

**ANDRITZ**

 **NOVIMPIANTI**  
DRYING TECHNOLOGY

PULP & PAPER

# PAPER & BOARD

CLOSED INSULATED HOOD

APRIL 30<sup>TH</sup> 2019

# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

## Main advantages



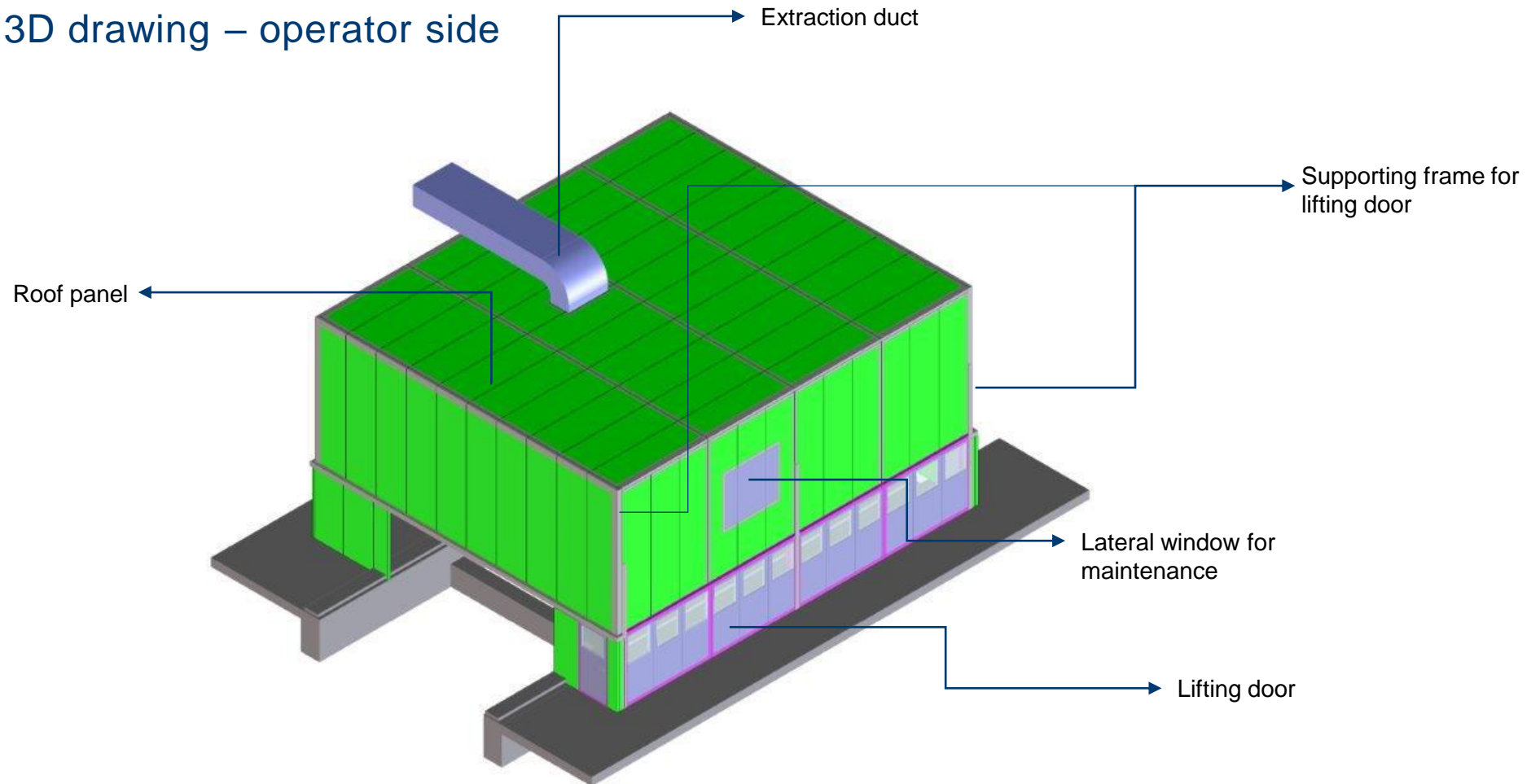
The importance of insulated closed hood is today fundamental for a competitive production process in paper and board, because:

- It assures better standard for a correct paper/board drying
- It allows to collect the evaporation, heat and humidity produced by the process avoiding its dispersion in the hall
- It protects machine operators from noise, dust, heat and humidity

**Andritz Novimpianti insulated closed hood** with lateral doors with inner rails/cranes for change/extraction of felts and maintenance

