

## From rags to highly desirable product

Nowadays, paper is usually made from wood products in the paper industry. In De Schoolmeester we still use rags, textile industry waste, flax and hemp as our raw materials.

### Available paper types

De Schoolmeester manufactures:

- Zaansch Bord, made of 65% cotton and 35% flax or hemp, in different colours.

- Formerly, moss paper, made from 90% peat moss and 10% hemp. This was used for sealing seams in wooden ships, locks and other waterworks.



In the past Zaansch Bord was chiefly used for packaging, but nowadays it is used for various artistic purposes: posters, screen prints, water colours, etchings, certificates, but most for bookcovers.

### Available in the standard sizes:

Approx. 62 x 72 cm,  
62 x 36 cm, 30 x 40 cm,  
30 x 21 cm and 30 x 11 cm.

Other sizes are also available upon request.

Each sheet has 4 deckled edges.



## Paper mill De Schoolmeester

(The Schoolmaster)

The Zaan district used to be home to 60 paper mills, and now has only one left: De Schoolmeester (The Schoolmaster). De Schoolmeester was built in 1692 and engineered to produce packing paper. The mill was staffed by 13 full-time employees and 5 to 10 rag-tearers. The rag-tearers were paid per kilogram and earned about NLG 1.50 per week. Their working hours probably were determined by the workload.

The full-time staff: millers, paper-makers, sorters, paper-cleaners and others, worked from 6 a.m. to 6 p.m. in the winter, but in the summer when the daylight lasted longer the workday ran from 4 a.m. to 8 p.m. Saturday was a workday too.

As some of them also lived an hour's walk away from the mill, you can imagine the long hours of their working days

Unlike in for example oil mills, where staff was paid per quantity produced, the staff in paper mills worked for a set wage, ranging from NLG 8.00 per week for millers and papermakers to NLG 3.00 for sorters and packers.

*De Schoolmeester is the property of the windmill society De Zaanse Molen (Mills of the Zaan) and its operation is managed by the Windmolen Compagnie (WMC).*

### Guarantee!

The WMC guarantees that each sheet of Zaansch Bord is manufactured from cotton, flax and (ditch) water, using traditional methods, without the use of adhesives or pigments, and is naturally air-dried.



### DE ZAAISCHE MOLEN

Around 1920 there were only about 20 windmills left of the 1000 that had made the Zaan district the oldest industrial area of the world. On 17 March, 1925, windmill society De Zaanse Molen was founded to preserve the mills for future generations. This society now owns thirteen industrial windmills; it keeps them in excellent condition and operates them regularly. Moreover, in 1928 the society founded a unique and fascinating Windmill Museum, where you can find out everything about the operation and history of industrial windmills and where changing exhibitions are held. You can also visit our website: [www.zaansmolen.nl](http://www.zaansmolen.nl)



For all information about our mills and mill museum, opening hours, group visits and entrance fees:

[www.zaanschemolen.nl](http://www.zaanschemolen.nl)

### Paper mill De Schoolmeester

Guispad 3, 1551 SX Westzaan, NL  
Tel. +31 (0)75 - 621 44 65

e-mail: [deschoolmeester@zaanschemolen.nl](mailto:deschoolmeester@zaanschemolen.nl)

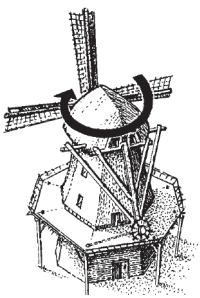
## DE SCHOOLMEESTER

Paper mill  
on the Guispad at Westzaan  
**Anno 1692**

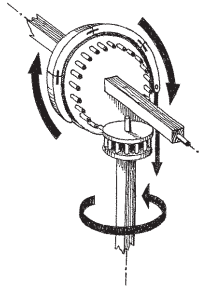


### DE ZAAISCHE MOLEN





This windmill is a smock mill: only the cap with its sails are turned to face the wind by means of the capstan wheel at the bottom of the tail-pole.



