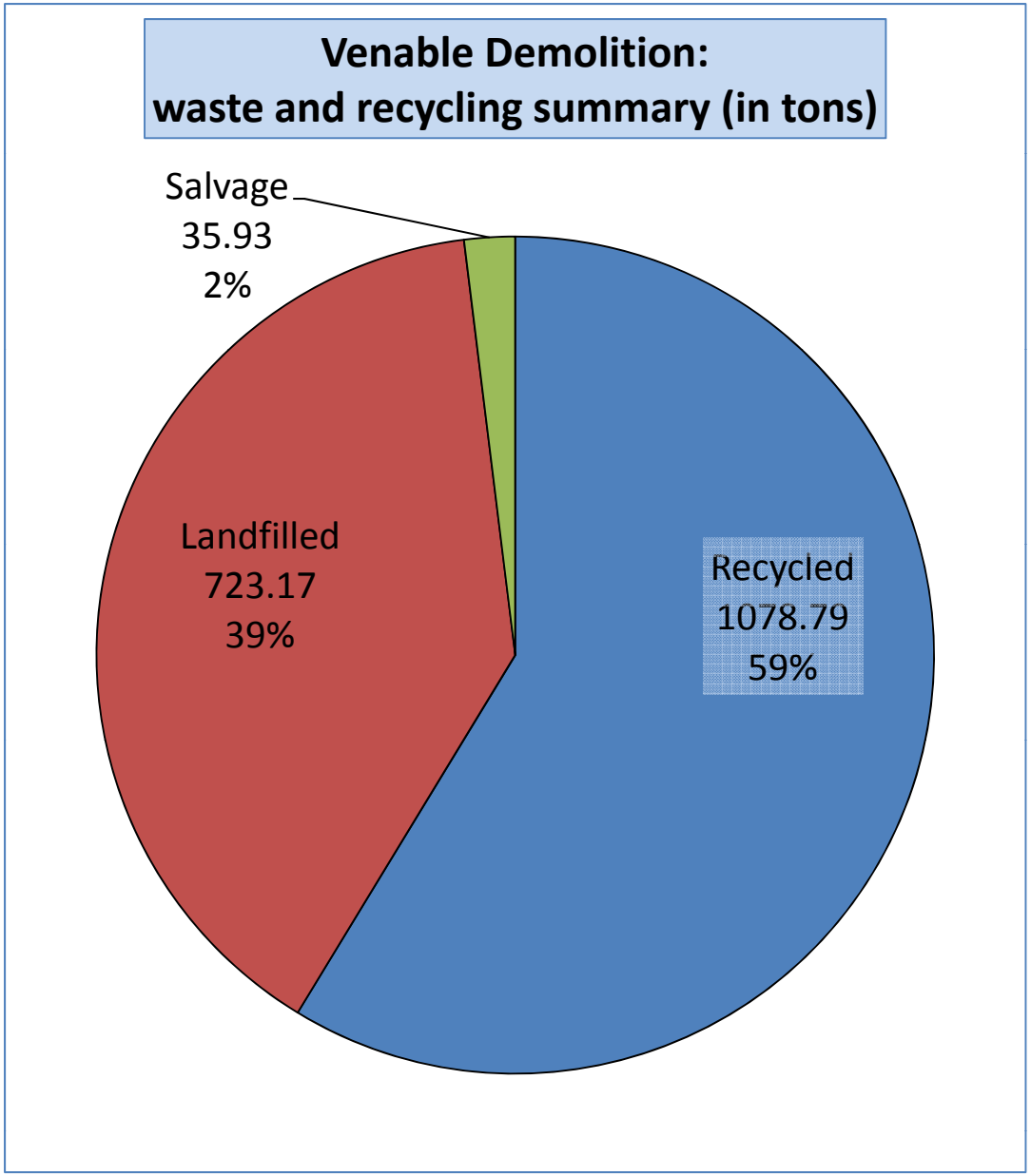
Note: When possible, please plan to remove items prior to construction.
However, with some items, contractor assistance may be necessary.