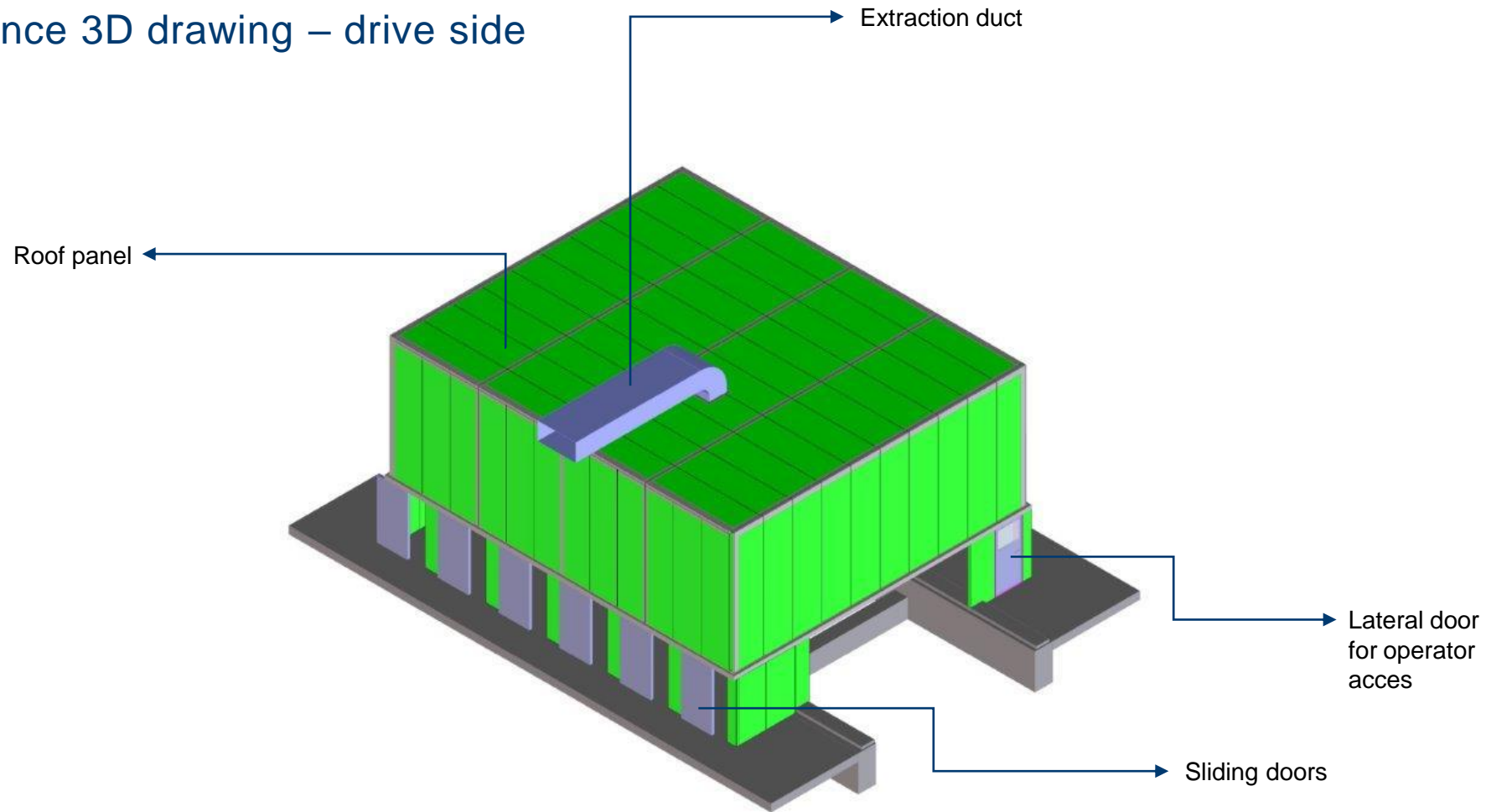
# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

Reference 3D drawing – operator side



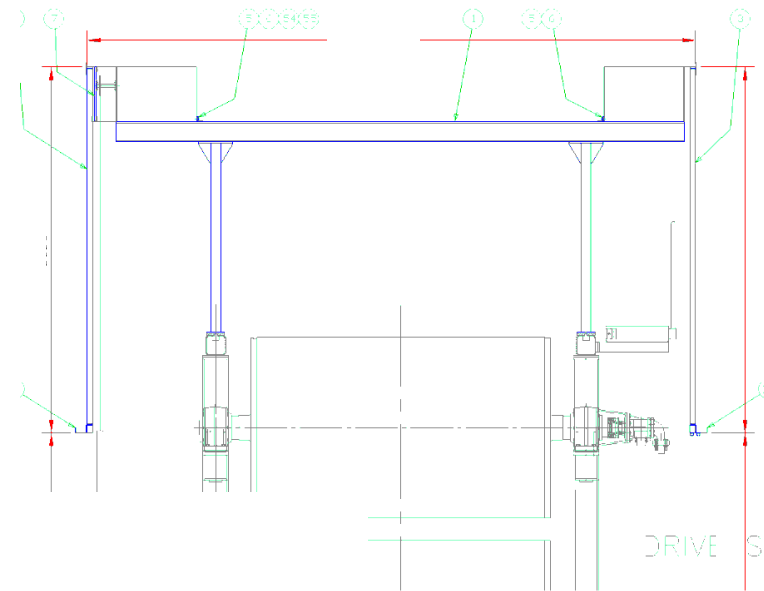
# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