The horizontal rotary motion of the sails is converted into vertical rotary motion movement by the brake wheel and the wallower in order to power the machinery on the floor below. The brake wheel is surrounded by a wooden brake which makes it possible to stop the mill from turning.



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## This is how paper is made in De Schoolmeester

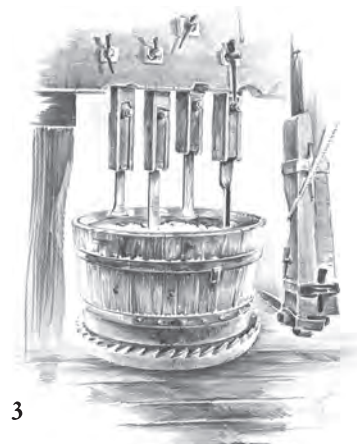
The raw materials are delivered to the *rag shed*<sup>1</sup> and stored by type in the storage cupboards. From here they would go to the *tearing shed*<sup>2</sup>, where the rags were sorted by women and children on the hort (a slatted table) so that the dust would fall through. On the tearing bench the rags were torn into little pieces and put into crates, sorted by colour. The tearing knife was also used to remove buttons, buckles and the like. Outside you can still see the whetstone that was used to sharpen the tearing and tamper knives. The large scale in the shed<sup>1</sup> was used for weighing. Nowadays textile industry waste is used as a raw material as well as the conventional rags.

### Preparatory work

The torn-up pieces are placed in the *tamper barrel*<sup>3</sup> where they are chopped into smaller pieces. The flax and hemp that are used as raw materials are treated in the same way. The tampers are lifted by an axis with spokes and then fall into a slowly turning barrel. The onderree (the beam above your head) catches the tampers so that the knife-edge stays just 1/2 cm above the floor of the barrel.

In the *beater tubs*<sup>4</sup> the material is mixed with water and pounded until the fibres separate. The beater pin, covered along its length with blades, crushes against the blades of the beater plate that lies on the floor of the tub. In the *whetting room*<sup>5</sup> the beater plates are sharpened with a hammer and chisel. The beater pin blades need to be sharpened too, but this is done in the tub itself.

The whetting room also served as a hut for the millers.



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### Papermaking

From the draining cupboards the paper pulp is brought to the *stirring tub*<sup>8</sup> and mixed once again with water. From the stirring tub the dilute paper pulp runs to the *papermaking cupboard*<sup>9</sup> and a scooping wheel moves it through a wooden gutter to the paper machine.

The great quantity of water used in papermaking is pumped directly from the ditch to the water tub by the *pump*<sup>10</sup>.

*Paper machine*<sup>11</sup> has been in the mill since 1877. It was initially steam-powered but since 1979 it is run by an electric engine. This is necessary to achieve the constant speed the machine requires, something the inconsistent wind power is incapable of.

