



cannabis-drying.com

professionals in drying

TOP-DOWN DRYING INSTALLATIONS

MISSION:

Lower Production Cost

Higher Quality

Better & More Control

Established 1974 • Selling in six continents

**Drying & Curing
Installations For Cannabis**

As a producer of the finest cannabis, you are constantly striving for the best quality cannabis, grown and processed at the lowest cost with an easy-to-manage process. Without a doubt, a smooth continuity of your process is high on your priority list. Deploying a quality system of Cannabis-Drying.com helps you to achieve this. In this catalogue, we present our improved, innovative system for the drying and curing of cannabis.

Cannabis-Drying.com is a subsidiary of a Dutch-based, privately owned company, founded in 1974. From day one, our company played a substantial, innovative role in the niche market of drying and storing agricultural products. Our focus, experience and in-depth knowledge resulted in an ever-growing quality of end-products for our clients.

We have developed and implemented new, groundbreaking techniques for the drying and storing of flower bulbs, seed, garlic and other agricultural products. Doing this thousands of farmers saved money and time considerably.

Innovative & Worldwide presence

The systems of Cannabis-Drying.com's holding company are used in over 50 countries on all six continents. Our clients are both multibillion-dollar, stock listed companies (USA & Europe) and small local farms as well.

Cannabis-Drying.com is staffed by a team of draughtsman and engineers, with each expert having an average experience of over 10 years. Continuous improvement is in our DNA and you, the innovating client, benefits from this.



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In the life cycle of every agricultural product, innovation plays a vital role. Though cannabis is grown and processed for some millennia, the real growth of the cannabis market only started substantially in the 2nd half of the 2nd decade of this millennium. The market grew but some techniques did not grow along with the market.

Some cannabis farms still use the hang drying method with (minor) product improvements. Some farms have switched to the 'new' rack drying method, applying some (minor) improvements. But the drying process is still not professionalized enough. In this brochure we present our new and advanced method of drying cannabis for professional growing farms.

Now is the time to switch to the top-down drying method of Cannabis-drying.com. It is true innovation. Get the best end-product of your precious cannabis harvest.

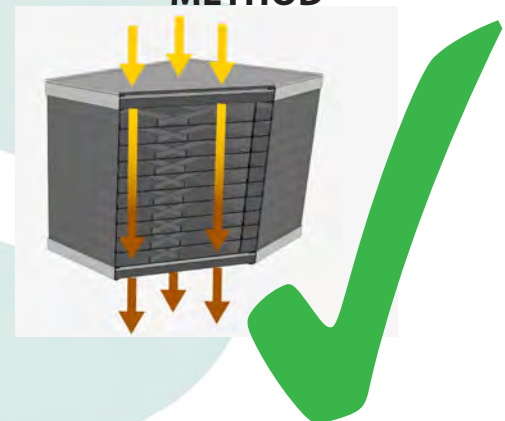
HANG DRYING METHOD



RACK DRYING METHOD



CANNABIS-DRYING.COM TOP-DOWN DRYING METHOD



STRENGTHS OF OUR TOP-DOWN DRYING METHOD*

- AIR FLOWING THROUGH AND ALONG EACH SINGLE BUD (RESULTING IN AN EVENLY DRIED, SUPERIOR END-PRODUCT)
- MOST EFFICIENT LOGISTICS AND USE OF M2 / FT2
- SAVING ON LABOR COSTS
- CLEAN AIR THROUGH NANO-FILTERING (HEPA & PAD) REDUCING MOLD, MILDEW, PESTS AND BACTERIA TO PRACTICALLY ZERO
- (REMOTE) & FULLY CONTROLLED CANNABIS DRYING MANAGEMENT
- RIGHT AFTER HARVEST UNTIL PACKAGING, ALL CANNABIS CAN STAY IN TRAYS AND IN A CLEANROOM ENVIRONMENT

* Page 20 describes a detailed comparison of the 3 methods

SANDWICH UNITS FOR TOP-DOWN DRYING

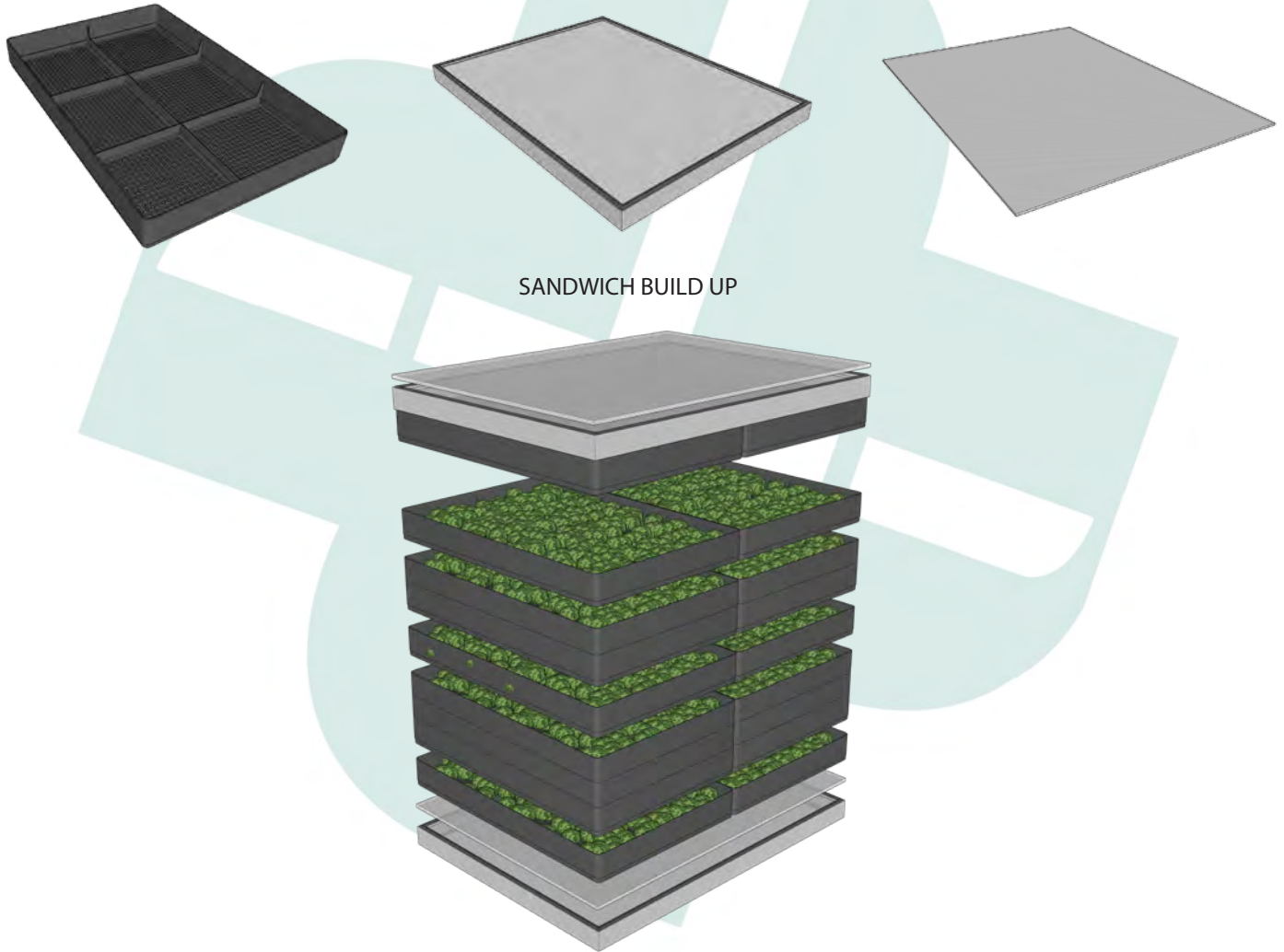
With the www.Cannabis-drying.com TOP-DOWN SANDWICH DRYING METHOD, every single bud gets a constant controlled – top-down – flow of process air. The process air is evenly spread between all buds. Unique in the world!! This is done with trays and filters. These are stacked on top of each other as a sandwich.

Buildup of the sandwich-unit

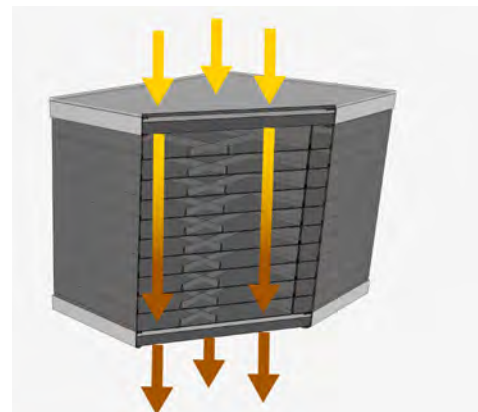
Canna-trays (page 5)

HEPA Filter (page 6)

Filter Pad (page 6)



TOP-DOWN VENTILATION



A canna-tray is where the cannabis is placed after harvest. Each tray is divided into six low compartments preventing the cannabis from moving around and to make sure all the cannabis is evenly dried.

A tray is made of an anti-static ABS thermoplastic compound. Anti-static prevents the trichomes from sticking to the tray.