Reference 3D drawing – drive side



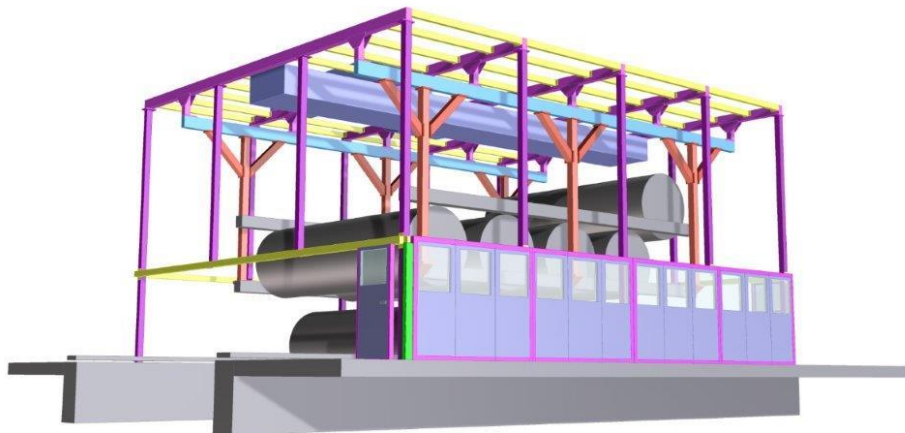
# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

## Hood supporting structure



The hood is supported by the machine frame. There are no beams on the floor.

Hood support made of steel structural shapes, sand blasted and painted. The structure is fastened on the machine shoulders. Their position is studied not to interfere with other devices.

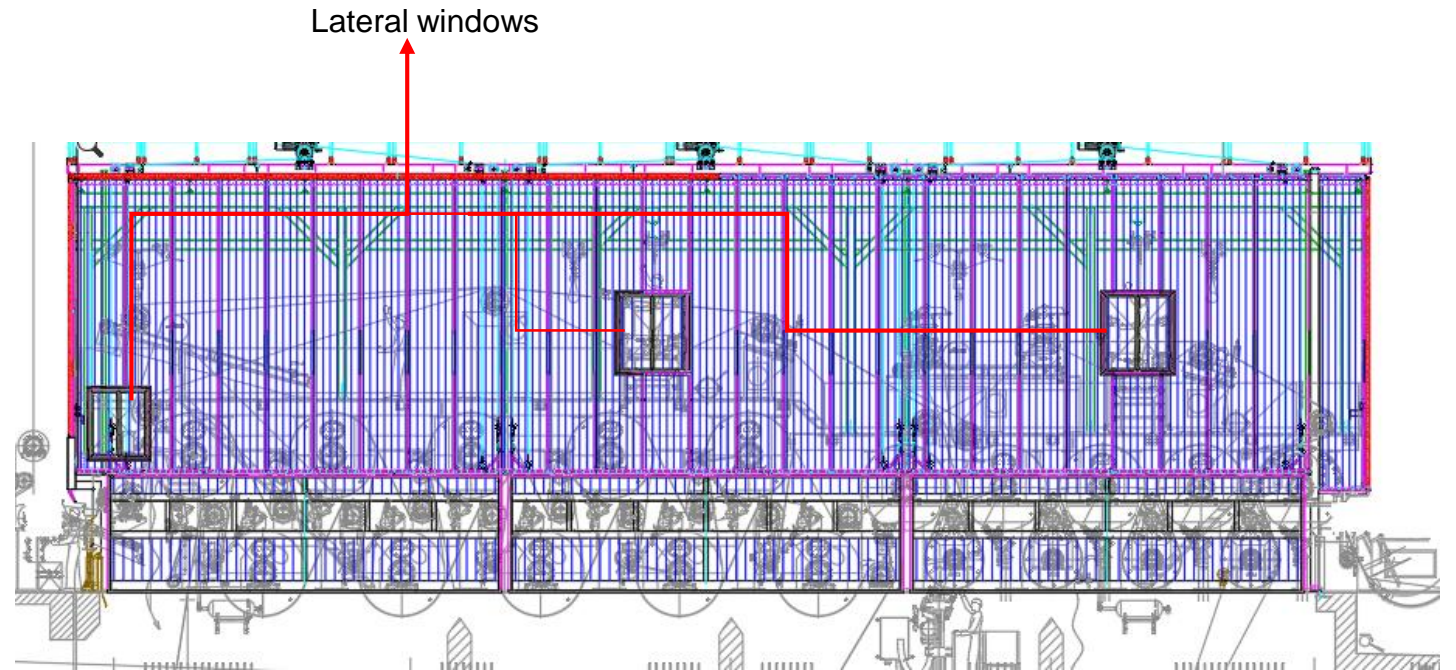


Supporting construction for the first meters of the pre-drying section, resting on the machine frame made of welded stainless steel AISI304 profiles and plates.

