

MM MEDICAL FLOWERS

In this Newsletter we have been given the opportunity to present a Medical Cannabis project, specifically the project of MM Medical Flowers s.l. located in Lepe, Huelva, but before this, we think it is important to make a brief presentation of the Cannabis team and what we do. We have a presentation talk to do with all of you.

Three of us are directly linked to the department, but at each stage of our projects we are joined by people from different Valtria departments in order to carry out our work (sales, purchasing, production, administration, marketing, logistics, BIM (Building Information Modelling), HR, finance, H&S) and at the same time we collaborate very closely with DEVECAN.

As we have already announced, a cannabis project has different phases:

CONCEPTUAL PHASE: After initial contacts with the client, the client sends us an order for the development of the conceptual project. This is where Eudald Bogatell in collaboration with Cristina Parra receive the client's needs, ideas, intentions and concerns and begin to design the complete production process based on the information received in collaboration with DEVECAN's partners. The importance of this phase is to advise and accompany the client, until a concept and the necessary information can be presented so that the client can get a real idea of the overall scope of the project. At the same time, together with DEVECAN, the first documentation is being prepared for submission to the Spanish Agency for Medicines and Health Products (Agencia Española de Medicamentos y Productos Sanitarios, AEMPS).

COMMERCIAL PHASE: In this phase, once the client has decided to go ahead with the project, and they ask us for an economic offer for the installations. Here it is Cristina Parra's job to set down in a state of measurements and a basic design, the conceptual project presented and to put a price tag on it. Throughout this phase, there is close cooperation with the commercial department.

PRODUCTION PHASE: From the basic project Cristina Parra and the site technician develop the executive project and the construction phase begins. The special feature is that the design of the installation is by Valtria. As on all construction sites, collaboration with BIM, procurement, logistics, administration and H&S is crucial for the correct development of the project.

Having made this brief outline of the department, we will now describe the work that concerns us.

DESCRIPTION OF THE PROJECT

MM Medical Flowers

Location: C/Cañada del Pilar num 9, 21440 Lepe (Huelva)

Objective

The Client's goal is to obtain high-quality dried Cannabis flowers to access the market for medicinal use. The project in question includes a first phase of 4 flowering fields of 576 m² each, with future expansions envisaged up to 12 fields of 6,912 m² each. The building and common services of this first phase include the possibility of integrating future extensions, which can be adapted to the product and process needs of MM Medical Flowers.

From each field we expect to obtain 4 harvests per year and from each harvest we will obtain approximately a 700 kg batch of green plant which when dried will be reduced to 156 kg of dried flower.

DIMENSIONAMIENTO LOTE

CAMPO

Superficie	Sup Util (m ² _{ut})	DENSIDAD	Plantas/ cosecha	kg _{f.seca} / cosecha
m ²	m ²	Nº Plnt/m ² _{ut}		
422	240	3	720	156

ESTRATEGIA

Nº Campos	Nº cosechas / año	Nº Cosechas/ año	Periodo semana/Cosecha
4	3	12	4

Design considerations:

Drying capacity of each tunnel 156 kg of dried flower.

Each drying tunnel is sized to dry one batch every 15 days.

Drying on trays arranged on a trolley.

The drying tunnels have a validatable control system that is independent of the rest of the HVAC control system. With the ability to programme with recipes depending on the stage of the drying process.

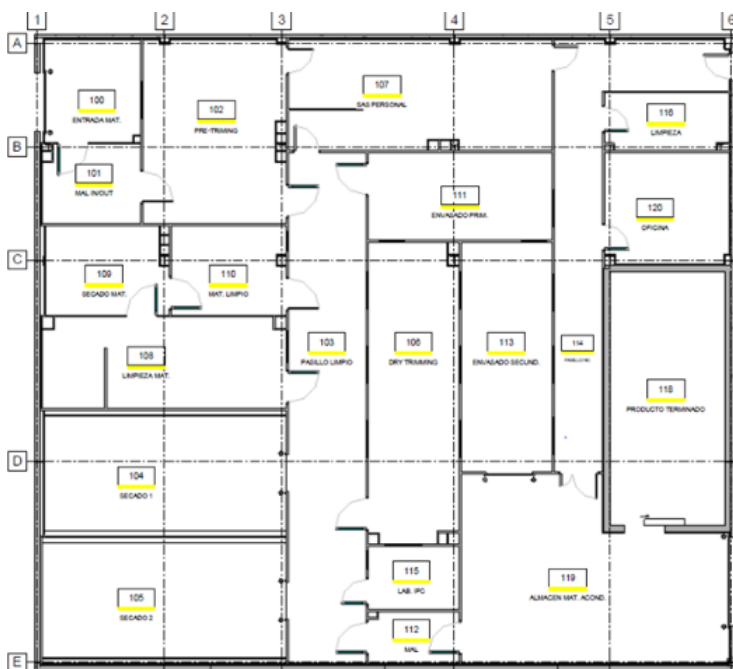
Trimming is carried out mechanically and wet.

Dry packaging of the product in 500 g bags with nitrogen injection.

Layout of the GMP warehouse

The total area of the GMP (Good Manufacturing Practice) warehouse is 423 m², of which 270 m² are ISO8 classified rooms.

Attached is a layout plan and legend of room surfaces and volumes.