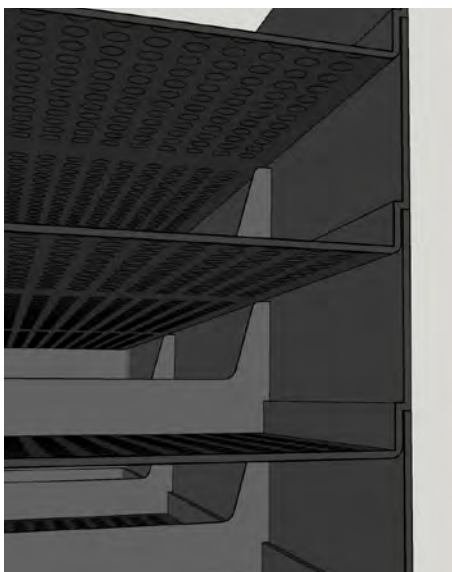
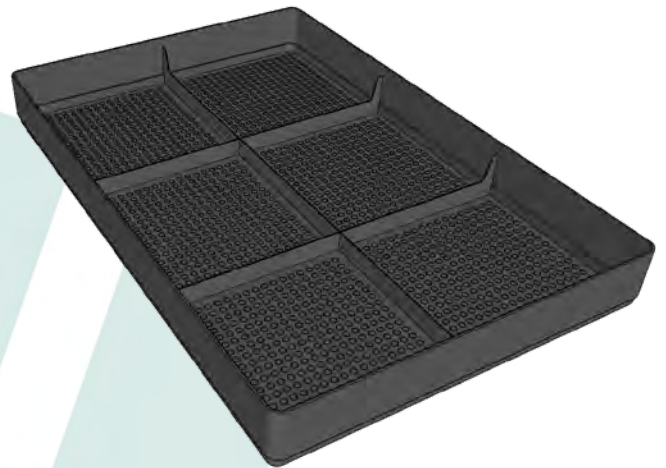
Each tray has 1944 round holes of 6 mm (0.23622-inch diameter) in the bottom of the tray. The holes ensure a continuous and equal top-down flow of controlled and cleaned process air throughout the duration of the drying (& curing) process.

Properties of the Canna-Tray:

- Anti-static ABS (acrylonitrile-butadiene-styrene) thermoplastic
- Resistant against chemicals like thinned acid, alkaline, oils, fat and aliphatic hydrocarbons
- Food Safe
- Lego is made of ABS as well
- Easily stackable with exact precision and simplicity
- Very strong
- Easy cleanable
- 100% recyclable
- Size 600x400x60 mm (23.5 x 15.5 x 2.4")
- Maximum service temperature 77

How is the Canna-Tray used?

A Canna-tray is filled with wet or dry trimmed cannabis. The Canna-tray is placed on a HEPA filter and is the middle layer of the sandwich-unit. A maximum of 18 layers of trays can be placed in the sandwich unit.



B. HEPA FILTER

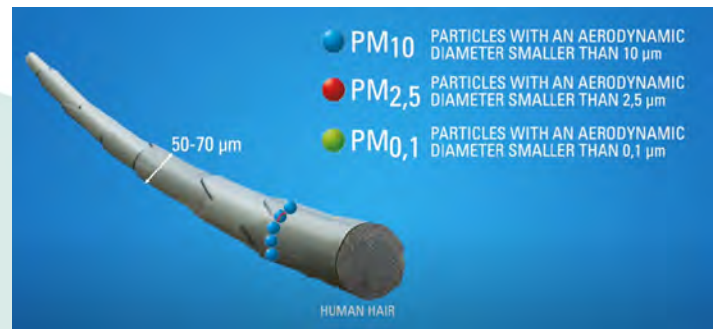
To get the best clean air conditions --- eliminating all risks: viruses, pests etc. --- www.Cannabis-Drying.com uses two types of filters: a HEPA (nano) filter and a filter pad.

The **High Efficiency Particulate Air** (HEPA) filter is made of micro-glass fiber sheet, meeting the highest European and U.S. standards. HEPA filters are used for specific clean rooms in hospitals, pharmaceutical, nuclear and micro-electronics industry. So they are suitable for medical and recreational cannabis. It filters out:

- Bacteria
- Mold
- Pests
- Mildew
- Pollen Nanoparticles
- Exhaust gases Dust
- Hair

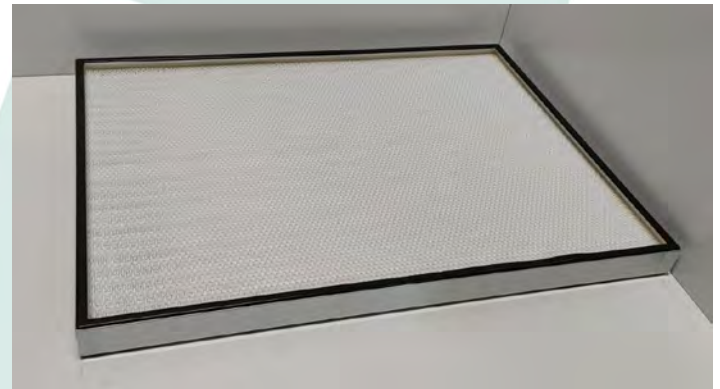
Properties of a HEPA filters:

- Consistent high performance.
- Large filter surface.
- Low energy consumption, thanks to smart pleating methods.
- Proven quality, in cleanroom environments in hospitals, the pharmaceutical industry and the micro-electronics industry.
- Filtering category ePM1 according to ISO 16890 (the world standard) .
- Filters particulate matter of $0,3 \leq x \leq 1$ micron.
- 1 micron = $1\mu = 0.001\text{mm}$.
- Filtering category H13, filtering ePM1 99.95%.
- Size of the frame: 600x800x45 mm (23.5 x 31 x 1.8").
- Robust extruded aluminum frame



The ePM1 HEPA Filters of Cannabis-Drying.com filter particulate matter of less than 1 micron = $1\mu = 0.001\text{mm}$.

Filters all air before it reaches the cannabis and when the air leaves the cannabis. This ensures the cannabis remains in a clean room environment.



How the HEPA Filter is used?

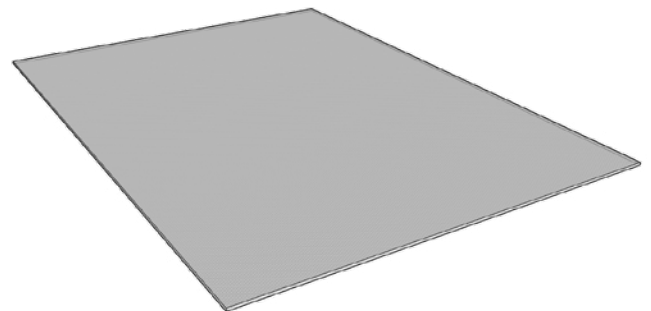
- As the bottom layer of a sandwich unit.
- Perfectly designed to stack 2 piles of Canna-trays on it.
- As the top layer of a sandwich unit.

C. FILTER PAD

Each Sandwich has 2 layers of filter pads. Both are right above each HEPA filter layer (bottom & on top)

How the Filter Pad is used?

At the bottom, any trichomes that fall off the cannabis during the drying (& curing) process are collected. On the top of the sandwich, it protects the HEPA filters against dust.



Cannabis-Drying.com has a drying solution for low and high quantities



DRYING CABINET

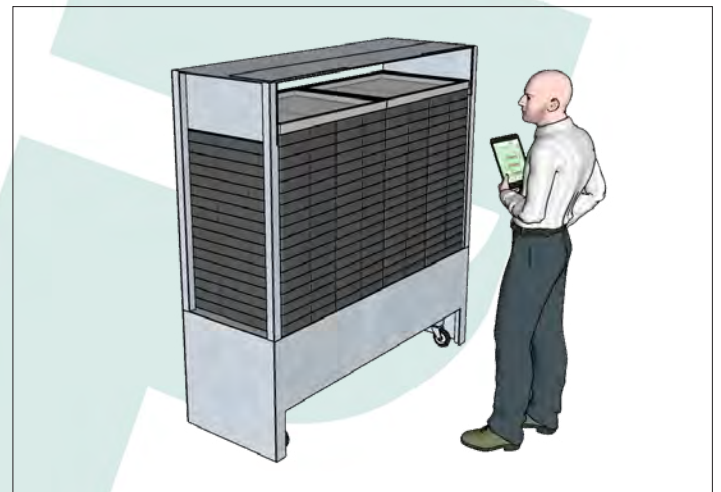
- 1 sandwich unit
- 7 kg / 15 lbs. dried cannabis
- For individual drying of smaller quantities

For medical & recreational cannabis.
 (Pages 9-10)

DRYING CART

- 2 sandwich units.
- 14 kg / 31 lbs. dried cannabis.
- For existing (and new) drying rooms.
- A large number of drying carts can be placed in a drying room.

For medical & recreational cannabis.
 (Pages 11-14)



DRYING ROOM

- 4 sandwich units on one pallet sandwich.
- 1-5 pallet sandwich pallets in one room.
- 20-85 kg / 44-187lbs. dried cannabis (depends on configuration)
- Optimal logistics

For recreational cannabis.
 (Pages 15-18)



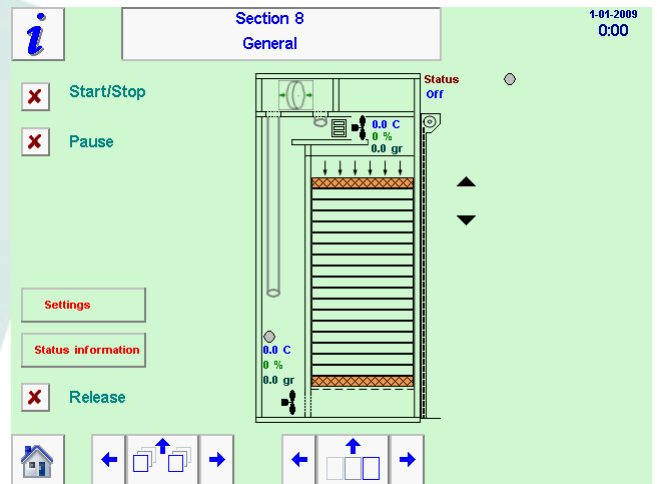
To arrange drying automatically; the temperature, humidity levels and amount of airflow are being controlled. Therefore, we developed the ABC-processor. The ABC-processor is operated by a touch panel on the installation or by a mobile device. Each of our installations have a different version of the ABC-software.

ABC-processor for the drying cabinet:

- As air is extracted top-down through the product, the desired airflow is controlled by adjusting the RPM of the ventilators.
- 2 sensors to measure temperature and relative humidity. The first sensor measures the ingoing air, the second sensor measures the outgoing air.