As option AISI316

# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

## Lateral windows



On operator side hood is equipped with lateral windows with inner crane/rails for maintenance operations and felts changes.

# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

Inner crane



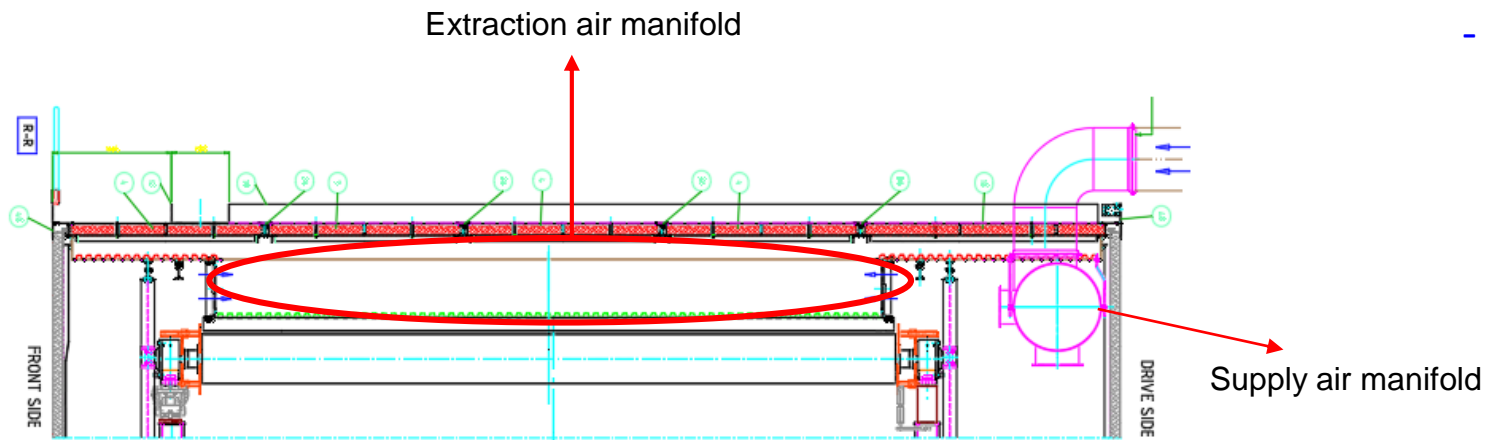
Inner crane with rail for felt change and maintenance operations

# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

## Supply air and extraction manifolds

Hood is equipped with manifolds for distribution and extraction of air:

- Distribution air manifold on drive/front side to supply air to pocket ventilation
- Extraction air manifold under the roof





# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

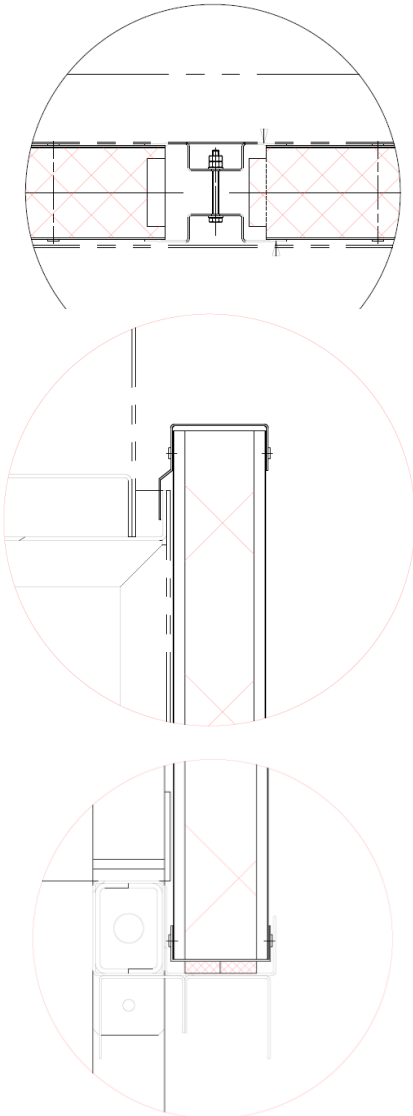
Wall and hood dry end insulated panels



Wall and hood dry end with insulated panels.

