

## **Ergonomic Risk Assessment NAVFAC East Division**

An ergonomic survey of the mail operation was conducted on February 16, 2000. This assessment is based upon interviews with employees, supervisors, and safety personnel as well as evaluation by the ergonomist. Recommendations are included with as much vendor information as possible.

### **Mail Room**

The mail room in Administrative Services is responsible for distributing all of the mail delivered to the activity. The mail room supervisor estimates that they process 5,000 pieces of mail a day. This number increases the day after the weekend, particularly if there was an extended holiday weekend. The mail facility uses a double sort processing system to distribute the mail.

The United States Postal Service brings the mail in large wheeled carts, which are unloaded at the dock. Each large cart contains several standard white postal bins holding the mail. The cart is wheeled into the mail room by an employee as shown in figures 1 and 2. The postal bins are individually removed from the USPS cart and placed on a table in the center of the room as shown in figure 3. The employee sorts the mail from each white postal bin at the central table and throws it into one of the 8 surrounding tubs. Each tub is an elevated box. The box walls are 12" long and the height to the top of each wall is 42". Reaching into the bins to retrieve mail, as shown in figure 4, encourages flexed back and neck postures as well as lifting of potentially heavy and unstable loads. Mail that doesn't have a mail code is separated out at this point for Ms. Denise Pope to pick up later.

Operators working the edge of the room pull mail in bulk from the deep tubs, and place it on the worksurface in front of the mail sorter wall units, as shown in figure 5. The second sort consists of employees taking mail from the work surface and placing it in the appropriate labeled slot in the wall unit, as an employee demonstrates in figure 6. The slots are not necessarily in order. The edge of the work surface is worn and splintered, posing a possible safety hazard. The height of the work surface is 29 <sup>3</sup>/<sub>4</sub>" and the top slot is 77 <sup>1</sup>/<sub>4</sub>". Accessing the top shelves places strain on the upper extremities by requiring a reach above shoulder height across the work surface. In the past, smaller female employees have had to climb the mail sorter in an unsafe manner to reach the top shelves.

When the second sorting is completed mail is removed from each slot, bound, and placed in bins for delivery. The bins of mail are taken from the work surface to the docks and loaded into the delivery vans. Either the white postal bins or the red plastic bins are used at this point. The red plastic bins, shown in figure 7, are flaking off in pieces and weigh 11lbs when empty and over 50 lbs. when full.

The employee stands in the back of the delivery truck and pulls the bins from the dock to the floor of the van for loading. The employee unloads the van from the ground level as shown in figure 8.

Six employees are responsible for the sort and delivery of the mail. Everyone sorts the mail in the morning, but one employee a month is exempt from delivering mail (decided on rotating basis). Upon interview, employees mentioned back and ankle discomfort. Employees expressed concern over slipping and falling as well as carrying bins of mail up stairs during delivery runs.



Figures 1 & 2: Mail room employee transporting the mail from the dock to the mail room