Note:

It is possible to purchase the drying cabinet without the ABC-processor. If so, the temperature is controlled by a thermostat and the humidity by a hygostat.



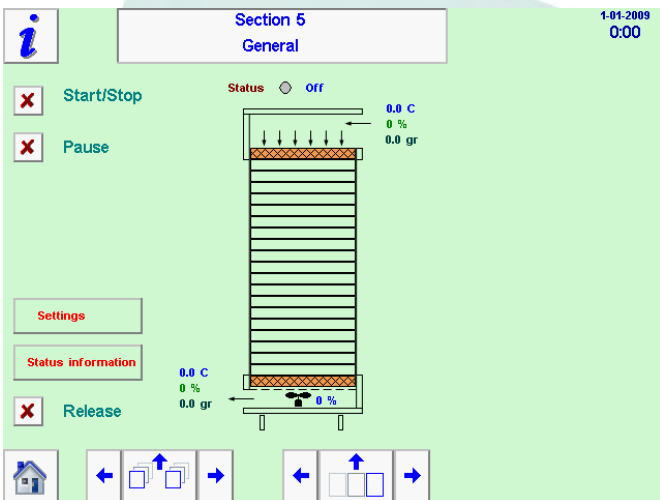
An ABC controller page of a drying cabinet

ABC-processor for the drying carts:

- The amount of airflow can be controlled for each drying cart individually; more moisture means more airflow.
- 2 sensors to measure temperature and relative humidity. The first sensor measures the ingoing air from the room, the second sensor measures the outgoing air.

Note:

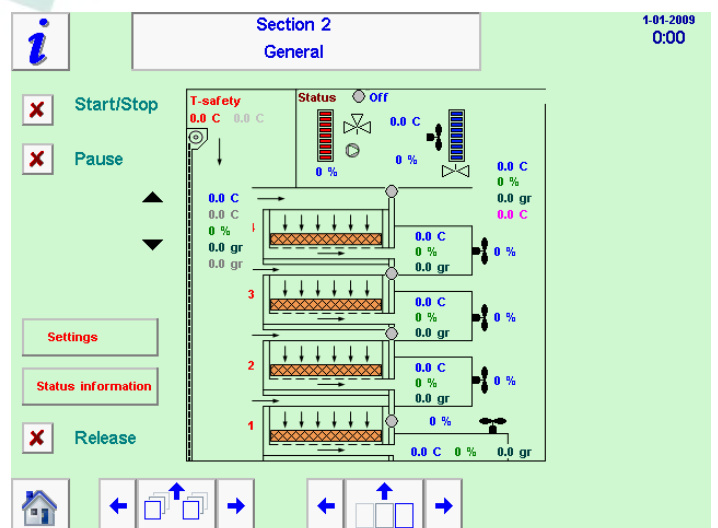
Drying carts can be used in existing and new drying rooms. The ABC-processor can be implemented in an existing drying room.



An ABC controller page of a drying cart

ABC-processor for the drying room:

- The ventilators are set at the desired amount of airflow, these can vary between the units.
- One sensor measures the temperature and relative humidity of the air that enters the units.
- Multiple sensors measure the temperature and relative humidity of the outgoing air of the units.
- One sensor measures the air before it goes through the condenser and heater.



An ABC controller page of a drying room



A Drying Cabinet is used to dry low volumes of cannabis buds of around 7 kg / 15 lbs. of dried cannabis a week.

- Temperature and humidity is controlled with the ABC-processor or with a thermostat and hygostat.
- The amount of airflow can be easily set.

It is possible to control the drying cabinet with a control panel on the drying cabinet or with the ABC software on your phone, tablet or computer.

The drying cabinet offers space to 1 sandwich unit.

For medical and recreational cannabis.

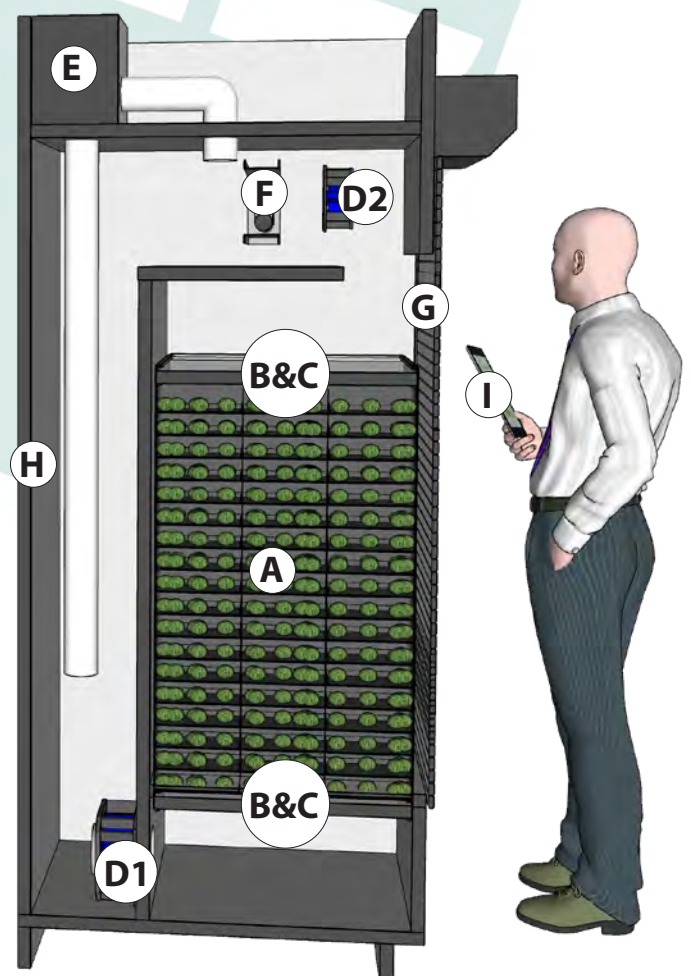
The drying cabinet can be used for curing as well.

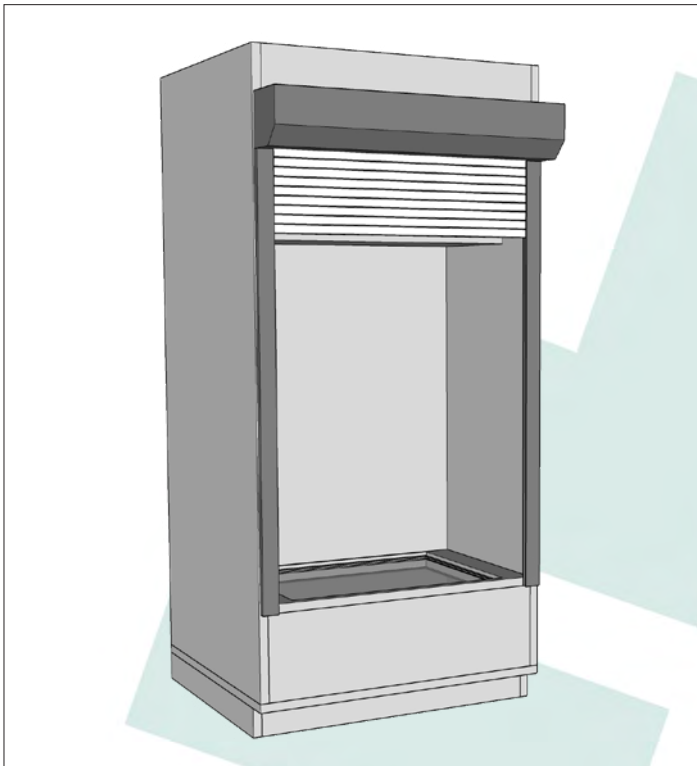
Components of a full drying cabinet:

- A. 36 Canna-trays
- B. 2 HEPA-filters
- C. 2 filter pads
- D1. First Ventilator
- D2. Second Ventilator
- E. Adsorption dryer
- F. Cooling unit
- G. Automatic roller shutter
- H. Isolation panels
- I. ABC-software on a tablet

Size of the drying cabinet:

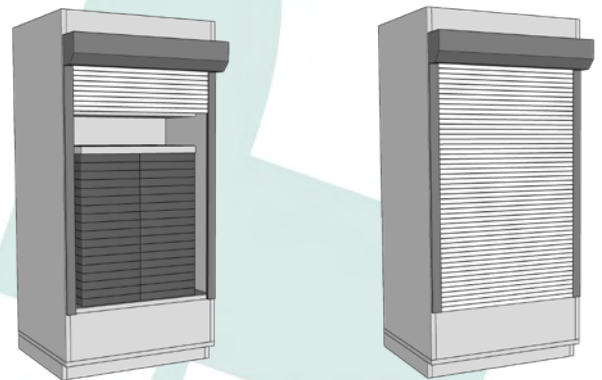
1050x950x2250mm (L41xW37xH89")





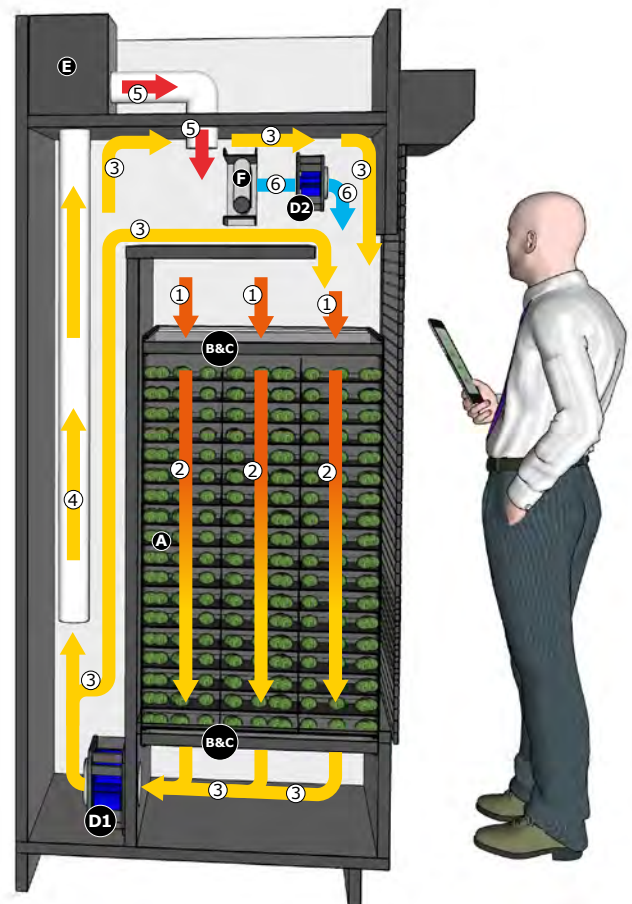
How is the drying cabinet used?