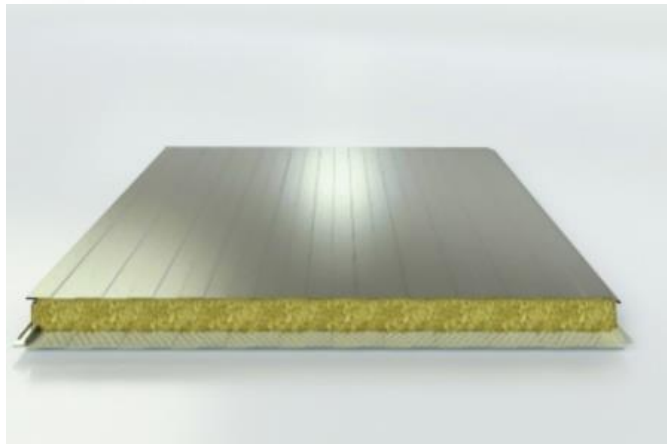
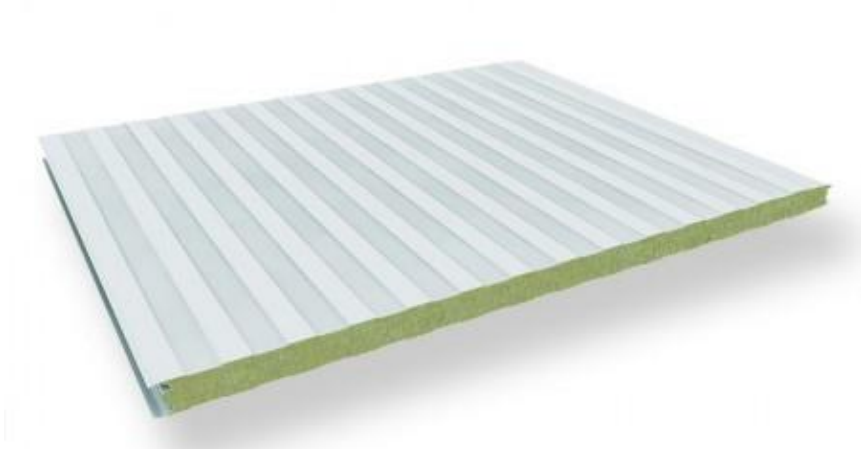
Panels are fitted airtight together and hanged to the perimeter beam with a stainless steel hook; all panels are easily removable.

The side closure comes down to about 2.2m from the floor.



# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

Wall and hood dry end insulated panels

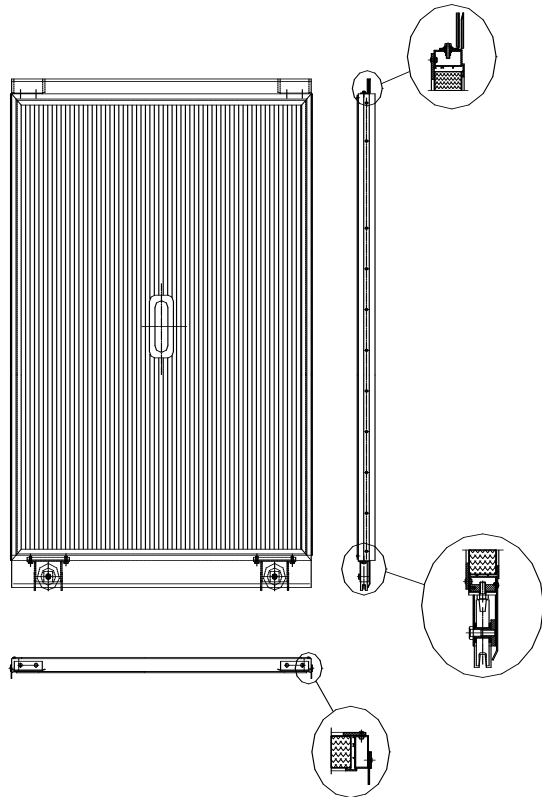


All these panels are made of:

- two aluminium sheets
- a layer of mineral wool, with density  $90\text{kg/m}^3$  and thickness 120 / 100 / 80 mm. This material has a very good insulating power: thermal conductivity  $\lambda=0.036\text{Kcal}/(\text{m}\cdot\text{h}\cdot^\circ\text{C})$ .

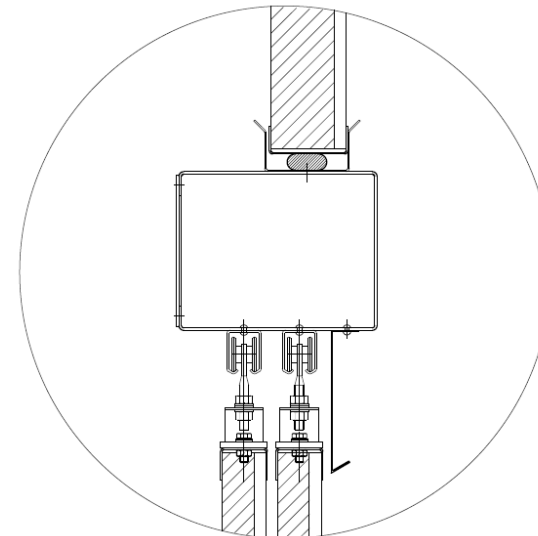
# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

