May 2, 1955

W. C. Seeds, DEC

DUST COLLECTION -"A" BUILDING - MAN 1776

You have given us an assignment to reduce all asbestos exposures in "A" building below one million fibers per cubic foot of air. Accordingly, we have investigated the dust conditions throughout the building and are giving you below our findings and recommendations. A schedule of dust counts is attached hereto for your convenience.

Card Room

Counts at the six (6) breaker cards at the west wall of the main card room showed up higher than the allowable limit of one million particles per cubic foot. There are quite a few breaker cards in the card room but dust counts at all the cards, except the six mentioned above, showed up well below the maximum allowable limit. However, all the other breaker cards have an exhaust connection underneath the machine to prevent dust from billowing out the front and sides; this bottom connection is missing from the six breaker cards at the west wall of the main cardroom.

We, therefore, propose to install bottom connections as required and connect them into a small, unit dust collector, as shown on preliminary drawing 15135-4 appached hereto. I am also attaching the Dusco Company's Bulletin F-9053 giving information on the dust collector I am talking about. Estimate in the amount of $3,762 for the work shown on the preliminary drawing 15135-4 is also attached hereto. However, I would like to emphasize that there are a number of major factors contributing to the objectionable dust conditions at these breaker cards which are entirely beyond our control and will contribute to high dust counts regardless of the type exhaust provided.

These contributing factors are:

1. Methods of handling fiber. For example loading the card feed hopper is a very dusty operation.

2. Housekeeping. Everytime I have been down there, I have noticed large clumps of fiber on the floor, which add to the dust and fiber in the air.

3. The discharge air from the dust house is another major factor in adding to the dust load in the air, particularly in that section of the card room.

4. Hoods and covers on the machines are frequently observed to be open while the machines are operating, which again contributes to the dustiness of the area.

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Fiber Preparation Area

Last Summer's survey indicated only one spot in the whole fiber preparation area where the dust count showed up excessive and that was at #3 willow. Repeatedly rechecking the fiber preparation area visually did not indicate other questionable spots. We have, therefore, proceeded with design of a hood for #3 willow only. Preliminary sketch of exhaust system dwg. #15136-4 and cost estimate are attached hereto. We have shown a 6" duct to the existing dust house, since the air quantity is quite small (890 CFM) and the operation is very intermittent.

L-Frame Spinner Room

I understand that the revised dust system for this area, required for the new spinners, has now been approved. We expect that the new dust system will improve the dust and fiber conditions in the L-Frame Spinner rooms; we will recheck this area after the new dust system has been installed.

Twister Room

Additional dust samples have been taken in the twister room to determine whether using wet-spun yarn will reduce the dust created due to the twisting operations. The results of these counts have now been received, showing a somewhat lower count than last summer. As set up at our meeting of January 17, the Division representative will now decide whether dust control is required and, if so, to what extent, and advise GPED accordingly.

Weave Room

In our meeting of January 17th GPED has been requested by the IP Division to investigate the existing cloth loom air systems and make recommendations. We have now investigated these systems and find that there are two separate dust collecting systems for the cloth looms designed and installed in 1933. The hoods at the looms make-up what is commonly called a push-pull system. A suction hood is placed above the cloth being woven and a blowing hood or strictly speaking blowing slot is placed beneath the cloth with the idea of blowing off the dust and fiber into the suction hood.

The north system exhausts the air directly into a "Sly" dust collector and relatively little trouble has been experienced on this system. The blowing hoods or slots on the north system have, sometime ago, been converted to suction so that on that system we now have suction both above and below the cloth. The south system is set up in a rather unusual way. The air is exhausted from the looms into a cyclone dust collector which acts a pre-cleaner and from there into a Pangborn cloth collector. However, a branch duct is brought back from the duct connecting the cyclone with the Pangborn collector, and this duct is used to convey air to the blowing hoods below the cloth. Thus some of the air leaving the cyclone returns to the building. This is the cause of the union complaint mentioned in Mr. B. F. Stanton's letter to Mr. M. F. Naylor, dated December 27, 1954, copy of which is attached hereto. As the resistance in the Pangborn collector increases due to accumulation of dust on the

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bags more air goes back into the building since air uses the path of least resistance. A cyclone does not have sufficient dust collection efficiency to collect practically all of the dust and that is of course why a Pangborn collector has been installed as a final collector. So you can see readily that we will quite likely return air to the room which is contaminated with fine asbestos dust and fibers.

I should like to mention at this point that a dust survey was made last year of this area, and all of the looms on the south system showed up satisfactorily. In order to correct this nuisance condition, we can do the following:

a. Before entering the cloth collector as is done now, return the air to the building after it leaves the cloth collector so that the return air has the cleaning benefit of both collectors.

b. Install a switch damper so that the air can be discharged either to the outdoors or returned to the building. Thus the air can be returned to the building in the winter time to save heating costs but returned outdoors when heat is not required.

c. Install new return air duct work to distribute the air throughout the weave room. Completely disconnect the return air blowing hoods and ducts.

d. Increase the cloth area in the Pangborn collector is feasible or provide additional collector. The reason for this is as follows:

By discharging all the air from the cyclone into the final collector rather than returning some of it to the building before we get to the cloth collector, we will increase the load on this cloth collector. 32,160 design CFM now enter the cyclone with 16080 CFM slated to go through the collector and a like amount to return to the room. The collector has 5,700 sq. ft. of cloth. If all the air is passdd through the cloth collector, 32,160 to 5,700 will result in a ratio of 5.65, which is much too high.

Furthermore the original "push-pull" system was designed to do the job. If we take away the "push", we will have to increase the "pull", therefore more air will be required for each machine to do a proper job.

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See dwg. 15165-4 attached. Class "A" estimated cost for these changes if $24,943, as per estimate sheet attached.

Last summer's dust survey showed an unsatisfactory condition at the asbestica tape loom. Another set of dust counts was taken at this loom. The results have also just been received showing practically the identical fiber count. As formulated at our meeting of January 17, the Division will now advise GPED whether to design and estimate dust control for looms weaving asbestica tape.

C. H. STEVENS - GPED, Manville

CHS/MG

cc: B. F. Stanton, Manv.
Mark Seim

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Card Room - Breaker Cards	Station #	Count Summer of 1954	Count with Wet Spun Yarn Spring 19
Between Cards 53 & 54	209	1.534 MFPCF*	Not Taken
59 & 56	210	0.224 "	" "
58 & 57	211	1.170 "	" "
Willow	189	1.620 "	Not Taken
		0.430 "	" "
Twister Room			
South of Twister #1	106	0.346 "	0.220
" " " "	107	0.215 "	0.07
Weave Room			
Loom #7	77 **	1.940 "	(0.15 (0.18
Loom #14	78 **	3.92 "	(0.47 (0.19
Back of Loom #18	51	2.310 "	2.48
" " "	52	2.550 "	2.40

* MFPCF = million fibers per cubic foot

** Taken with dust cover on machine broken. Other counts taken with covers and hoods in proper operating condition.

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