- On the ABC software of the remote device or touch panel on the cabinet, the operator opens the roller shutter.
- 2 piles of Canna-trays are placed on the HEPA filter & filter pad. When the piles are full, a HEPA-filter is placed on the 2 piles of Canna-trays.
- On the remote device /touch panel, the manager closes the roller shutter.
- The drying process is activated and managed on the software of the remote device.



Drying cabinet – Details of how it works:

- The first ventilator (D1) sucks the process air (1) through the set of Canna-trays (A) and filters (B&C).
- The air (2) dries the cannabis by adsorbing moisture from the cannabis.
- A part of this air (3) will circulate and enter the Canna-trays (A) again.
- Another part of the air (4) goes through the adsorption dryer (E) where the air heats up and water gets adsorbed from the air.
- The air from the adsorption dryer (5) mixes with the circulating process air (3).
- A part of this blended air (6) gets sucked through the cooling unit (F) by the second ventilator (D2) where the air is brought to the desired temperature again.
- The dried air (6) mixes with the circulating process air (3) and goes through the cannabis again.



Transparent view of the drying cabinet

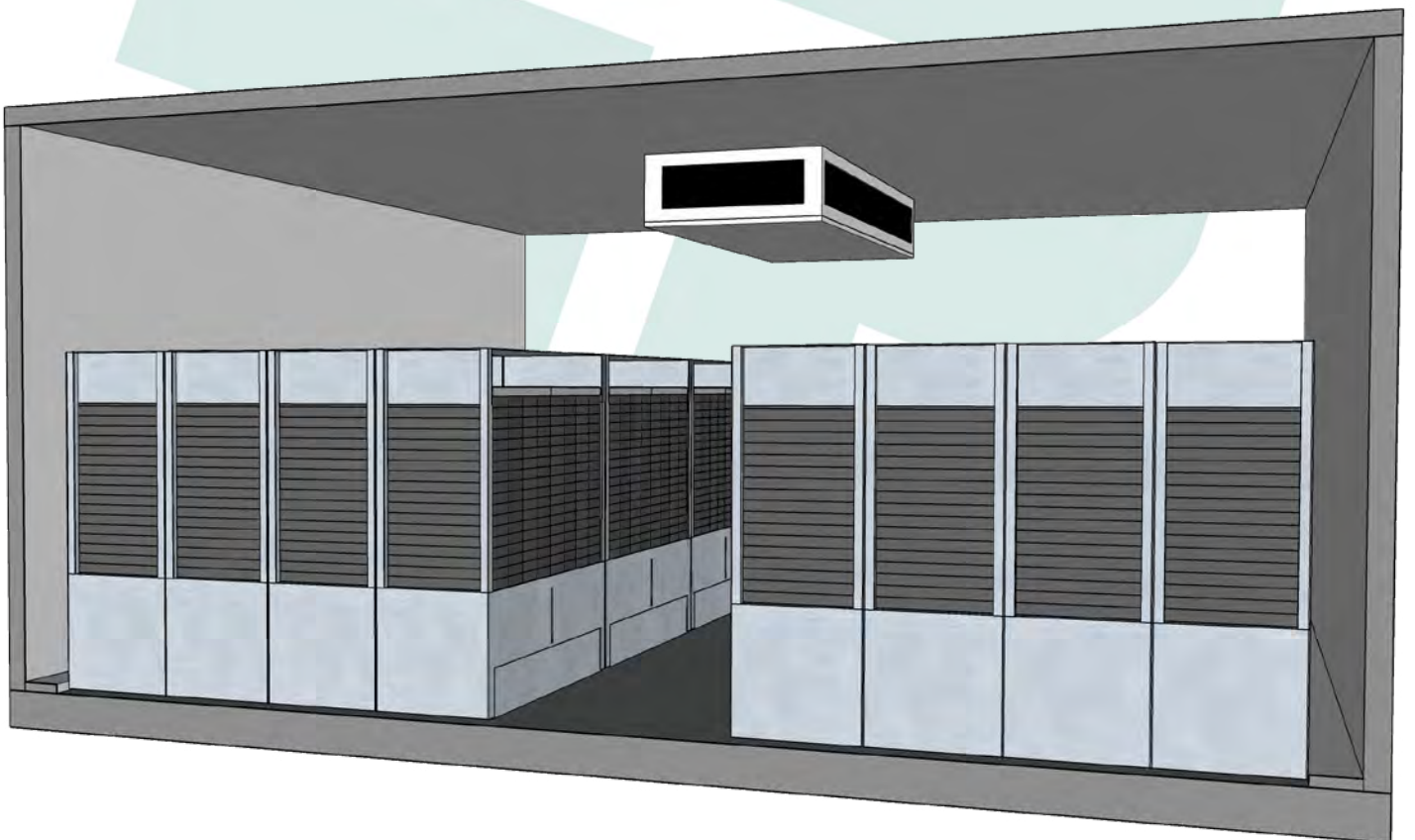
A Drying Cart is used to dry large volumes of cannabis buds in an existing or new drying room.

The main difference with existing drying racks is that the air is sucked top-down through the product by a ventilator, instead of blown over the product. Top-down drying results in an evenly dried end-product.

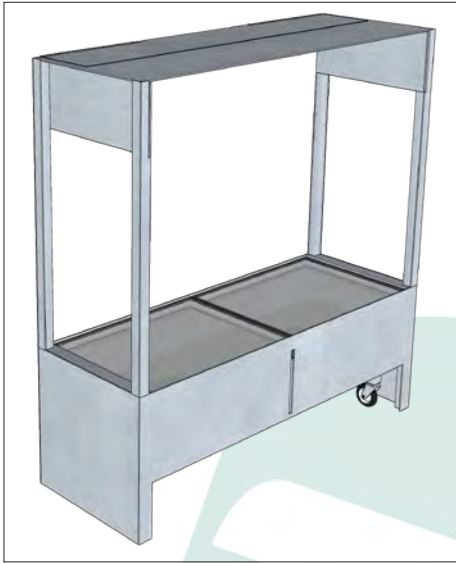
For medical and recreational cannabis.

In the drying cart, 2 sandwich units are placed.

One drying cart is capable of drying 14kg (31lbs) per drying cycle. A drying room can be filled with dozens of

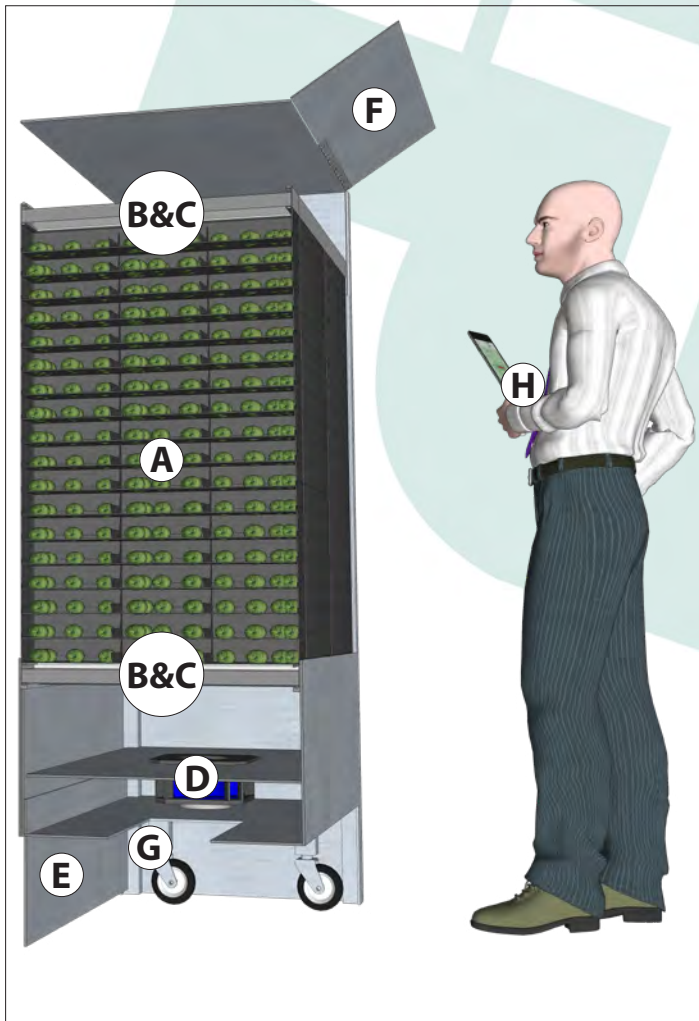
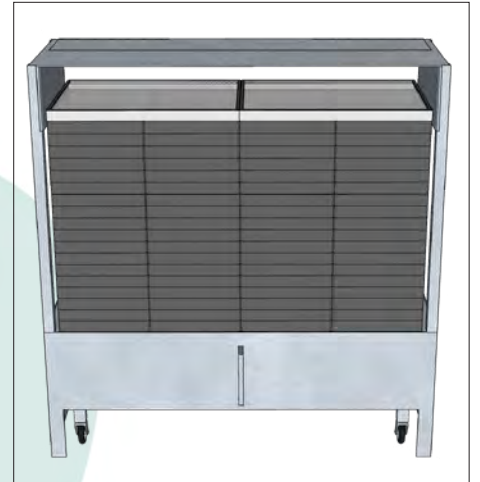


Overview of a drying room filled with drying carts



How is the Drying Cart filled?