Sliding panels on the drive side



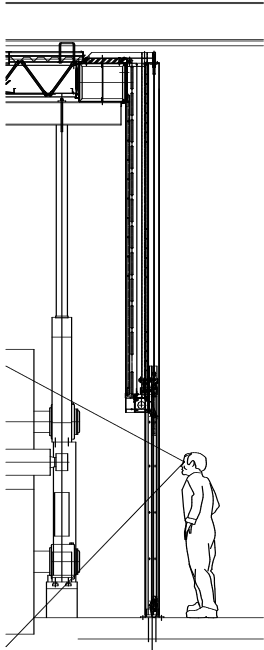
Sliding panels to cover all the drive side length, complete with:

- insulated panels
- aluminum frame
- Wheels on the top or below the panel



# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

## Lifting doors on front side



Easy lateral access to hall with lifting doors equipped with motors/ cables.

Lifting door on the front, approximately 2.2 m high, made of 50mm sandwich panels with aluminum cladding and provided with continuous double glass inspection windows.

The door is made of separated modules to be assembled on site.

The door can be lifted 2m to give continuous access to the paper machine.

The door will be designed to open from outside.

Multiple light beam safety device composed by emitter and receiver.

# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

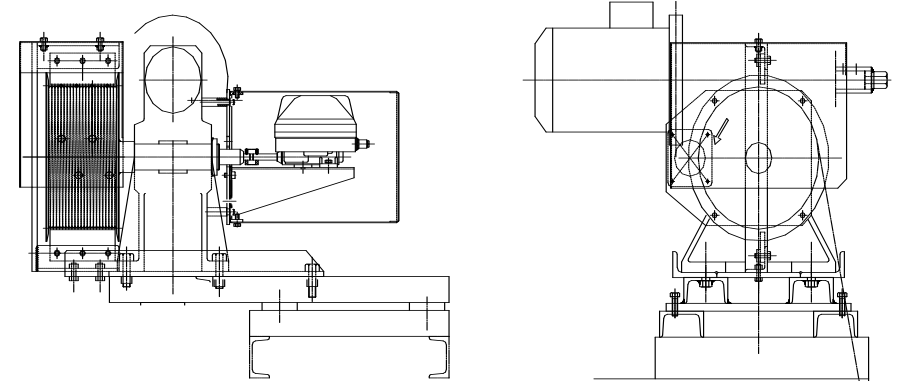
## Lifting doors on front side

- lifting doors for pre-drying section hood
- lifting door for post-drying section hood

The doors is made of separated modules to be assembled on site.

## Lifting system complete with:

- electrical motor (2,2 kW) and reduction gear
- a set of switches to regulate the lifting
- stainless steel ropes and pulleys
- safety limit switch at the top of the doors
- mechanical safety system in case of rope breaking control button on the column and/or in control desk or panels supplied by the customer



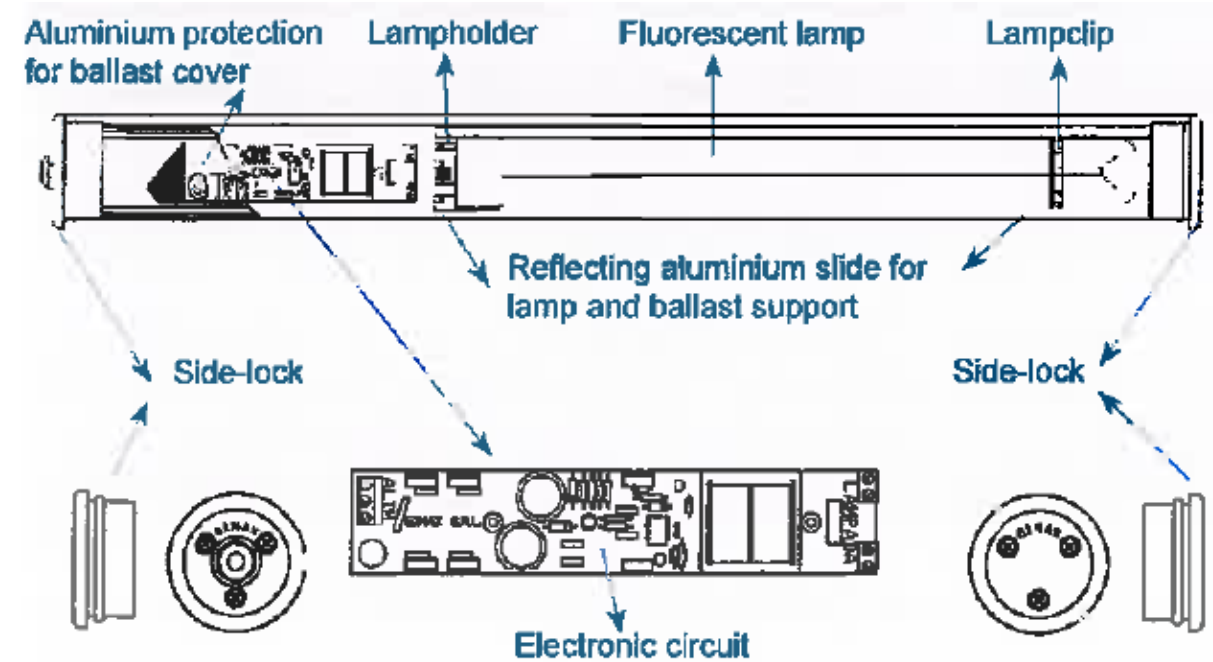
# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