Phone	Contact Name	Shop or Organization	Building	Room #	Type of room	Exact location	Item to be salvaged	to be **removed by your organization** prior to construction	to be **removed by contractor** for your organization to pick up	Special instructions, notes, or comments	Comment
Cell 883-7305	R. Collins	Shop 103/HVAC	Venable	268	ME Room	1st Floor	MPC VFD Panel	yes		variable drive controls motorts	
Cell 883-7305	R. Collins	Shop 103/HVAC	Venable	B32-B	ME Room	next to B32	MPC VFD Panel	yes			
201-2707 / 883-7263	Jerry W. Vaughan/ Gene Burns	Shop 519, Roofers	Venable Hall	Roof	North west front corner		Unbroken slate roofing		Yes, in a palletized form	Roof section is above the bridge walkway leading toward the new science complex.	
201-2707 / 883-7263	Jerry W. Vaughan/ Gene Burns	Shop 519, Roofers	Venable Hall	Roof	corner front flat section area		12 inch by 12inch concrete pavers		Yes, in a palletized form	Flat roof area is directly behind area of slate removal	
919 962-5507	Billy Mitchel	EHS/Fire Safety	Venable	all	all areas except where people remain		fire extinguishers	yes		notify him when the occupants have left the building	
Mobile/Cell #.201-6610....2-0787	Sudderth, Tom	Grounds	Venable	see notes			?? Pavers	yes		once construction fence limits have been determined, Tom will review the plans and let us know of anything he may want to salvage	Note: bike racks would be DPS
919/445-946	Joe Schuch	ITS: Classroom Tech Planning	Venable (and Kenan if applicable)	see notes			classroom technology equipment	yes		(use the group email for notification!) -- notify as soon as classrooms are offline	mulitmedia@unc.edu
(919) 962-419	Roy Caudle	ITS: Design Mgr/Network Spec.	Venable (and Kenan if applicable)	see notes			will coordinate with other ITS salvage activities	yes		notify when the occupants have left the building	roy_caudle@unc.edu
(919) 966-57	Lee Edmark	ITS: Const. Mgr./Network Spec.	Venable (and Kenan if applicable)				will coordinate with other ITS salvage activities	yes		notify when the occupants have left the building	lee_edmark@unc.edu
(919) 962-96	Don Cooper	ITS: Network Analyst--networks	Venable (and Kenan if applicable)				Network equipment	yes		notify when the occupants have left the building	don_cooper@unc.edu
919 962-530	Robbie Johnson	ITS: Network Analyst--phones	Venable (and Kenan if applicable)				telephone equipment	yes		notify when the occupants have left the building	rhjohnson@unc.edu

UNC Salvage Form | people | procedure | upcoming walkthroughs

Notes:

- Total debris = 1,838 tons
- **Total diversion from landfill (recycling + salvage) = 1,115 tons, 61%**
- Salvage constitutes a small percentage by weight, but relatively high value
- Includes items salvaged by IRN but not equipment or furniture salvaged by UNC shops or UNC Surplus.



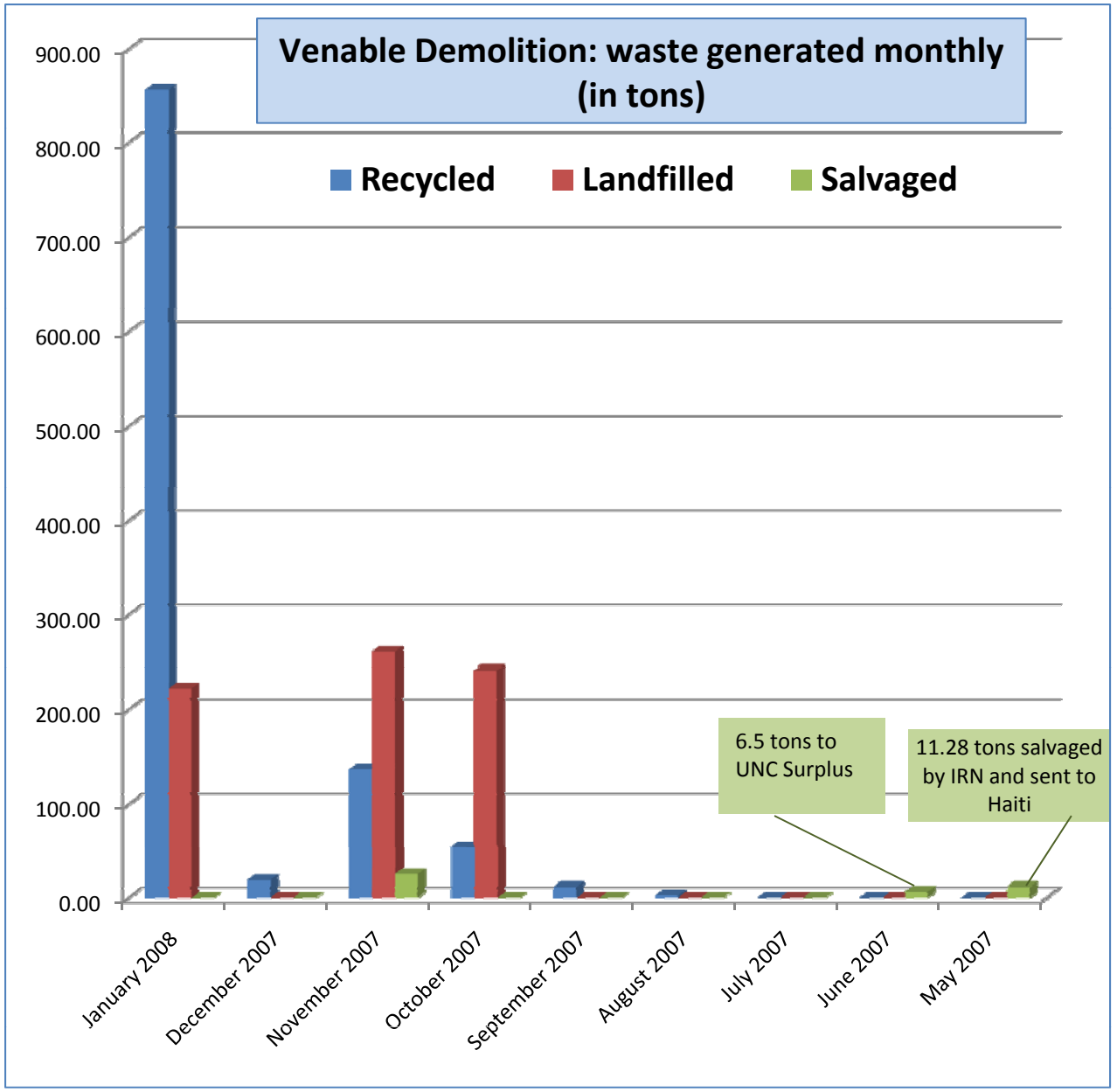
Results:

• <u>May 2007:</u>
Over **11 tons** of **furniture** and **fixtures salvaged** and sent to Haiti through IRN

• <u>June 2007:</u>
Estimated **6.5 tons** of **equipment** and **furniture** to UNC Surplus Retail Store

•**Metal** recycled periodically – **376 tons total**

•**Aggregate** recycled at end of demolition – **700 tons total**



Successes – cost savings from salvage

(instead of offsite sorting at MRF)

Quantity salvaged:	Estimated number of hauls:
• **Ceiling tiles: 2 tons** (one tractor trailer full)	➢ **9 hauls**
• **Furniture and equipment**: 20 truckloads**,** estimated **6.5 tons** to Surplus retail store	➢ **10 hauls**
• **Roofing tiles: 25 tons**	➢ **2.5 hauls**
• **Furniture and fixtures salvaged by IRN:** 2 full shipping containers, estimated **11 tons**	➢ **7 hauls**

Cost savings from salvage instead of MRF/landfill: (28.5 hauls x $200/haul =$5700) + ($40/ton MRF tip fee x 44.5 tons) − **$7,480**

Successes – cost savings from source separation (instead of offsite sorting at MRF)

Quantity recycled:

- **Metal**

Avoided tip fee and revenue:

- **(356 tons x $40/ton MRF tip fee) + $ 34,065 revenue – $48,305**

- **Aggregate**

- **(700 tons x $40/ton MRF tip fee) – (70 estimated hauls x $55/haul tip fee) = $24,150**

Cost savings from source separation instead of MRF/landfill: $72,455

IRN furniture and fixture salvage

•Chairs, student desks, file cabinets, bookshelves, etc.

•Filled two shipping containers, estimated over eleven tons

•Loaded in two days

•Prevented roughly 7 rolloffs worth of waste

•Shipped directly to Haiti under the auspices of Food for the Poor

Shop salvage

- **Slate roofing tiles** - 9 squares of slate will be reused on a picnic pavilion
- **Steam and condensate equipment** worth about $5,000
- **HVAC controls** worth about $5,000

Concrete roofing tile reuse

Concrete roofing tiles were removed, put on pallets, and transported to a UNC storage area.

Carolina North Forest Staff and UNC's Cross Country & Track Club **improving muddy sections of trail** in the Carolina North Forest.

Limestone door surround

- Salvaged from Venable
- Will be **reused** in new Dental Science Building

Metal – 376 tons

six different sorts for maximum value to the contractor

- galvanized
- heavy steel
- rebar
- light metal
- stainless steel
- copper

Lessons learned:

1. Hard to coordinate with outside salvage companies – **a few planned salvage items fell through**
   - Four foot circular windows (with LCP and asbestos glazing)
   - Wood shelving in library

Lessons learned (cont):

2. **Do not trust anyone who claims there will be "not that much" surplus furniture.**
3. **Firm deadlines** are needed to make decisions about assets.
4. Someone needs to be responsible for a **final "empty building" check** before abatement begins