- 2 filters are placed at the bottom of the drying cart.
- 4 piles of Canna-trays are placed on the filters in the cart.
- 2 filters are placed on the piles of Canna-trays.



Components of a full Drying Cart

- A. 72 Canna-trays
- B. 4 HEPA-filters
- C. 4 filter pads
- D. 2 ventilators
- E. Closeable slide
- F. Closeable valve
- G. 4 swivel wheels with brakes
- H. ABC software on a tablet

Size of the Drying Cart: L 1710x W 600x H 2250mm
(L67xW24xH89")

Transparent view of one half of the drying cart

How are the Drying Carts placed in a row:

Middle

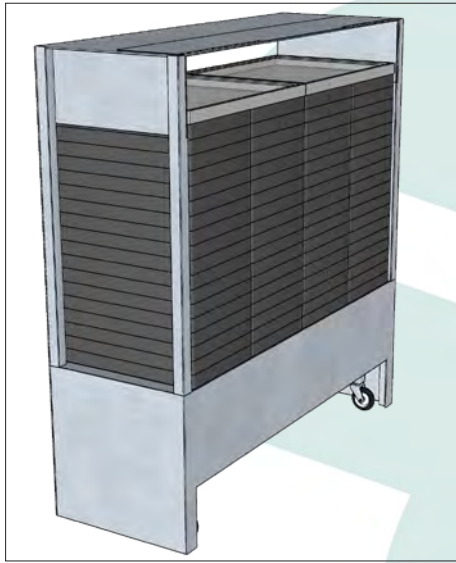
The carts that are placed in the middle of the row have the slide and the valve opened.

Back

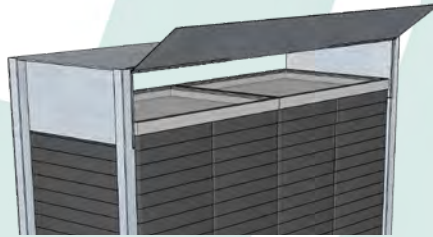
The cart at the end of the row has the valve closed and the slide opened.

Front

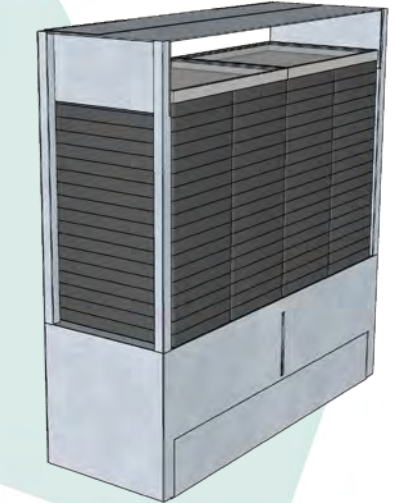
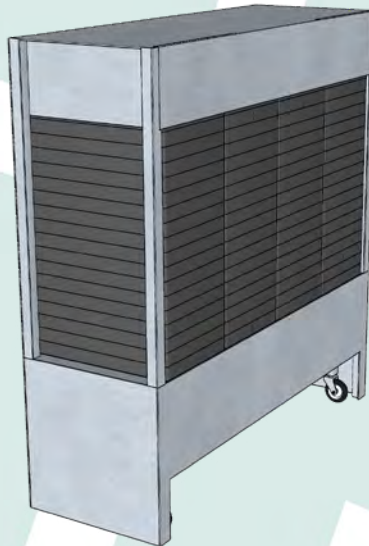
The cart at the beginning of the row has the valve opened and the slide closed.



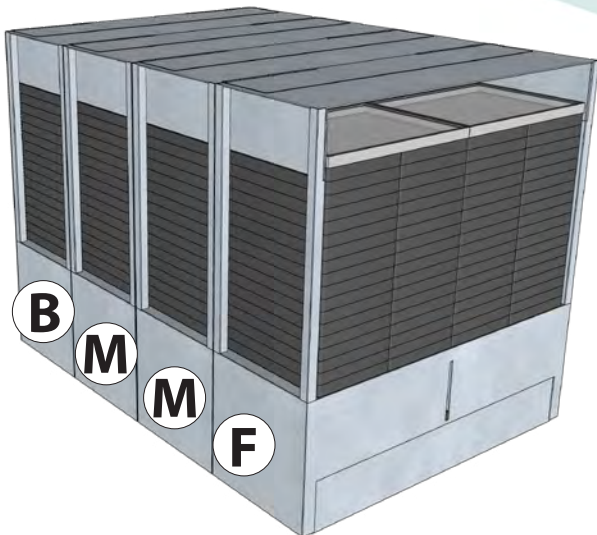
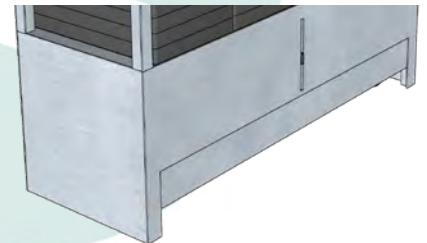
M



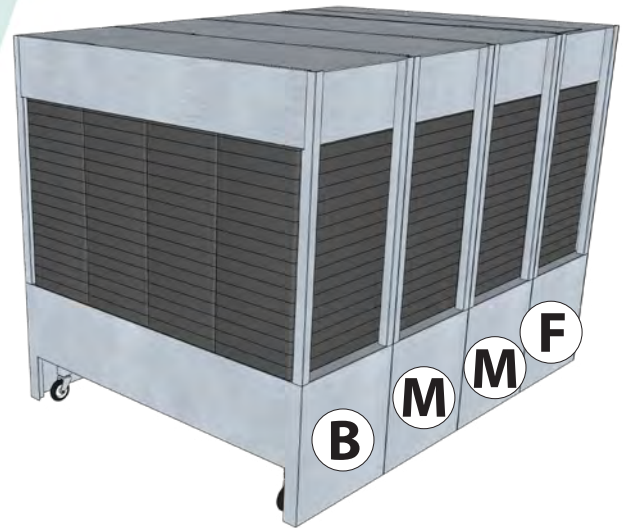
B



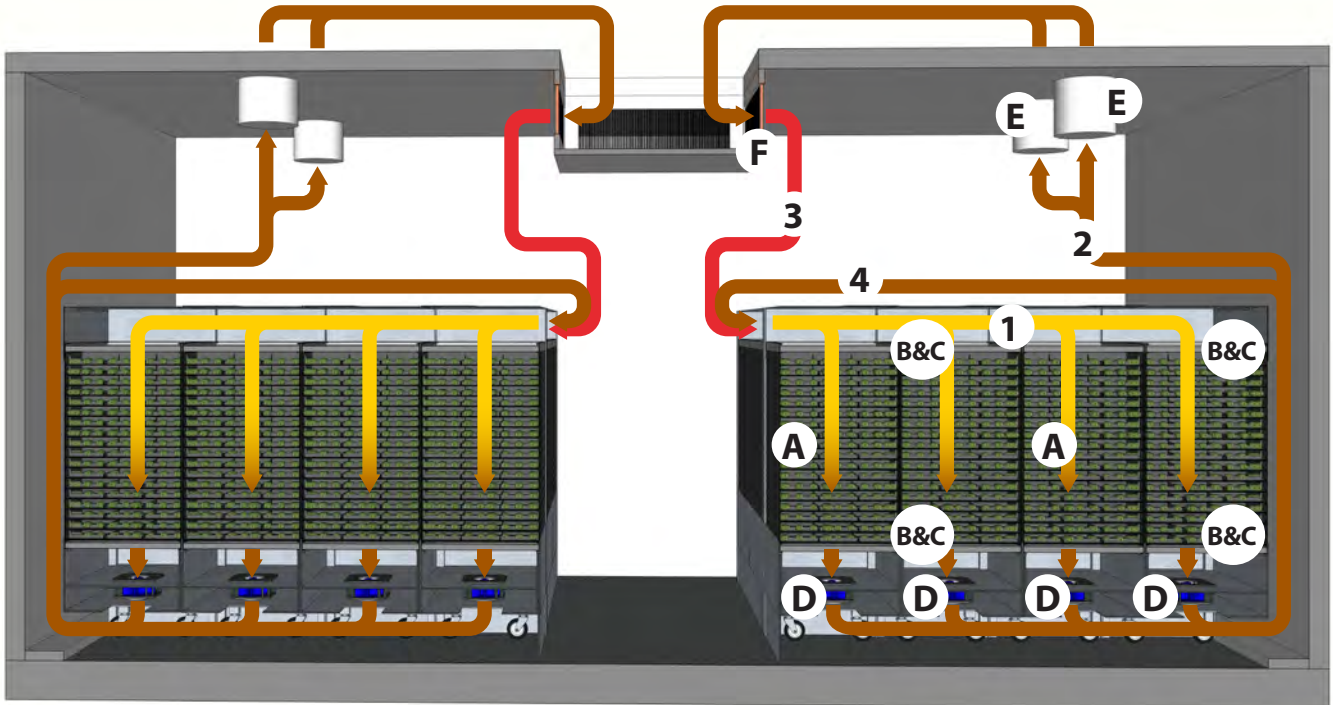
F



Frontside of a complete row of drying carts



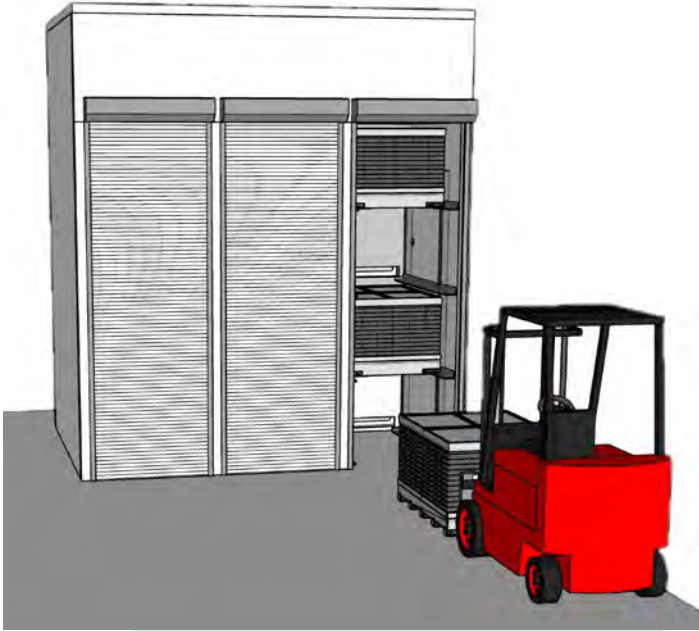
Backside of a complete row of drying carts



Drying Cart – Details of how it works:

- The 4 ventilators (D) suck the process air (1) through a row of drying carts.
- The process air (1) goes through the filters (B&C) and the Canna-trays (A) where it dries the cannabis by adsorbing moisture.
- A part of the wet process air (2) goes through the tubes (E), towards the drying unit (F).
- In the drying unit (F) water is adsorbed from the air and the temperature of the air rises.
- This warm and dried air (3) mixes with the circulating process air (4).
- The mixed air is at the desired temperature and humidity again and enters the drying carts (1).