## Lighting fixtures

Lighting fixtures with special design for high temperature (max 110°C), IP67, complete of brackets.

Lamp with tube in borosilicate glass diameter 70 mm with electronic ballast:

- Power 36 W
- Tens. 230 V
- Lumin. Fl 2900 lm
- Length 700 mm



# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

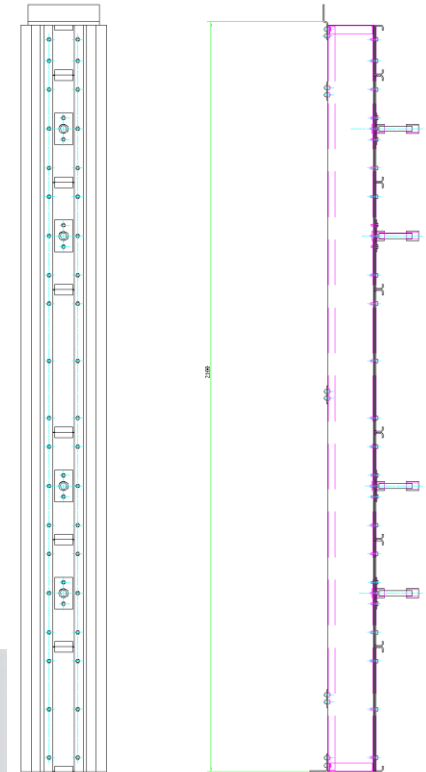
## Instrumentation

Zero Level measurement on pre-drying hood and on post-drying hood, composed of:

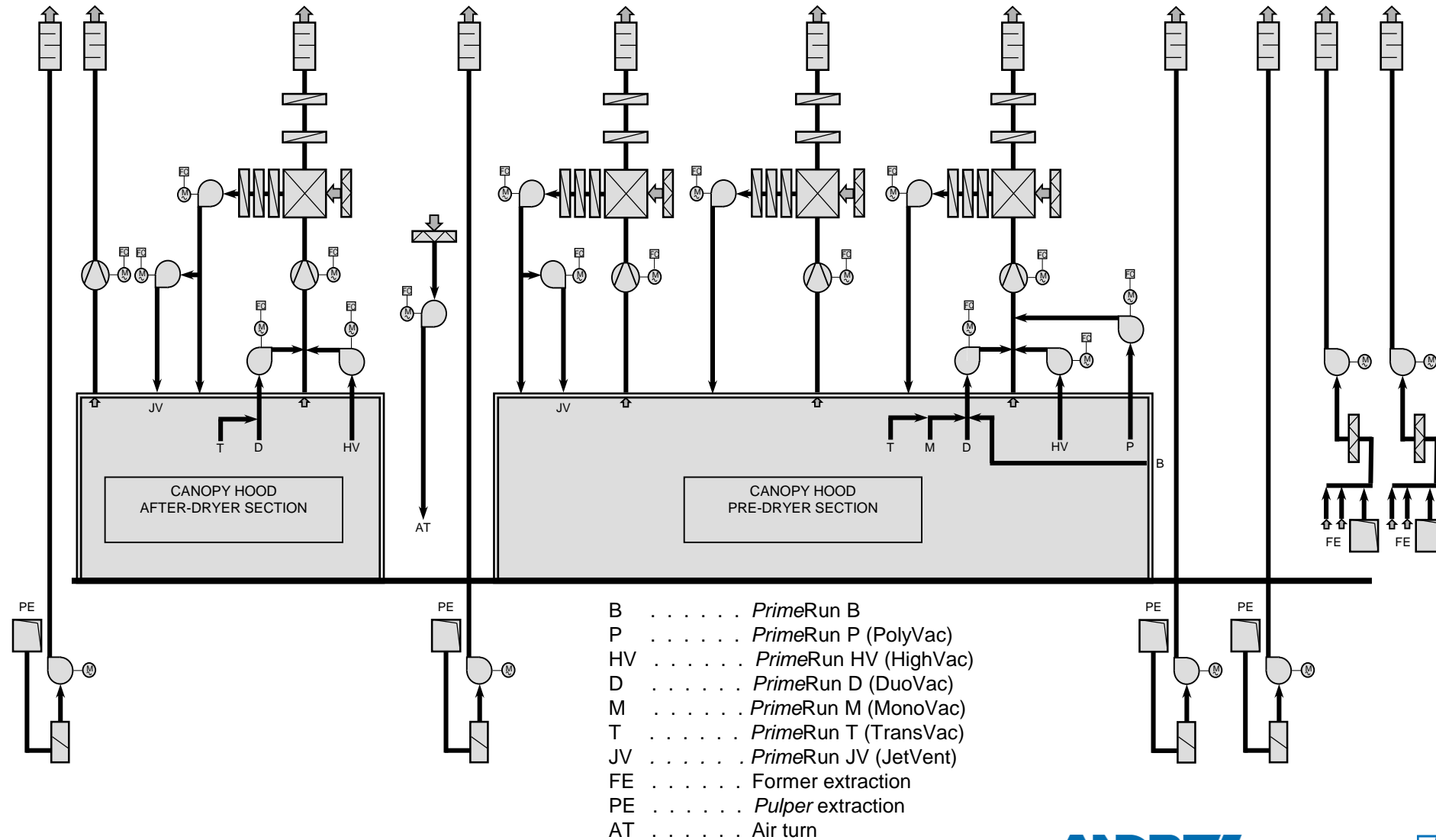
- insulated lateral panel
- Thermocouple Pt 100 Ohm for the temperature transmission.
- Aluminum construction with stainless steel bosses and plates for Pt100 Ohm connection.