Figure 3: Employee unloading USPS Cart

Figure 4: Primary sort



Figure 5: Emptying tubs



Figure 6: Employee preparing for second sort



Figure 7: Red plastic bin



Figure 8: Employee loading delivery van

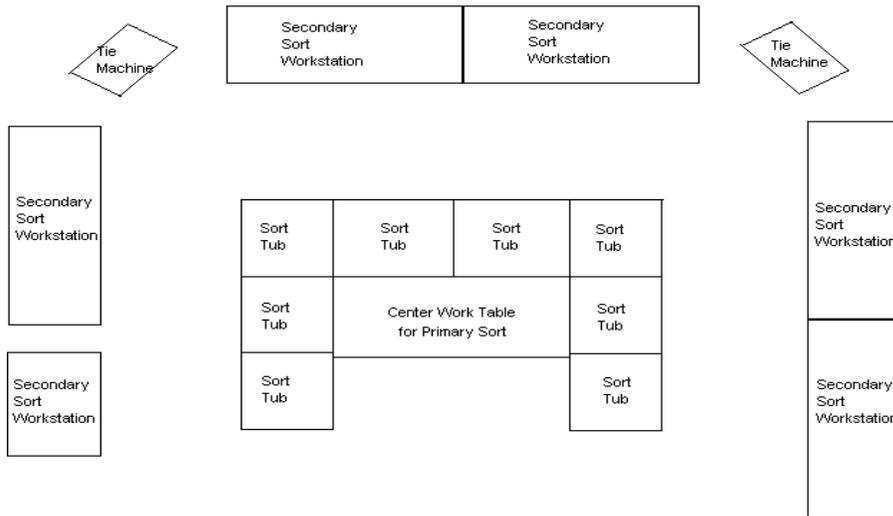


Figure 9: Current Mail Room Layout

**Recommendations:**

**Package Carts**

1. Replace the tubs used in the primary sort with tilting carts. The carts can be in the horizontal position for sorting purposes. When the sorting process is complete, roll the carts to their designated wall sorter, tilt, and unload. Since the employee can unload piece by piece from the cart the work surface is not necessary. Eight package carts would be needed. Details for package carts are included in table 1.



Tilting Package Carts

<b>Table 1: Package Cart Recommendations</b>			
Vendor	Product	Price	Price (3 or more)
Datamation 1-201-393-004	Heavy-Duty Package Cart	\$350.55	\$326.80
Charnstom 1-800-328-2962	Heavy-Duty Package Cart	\$369.00	\$344
Postal Products Unlimited 1-800-229-4500 X1071	U-Cart with Canvas Insert	\$288	\$279

## Height Adjustable Tables

2. Replace the table in the center of the room with a height adjustable workstation. The employee has to repeatedly reach into the white postal bins on the table to retrieve individual pieces of mail during the primary sort. A height adjustable work station can help accommodate all employees performing this task. Table 2 contains product information for height adjustable tables.

<b>Table 2: Height Adjustable Tables</b>			
Vendor	Product	Price	Details
Lab Safety 1-800-356-0783	Biofit Agility Adjustable Table	\$783.25	30"x60" hand crank
Alimed 1-800-225-2610	Height Adjustable Table R7968	\$873.00	30"x60" lamine surface hand crank
C&H 1-800-336-1331	Height Adjustable Table 55-141D	\$932.60	30"x60" lamine surface, hand crank

## Sort System

3. The wall sort system should be replaced with newer, shorter units. The storage capacity can be maintained by purchasing longer units. A pull-out work surface is a good option that allows the employees to place bins on a flat surface when loading sorted mail from the mail unit slots. The pull-out surface should be put away when unloading the carts mentioned in recommendation #1, because an extended work surface increases the reach distance too mail slots. New labels should be used for the wall system. A case study of usage would benefit the sorting process by determining which mail slots are used the most frequently and placing these in the middle rows. The safety office should be contacted about placing sorters in front of radiators.

There are currently five 72" sorters and one 48" sorter in the mail room. New mail sorters with pull-out surfaces are only available in 60" lengths. It is recommended that eight 60" sorters be purchased. This will give the mail room 70 additional inches of sorter space. This space should be used to eliminate utilization of the top 1-2 shelves. This extra space can also be used to increase the size of the sort slots so the mail doesn't need to be removed and bundled as frequently. Vendor information can be found in table 3.



Wall Sorter Unit



Wall Sorter Unit



Pull-Out Work Surface

**Table 3: Mail Sorter Recommendations**

Vendor	Product	Price	Price (3 or more)
Datamation 1-201-393-004	72" Wide Triple Sorter with Cabinet Pull-Out Work Surface	\$1,613.10  \$236.55	\$1,518.10  \$222.30
Charnstom 1-800-328-2962	72" Wide Triple Sorter with Cabinet Pull-Out Work Surface	\$1698.00  \$249	\$1,598.00  \$234
Advanced Equipment (301) 336-0200	Model P563 three tier mail sorter with pull-out work surface		\$1,374* based on 8 piece quote

## Totes

4. The red plastic bins are larger than the white postal bins, but poor condition and extreme weight adds to the difficulty of this task. Newer bins with a similar capacity and lower weight are recommended. The red bins have dimensions of 12"x30.5"x11" and a weight of 11 lbs. All recommended bins have open handles for easier handling. Please refer to table 4 for product information.