The Drying Room is made for easy handling of large quantities of cannabis.



Properties of the drying room

- Central in the Drying Room operation is a forklift carrying a pallet-sandwich unit.
- Capable of drying 20-85kg (44-187 lbs) per drying cycle, depending on the chosen configuration.
- Easily scalable.
- Easily cleaned.
- Temperature can reach 15 to 35°C (59-95 °F).
- Humidity levels can be controlled from 30-90%.
- Airflow is set to a desired volume (m3/ft3)

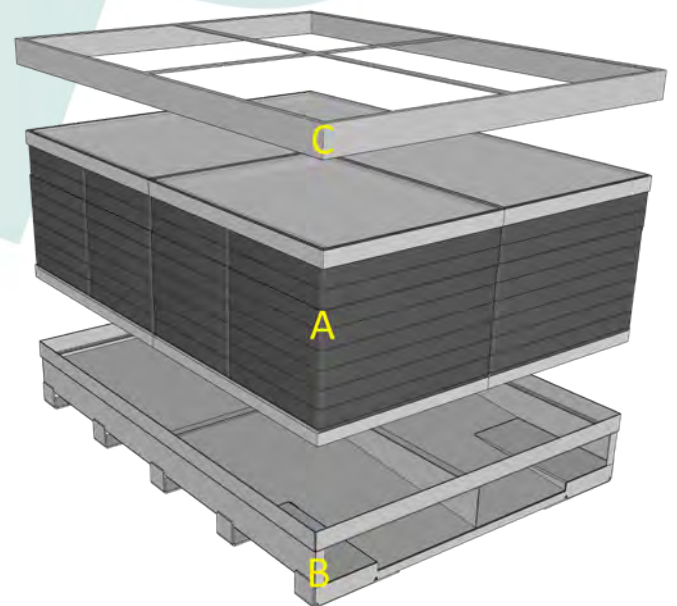
For recreational cannabis.

Drying rooms can be used for curing as well.

In the drying rooms, the sandwich units are stacked on a ventilation pallet. The pallet with 4 sandwich units is called a *pallet sandwich*.

Components of a pallet sandwich:

- 4 sandwich units with 16-36 Canna-trays
- Ventilation pallet
- Closing frame



Overview of a pallet sandwich unit.

B. Ventilation Pallet

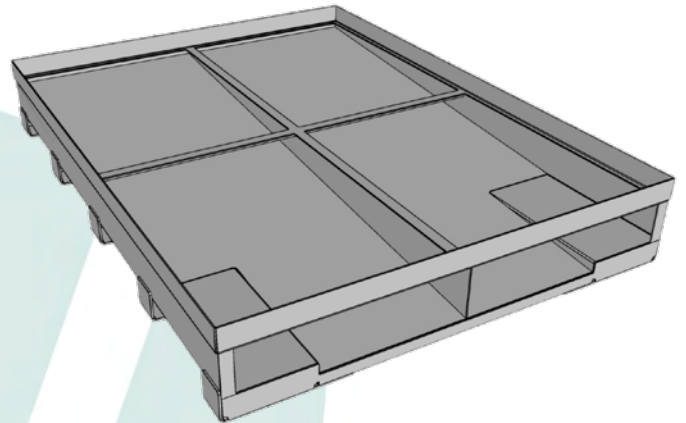
A pallet sandwich is built on the Ventilation Pallet. The Ventilation Pallet ensures easy, safe & efficient transport with a forklift.

Properties of the Ventilation Pallet:

- Made of Stainless steel.
- Front has 2 openings for easy & efficient transport by a forklift.
- The back has big openings for process air to leave the pallet sandwich.
- The top has a frame for 4 HEPA filters.
- Easy to clean.
- Size: 1600x 1220x 240 mm (65 x 48 x 9.5")
- Net weight: 110 kg (240 lbs.)

How is the Ventilation Pallet used?

It is used for forklift transport and for drying
1st use is right after processing the harvest.
2nd use is during the drying process.
3rd use is during curing until packaging.

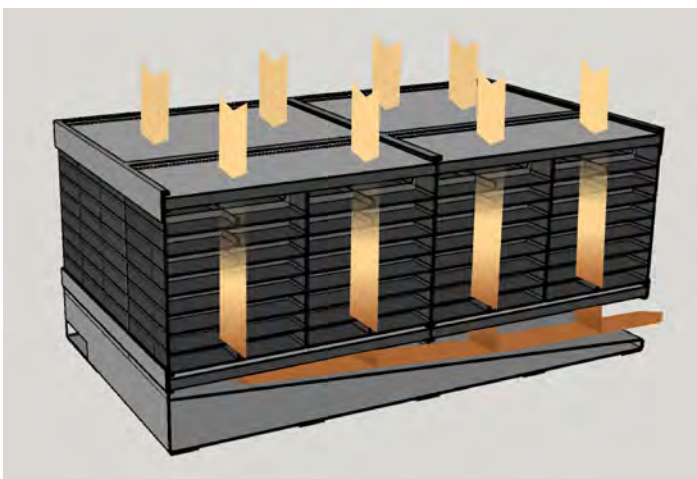
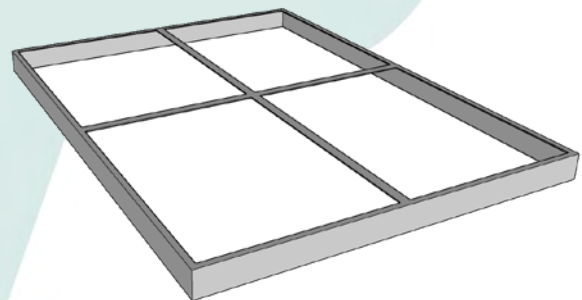


C. Closing Frame

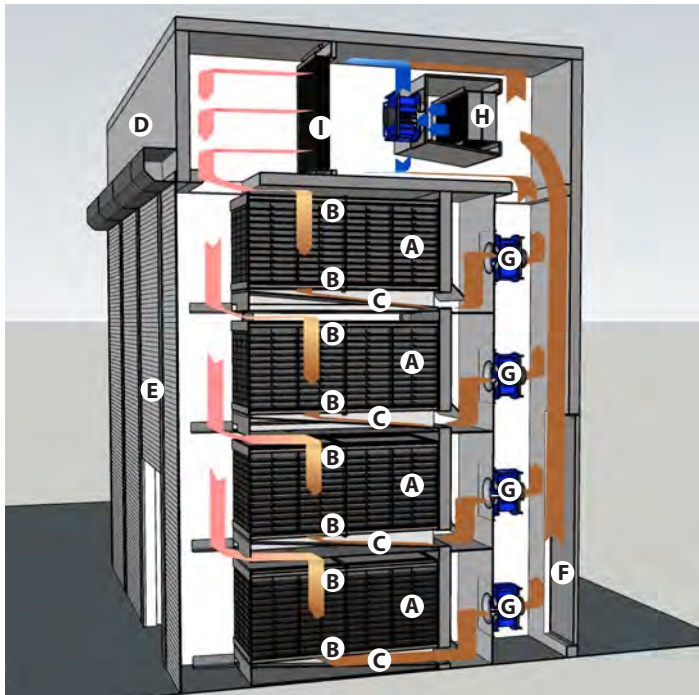
The frame is made of anodized aluminum.

How is the frame used?

It is used in the pallet sandwich, keeping the 4 sandwich units together. Placed on top of the piles right above the HEPA filter and the Filter pad layers. Preserves airtightness and gives strength to the pallet sandwich.



In a pallet sandwich, the filtered air goes top-down through the cannabis in a dark and clean environment. Drying in this manner preserves the aromas, terpenes and cannabinoids.