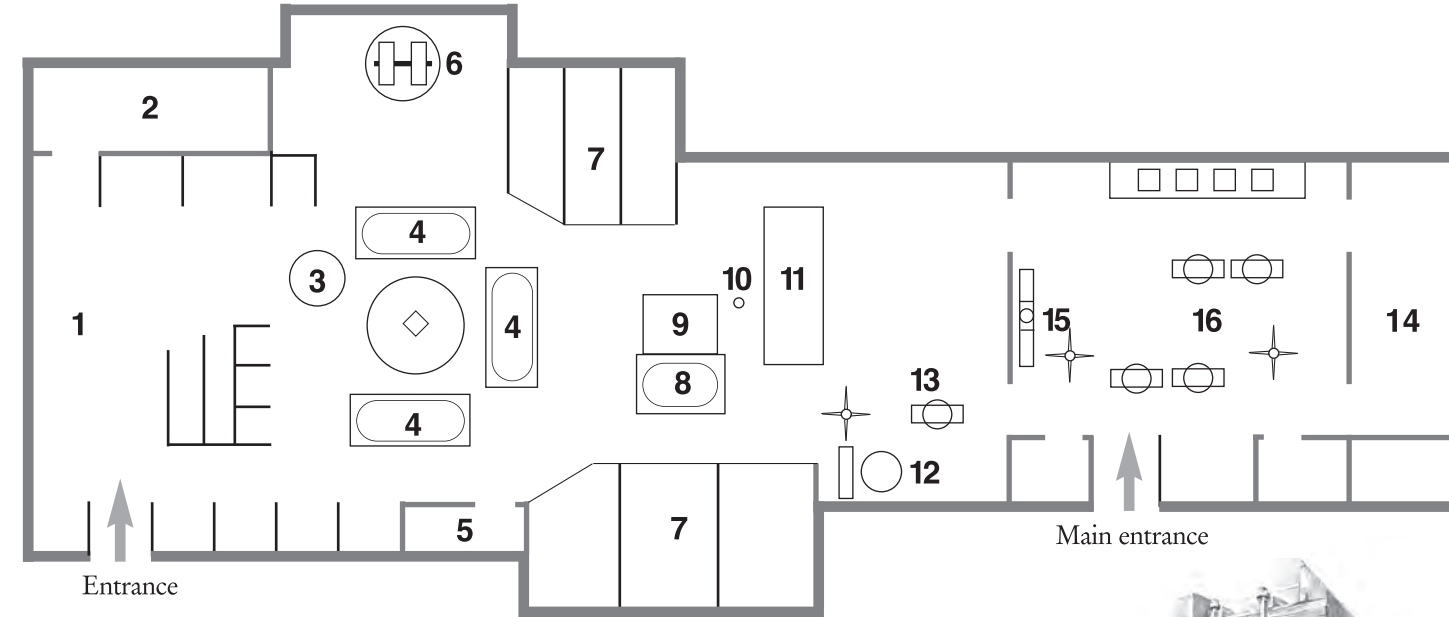


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The *runner edge stones*<sup>6</sup> were used for grinding old paper. This was re-used in the 'dirty' paper types (recycling!).

The beaten material runs through a wooden gutter from the beater tubs to the *draining cupboards*<sup>7</sup>. The water sinks through the slatted base, leaving only the paper pulp behind.

The draining cupboards are storage areas and they are filled in times of plentiful wind and emptied in wind-slack times.



Up to 1877 the paper was removed from the tub with a deckle frame and couched on felt. The *chimney*<sup>12</sup> serves to heat the water in the papermaking tub, this helps the paper lose its water quicker.



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### Finishing

The sheets are stacked and put in the *wet press*<sup>13</sup> to press out as much water as possible. By means of a beam placed in the wheel of the press and tightened with the rope of the capstan, a pressure of 30,000 kg can be exercised on the paper.

When after about one hour the water has dripped off the paper, the moist sheets of paper are hung in the *drying shed*<sup>14</sup> over grease-free fig rope and naturally air-dried.

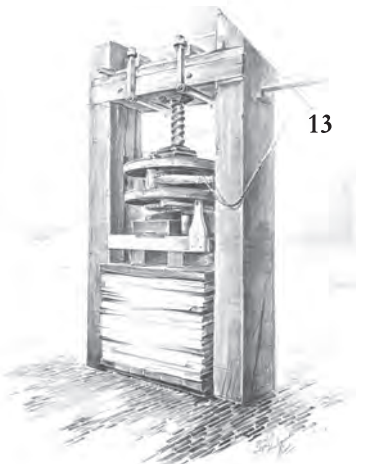
On both sides of the 60-meter drying shed the shutters can be opened to speed up the drying process.

The drying time depends on the weather and varies between 3 days to 3 weeks.

After drying, the paper is cleaned of any small irregularities on its surface.



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Then it is pressed to flatten it out, and calendered to make the surface smoother. The lowest roller of the *calender*<sup>15</sup> is powered by a 17-meter axis (!). A pressure of approx. 1,500 kg is exercised on the top roller by a heavy beam. Each sheet is passed through the rollers 3 or 4 times.

Finally the paper, sorted by thickness, is pressed in the *drying press*<sup>16</sup> and then packaged for selling.