Contractor Perspective

- Interior finishes went to landfill (carpet, some fixtures, drywall); hazmat concerns a factor; some brick contaminated with finishes
- To increase recycling: set requirements instead of goals (level playing field); make it as easy as possible (pre-identify markets)
- Next time would make better use of OWRR as a resource

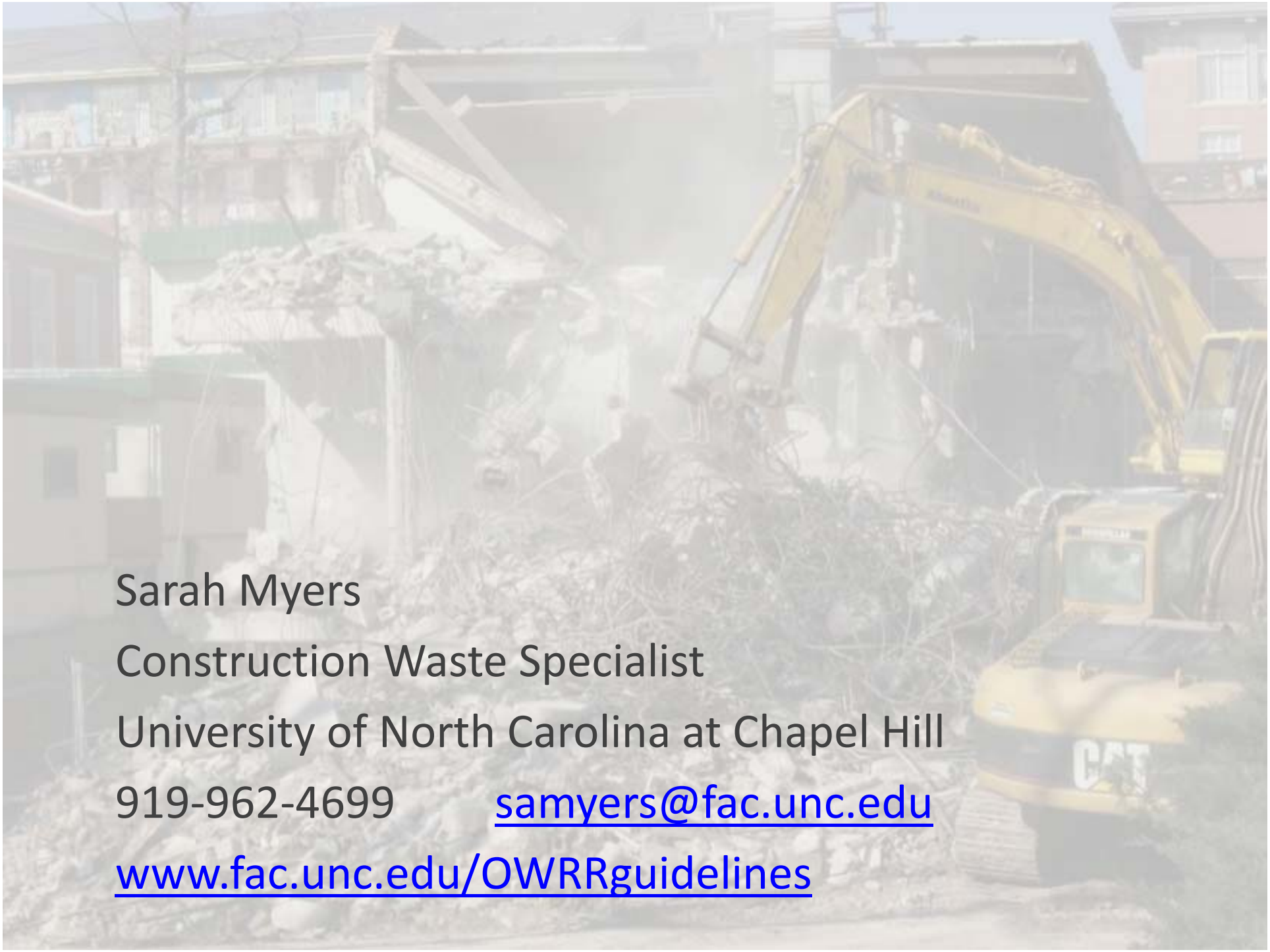
UNC Project Manager Perspective

- Was **happy with the results** and would set a higher goal for next time
- Recycling and salvage were **“feel-good”** aspects of project
- **No negative effect on budget or schedule**
- Noted that the **hazardous material aspect complicated recycling and salvage** efforts

Closing note:

- **Advocacy for waste management in the design and construction phases is critical.**

- Having a diversion goal is not enough – **there needs to be continual monitoring and follow-up**



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www.fac.unc.edu/OWRRguidelines