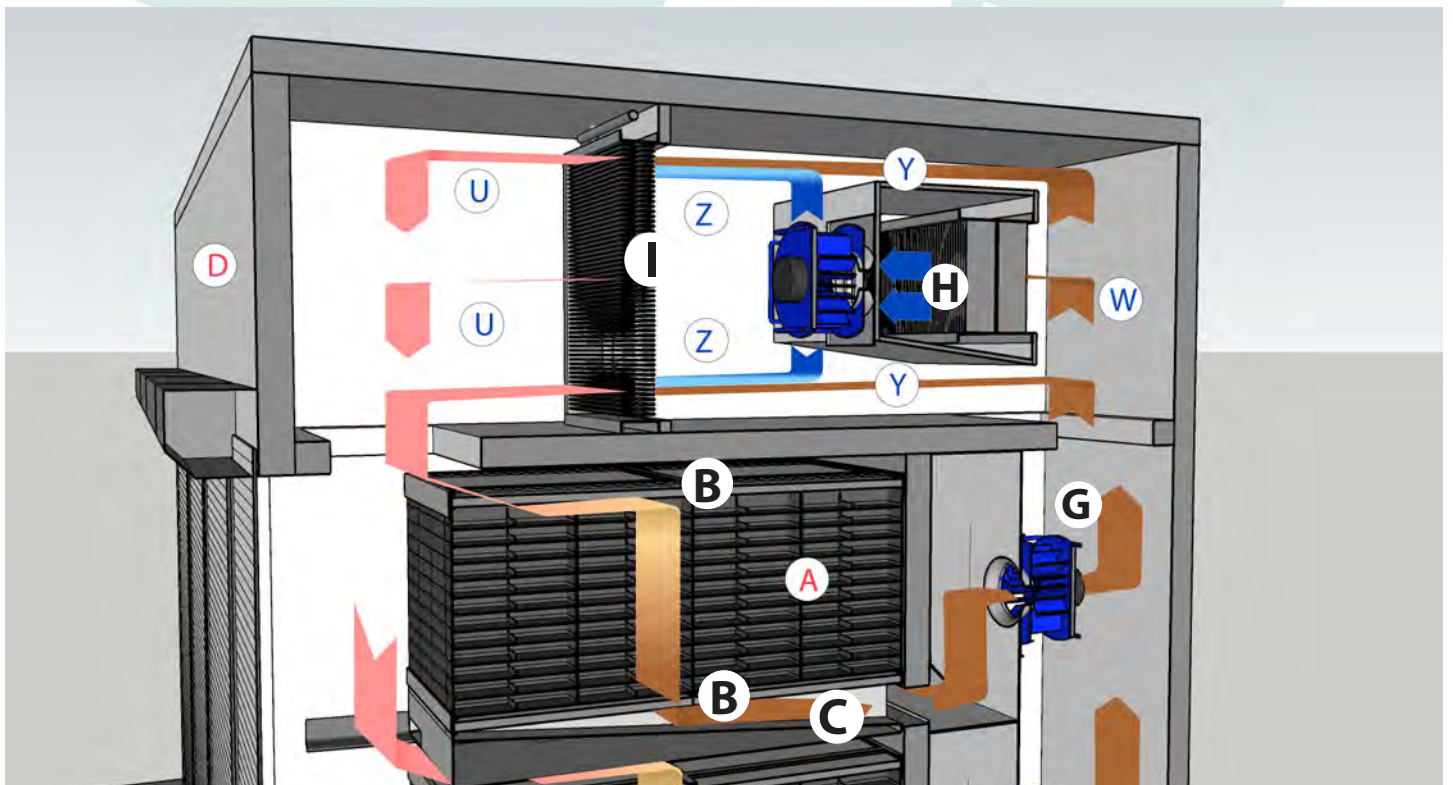


Main parts of a clean drying room:

- A-B-C: Pallet-sandwich consisting of Canna-trays (A), Filters (B) and a ventilation pallet(C)
- D: Isolation panels
- E: Roller shutter
- F: Maintenance door
- G: ventilators
- H: Condenser
- I: Heater

How is the Drying room used?

- A forklift driver, moving a sandwich unit, approaches the drying room.
- On the ABC software the driver remotely (on a tablet) opens the roller shutter. Automatically, all devices in the drying room turn off immediately.
- The driver places the pallet sandwich in an empty space.
- On the tablet, the driver closes the roller shutter of the drying room. Automatically, all devices in the drying room turn on.
- The manager controls the process from his/hers device (tablet, pc, mobile phone or PC).



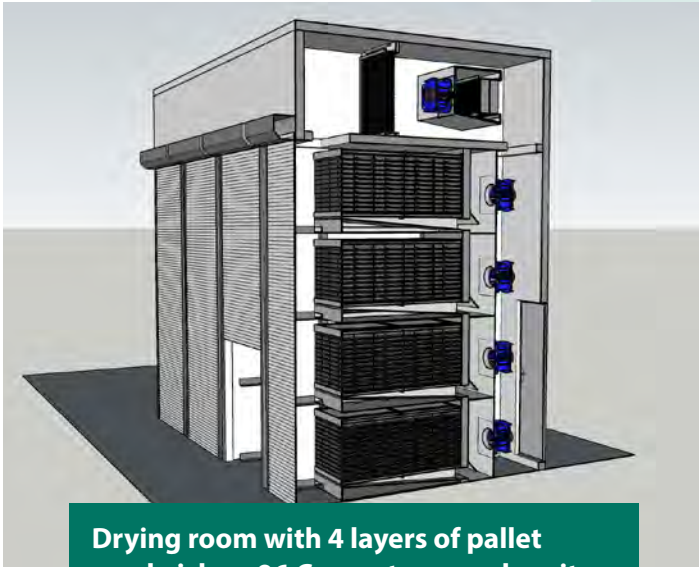
The Drying room – Details of How it Works:

- The ventilator (G) sucks the process air (U) through the Canna-trays (A), filters (B) and pallet (C).
- The air dries the cannabis and the absolute humidity of the air increases.
- A part of the wet process air (W) flows through the condensation unit (H).
- In the condensation unit (H), the air cools down and water condensates.
- The cooler air (Z) blends with the process air (Y).
- The blended air goes through the heater (I) where the air is again brought to the desired temperature.

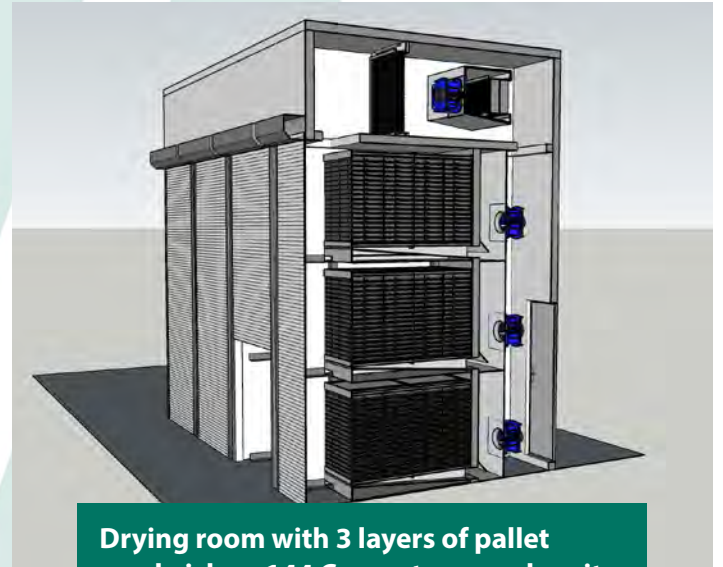
CONFIGURING YOUR OWN DRYING ROOM

The size of the Drying Room depends on your needs. The standard configuration is 5.24 meters (17.2 ft) high, 3.56 meters (11.7 ft) deep and 1.73 (5.7 ft) meters wide. The standard size is suitable for three to five Sandwich units.

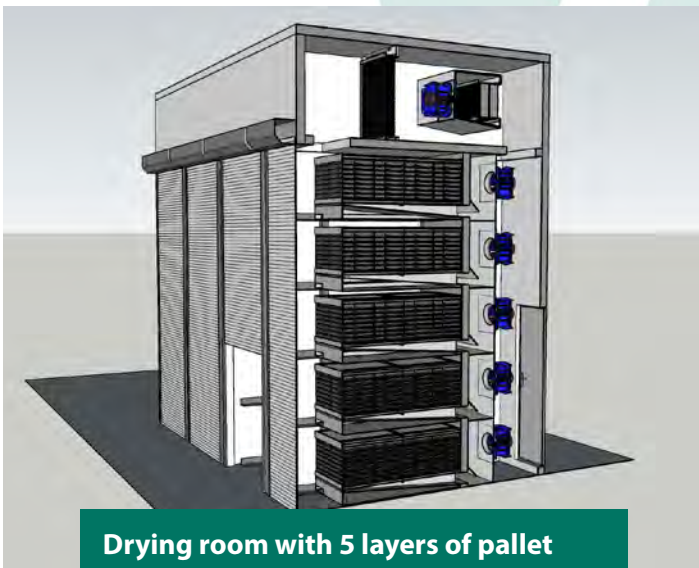
A configuration with three Sandwich units has the highest capacity.
A configuration with five Sandwich units has a higher flexibility for your business operation.



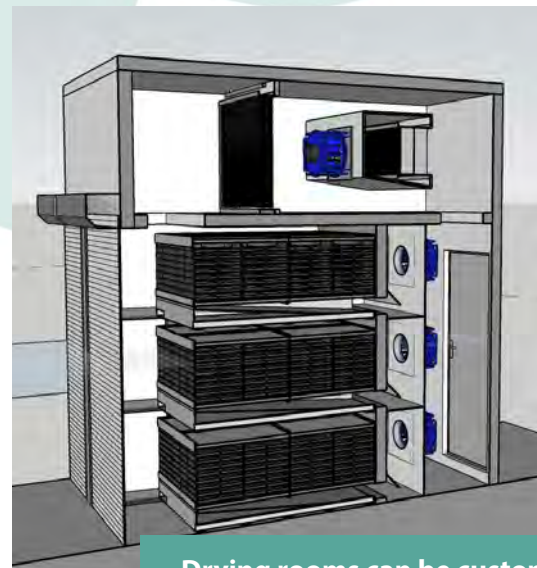
**Drying room with 4 layers of pallet sandwiches. 96 Canna-trays each unit
Total = 384 Canna-trays per drying room**



**Drying room with 3 layers of pallet sandwiches. 144 Canna-trays each unit
Total = 432 Canna-trays per drying room**



**Drying room with 5 layers of pallet sandwiches. 64 trays each unit
Total = 320 trays per drying room**



**Drying rooms can be custom made in a variety of sizes.
The amount of pallet sandwiches can vary from 1 to 5.**

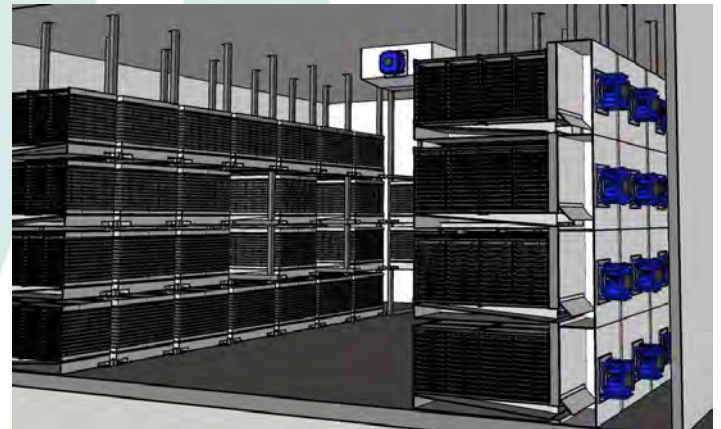
The curing chamber is a clean, closed room with almost similar functionality to the drying room.