Dew temperature transmitter installed in exhaust ducts for pre-drying section and for post-drying section, composed by:

- one measuring probe,
- connecting shielded wire to the junction box.
- Two exit signals 4-20 mA (humidity value and dry bulb temperature)



# AIR VENTILATION AND HEAT RECOVERY SYSTEM





# HEAT RECOVERY SYSTEMS FOR AIR & WATER



## AIR TO AIR HEAT EXCHANGER

Made in stainless steel tubes (optional aluminum) with higher heat transfer, primarily used for dryer sections supply air heating and/or for room ventilation air heating. Strong construction for mezzanine inside/outside installation and of access for easy cleaning and maintenance.

## AIR TO WATER SCRUBBER

Made in stainless steel and complete of special unplugging nozzles banks for heating process water. Typically placed after the air system is provided of a strong construction for mezzanine inside/outside installation and of access for easy cleaning and maintenance.



## AIR TO WATER INDIRECT HEAT EXCHANGER

Made in stainless steel with higher heat transfer used for heating water or glycol-water for machine room ventilation heating unit fluid distribution. Strong construction for mezzanine inside/outside installation provided of access for easy cleaning and maintenance.

# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

Reference list for closed insulated hood and air system 1/2



YEAR	PAPER MILL	PM width [m]
2000	Cartiera Olona (Italy)	2,8
2000	Cartiera Coop. Rivalta (Italy)	2,75
2000	Cartiera Etruria (Italy)	2,8
2000	Cartiera di Bormida (Italy)	2,8
2000	Cartiera Modesto Cardella (Italy)	2,75
2000	Demolli Industria Cartaria (Italy)	2,75
2000	Industria Cartone Ondulato (Italy)	2,8
2001	Cartiera di Nave (Italy)	2,8
2001	Cartiera Etruria (Italy)	2,8
2002	Cartiera Enrico Cassina (Italy)	2,8
2002	Cartiera Burgo (Italy)	5,6
2002	Industria Cartone Ondulato (Italy)	2,8
2003	SCA – Castelfranco Emilia (Italy)	2,75
2003	Cartiera Etruria (Italy)	2,8

# ANDRITZ NOVIMPIANTI CLOSED INSULATED HOOD

Reference list for closed insulated hood and air system 2/2



YEAR	PAPER MILL	PM width [m]
2005	Century PM6 (Pakistan)	2,5
2006	Cartiera Etruria (Italy)	2,8
2006	Cartiera San Giorgio (Italy)	2,8
2007	Pako Pelasgia PM4 (Greece)	2,5
2007	Cartiera di Carmignano (Italy)	3,4
2007	SCA Packaging Porcari (Italy)	5,6
2011	Cartiera del Chiese (Italy)	2,5
2014	Carmignano M4 (Italy)	3,5
2014	Smurfit Kappa Ania (Italy)	2,8
2014	Torraspapel (Spain)	4,1
2015	Visy Paper VP9 (Australia)	5,4
2015	Pehlivanoglu (Turkey)	2,7
2016	Uniboard (Egypt)	2,8
2016	Papelera de Sarrià (Spain)	3,2
2016	Cartonificio Sandreschi (Italy)	2,8
2017	Stora Enso - Vetsiluoto (Finland)	7,2