Rooms, surfaces and volumes of the GMP warehouse:

Listado de Salas (layout)				
Nº	Description	Altura (mm)	Area (m2)	Volumen (m3)
100	ENTRADA MAT.	2700 mm	10,25 m²	27,66 m³
101	MAL IN/OUT	2700 mm	7,97 m²	21,52 m³
102	PRE-TRIMING	2700 mm	27,05 m²	73,02 m³
103	PASILLO LIMPIO	2700 mm	41,28 m²	111,46 m³
104	SECADO 1	2500 mm	29,09 m²	72,74 m³
105	SECADO 2	2500 mm	29,47 m²	73,67 m³
106	DRY TRIMMING	3000 mm	27,97 m²	83,92 m³
107	SAS PERSONAL	2700 mm	29,83 m²	80,53 m³
108	LIMPIEZA MAT.	3000 mm	22,85 m²	68,56 m³
109	SECADO MAT.	2700 mm	11,10 m²	29,98 m³
110	MAT. LIMPIO	2700 mm	10,58 m²	28,57 m³
111	ENVASADO PRIM.	3000 mm	16,89 m²	50,66 m³
112	MAL	3000 mm	4,85 m²	14,54 m³
113	ENVASADO SECUND.	3000 mm	21,79 m²	65,36 m³
114	PASILLO NC	2700 mm	28,56 m²	77,12 m³
115	LAB. IPC	3000 mm	6,06 m²	18,19 m³
116	LIMPIEZA	2700 mm	7,31 m²	19,73 m³
118	PRODUCTO TERMINADO	6000 mm	30,34 m²	182,04 m³
119	ALMACEN MAT. ACOND.	6000 mm	45,13 m²	214,37 m³
120	OFICINA	2700 mm	14,34 m²	38,72 m³

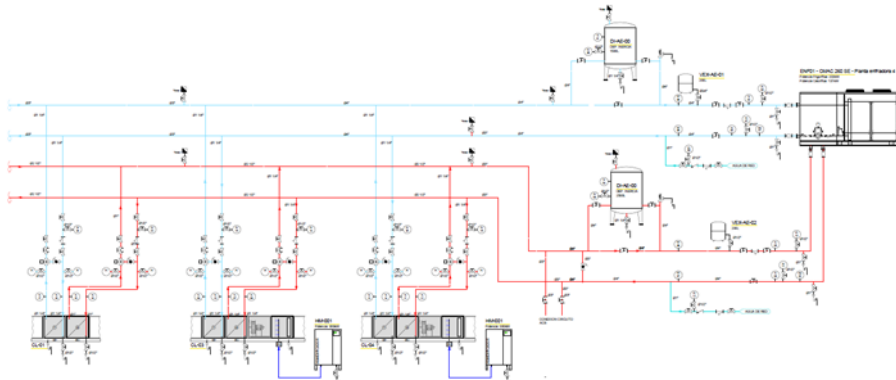
HVAC system design

Hot and cold water production for HVAC is provided by a 4T heat pump with an output of 215 kW for cooling and 259 kW for heating. In cold we cover the needs for this phase and in heat we have taken into account the power of future extensions.

From the 4T heat pump, at constant flow rate, the air conditioners and fan coils of the installation are fed directly with seamless black steel pipe DIN2440 and insulated in accordance with the thicknesses indicated in the RITE, finished in aluminium on the external sections.

All terminal equipment has proportional V3V.

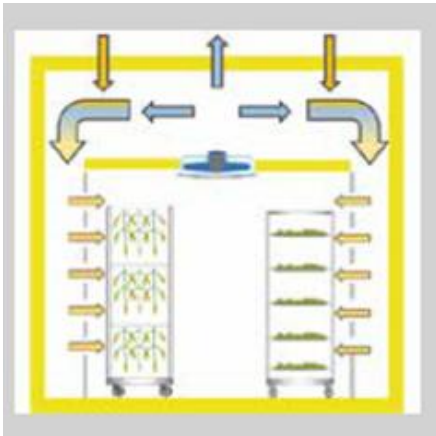
Hydraulic diagram:



Installation specifics:

When working with a product that is a living being, we must be mindful throughout the process to prevent it from spoiling or becoming contaminated by fungi or bacteria. Should this happen, the whole lot should be thrown away. That is why each processing room has different design conditions depending on the stage of the process. For example, in the wet phase we will keep the rooms at 18°C and a humidity of 60-70% and in the dry product areas at 22°C and a humidity of 45-55%.

The drying tunnel is a completely separate element, worthy of a whole article. Broadly speaking, the drying tunnel is designed to remove 50% of the moisture from the plant in two days at a room temperature of 18-20°C and the other 50% in 10 days, with the last 3 days being used to stabilise the product. We also need to dry the product in a homogeneous way, which is why inside the room we install fans that supply air to a plenum and drive it through lateral grilles that distribute the air homogeneously throughout the room and at speeds of less than 2.5 m/s in order not to damage the plant.



The scope of the project:

In this project, the following works have been carried out:

- Installation of panels
- PVC and resin flooring
- HVAC installation
- Control Systems installation
- Installation of electricity and lighting.
- Plumbing in rooms.

FIRST COMPLETED CHALLENGE OF THE CANNABIS TEAM.

This was the first medical cannabis project for the department, not Valtria's first. It has been a challenge to coordinate the team and with the client, reaching a very high level of responsibility, advice and trust with the client and all this would not have been possible without the Valtria team, Eudald, Cristina, Marcelo, Enrique, Roman and Eugenio and as always with the collaboration of all the Valtria departments that make the works easier.