<b>Table 4: Tote Suggestions</b>					
Vendor	Product	Dimensions	Weight	Price	Capacity
C & H 800-558-9966 (Akro-Mils)	Straight Wall Container, <b>Mesh</b> Sides and Base* 45-632AL	24"x16"x8"	4 lbs.	\$11.35 (only sold in sets of 4)	45 lbs.
C & H 800-558-9966 (Akro-Mils)	Straight Wall Container, <b>Solid</b> Sides and Base* 45-671AL	24"x16"x8"		\$12.45 (only sold in sets of 4)	83 lbs.
C&H (Schaefer)	Color-Coded Stackers, <b>Solid</b> 44-244AA	23"x15"x8"	4 lbs.	\$18.90	45 lbs.
C&H (Allibert)	Stack and Nest Totes, <b>Mesh</b> 42-333D	23.75x15.75x7.75	3.25 lbs.	\$9.90	40-60 lbs.
C&H (Allibert)	Stack and Nest Totes, <b>Solid</b> 42-336D	23.75x15.75x7.75	3.5 lbs.	\$9.30	40-60 lbs.
Grainger (Schaefer)	Industrial Container, <b>Mesh</b> 4VL87	24"x16"x8.5"	3.9 lbs.	\$22.35	33 lbs.
Grainger	Industrial Container, <b>Solid</b> 4VL86	24"x16"x8.5"	5 lbs.	\$20.19	55lbs.

5. Provide employees with carrying cases for transporting mail up stairs. Each delivery person should have two shoulder bags for making deliveries. Employee input should be used for deciding between or for a combination of the two models. Table 5 contains vendor information.



Canvas Shoulder Bag



Collapsible Shoulder Case

<b>Table 5: Shoulder Bags</b>			
Vendor	Product	Price	Price (for 3 or more)
Datamation 201-393-0004	Canvas Shoulder Bag C-18	\$84.95	\$69.95
Datamation 201-393-0004	Collapsible Nylon Shoulder Case	\$114.95	\$98.95

**Shoe Inserts and Anti-fatigue Matting**

6. Shoe inserts and anti-fatigue matting are recommended to reduce pain and discomfort associated with standing and walking for extended periods of time. Product information can be found in table 6.

<b>Table 6: Shoe Inserts and Anti-fatigue matting</b>		
Vendor	Product	Price
Alimed 1-800-225-2610	Shoe Insoles	\$9-\$17
Alimed 1-800-225-2610	Anti-fatigue matting	\$17-\$100
C&H 1-800-558-9966	Anti-fatigue matting	\$15-\$255
Matting World 1-800-257-8557	Anti-fatigue matting	\$15-\$200

### **Low Cost Temporary Measures**

7. Until hazard abatement funding decisions are made, there are a few low cost temporary improvements that could be implemented.
  - Put hinges on the outside walls on the tubs used for the primary sort. A hinged door would eliminate the need for employees to reach into a tub, over the side, to pull out the mail.
  - The shelves on the wall sort system could also be re-numbered and re-labeled. Shelves should be located in order with color codes for different buildings.
  - The edges of the work surface, which are currently splintering could be temporarily covered to prevent further wear.
  - Sit the white postal bins in a clean trash bin on wheels when loading bound mail. A standard trashcan allows for a white postal bin to sit angled towards the employee at a neutral working height.
  - A step stool could accommodate shorter employees placed in the mail room temporarily.

\*Some information has been removed from this report that is specific to the activity.