Differences include:

- All Sandwich units are in one chamber.
- An airbag on the ceiling blows process air in the chamber.
- Humidity levels and temperature are only controlled for the entire chamber .

How is the curing chamber used?

- A forklift driver moving a sandwich unit approaches the curing chamber.
- The sliding door is opened on the ABC software of the remote device (tablet); light goes on automatically.
- Door closes when the driver is in the chamber.
- The driver places the unit in the empty rack .
- A small ventilator at the back of the unit gently sucks conditioned air through the unit (no more drying out of the buds).
- The forklift leaves the chamber, the driver closes the sliding door with the ABC software and the lights go off automatically.
- The manager controls the process on the ABC software on a (remote) device. Humidity level and temperature is set for the entire chamber by the ABC software. Curing menu is started in ABC with optional humidity and temperature. Different presets can be used.

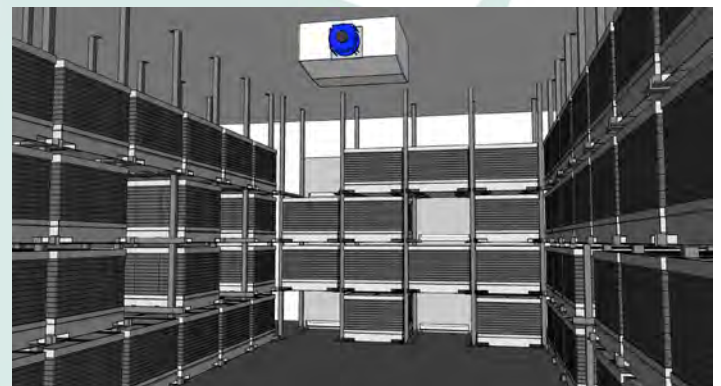


Little ventilators and air valves behind each Sandwich unit.

Did you know a drying room can be used for curing as well?

The benefits of this include:

- Saving odor of the strain
- Lower labor costs.
- Less internal transport is required.



Sandwich units in a Curing chamber.

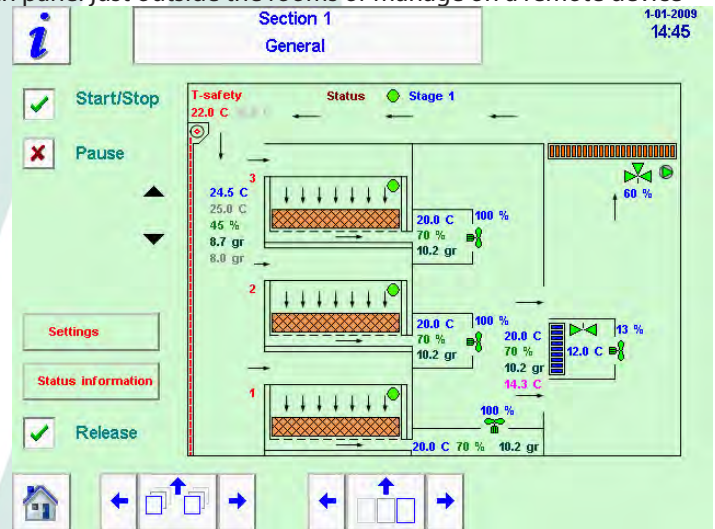
Our promise to you - is also our mission - : (labor) costs ↓ Quality ↑ Control ↑.

For you, being the manager, on this page the magic actually begins and ends. We are proud of our 'ABC' HVAC -system. Our HVAC controller is made and maintained in-house. It holds over 35 years of stable and proven innovations. The system consists of a processor and a software program. It is implemented in thousands of control systems - in various agricultural sectors worldwide - in all 6 continents – over 50 countries. With our world-renowned technology, we can guarantee that you can set optimal drying conditions for your own cannabis business process and gain substantial benefits.

How is the ABC -HVAC Controller used?

Our ABC processor and software enable easy management of the drying and curing process every step of the way. You can set it the way you want. You can easily manage the process on a touch panel just outside the rooms or manage on a remote device (tablet, laptop, mobile phone) on a holiday resort.

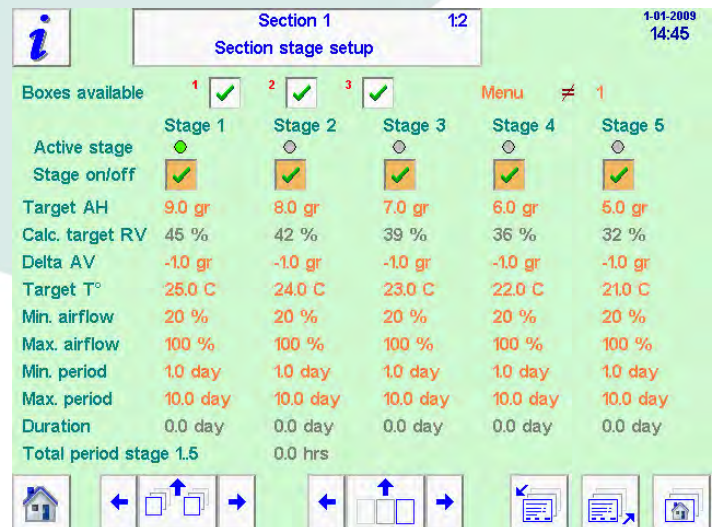
- Adjust the temperature, absolute/relative humidity and airflow.
- Flexibility: You can create presets for various processes and special strains.
- Our technical engineering department can produce tailor-made processes, if needed.
- MCM module: control the ABC-processor from a tablet or mobile phone (optional).
- PC software: operate the ABC-processor from your PC.
- Real time and immediate support is given by our own support engineers via your pc with TeamViewer.
- SMS alert (optional).



Example of a preset cross section with 3 sandwich units stages

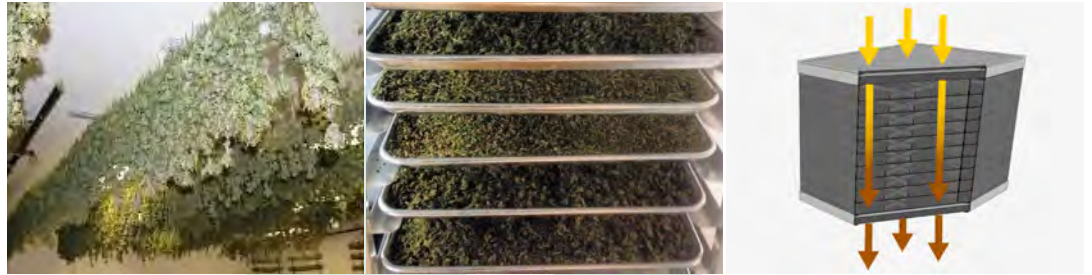


Example of an ABC HVAC-window showing controls



Example of a preset with 5 stages

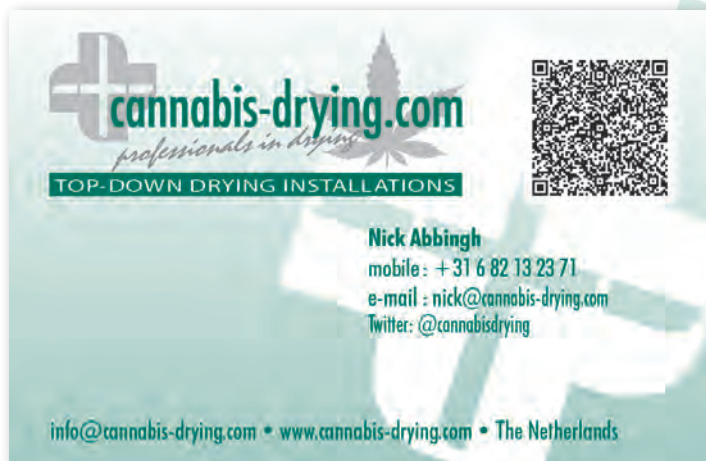
DRYING METHODS COMPARED



METHOD	HANG DRYING	RACK DRYING	CANNABIS-DRYING.COM TOP-DOWN DRYING
ASPECT			
DRYING CAPACITY	Low per m2/ft2	Medium per m2 / ft2	High per m2 / ft2
LABOR COST FOR DRYING PROCESS	High	Medium	Low
QUALITY CONTROL	Unstable	Unstable	Best End-product because of detailed control
SCALABILITY	Poor and not flexible	Poor and not flexible	Full and flexible
INTERNAL TRANSPORT	Multiple systems, inefficient	Multiple systems, inefficient	Efficient transport with fork-lift,
CURING AND DRYING	Separate processes in separate rooms	Separate processes in separate rooms	Can be done in one room
DANGER OF CROSS CONTAMINATION	Highest	Medium	Lowest
CLEAN ROOM	Mediocre	Good	Best
AIRFLOW	Minimal airflow	Blowing horizontally over the product	Airflow top-down throughout the product
FOOD-SAFETY	Poor	Mediocre	Best
FILTERING	Poor	MERV-filters	HEPA-filters
RISK OF MOLD, MILDEW, PESTS AND BACTERIA (AFTER HARVESTING)	High	Medium	Zero (because of Nano filtering)
END-PRODUCT	Unevenly dried end-product	Unevenly dried end-product	Evenly dried end-product
ANTI-STATIC	No	No	Yes



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 **cannabis-drying.com**
professionals in drying

TOP-DOWN DRYING INSTALLATIONS