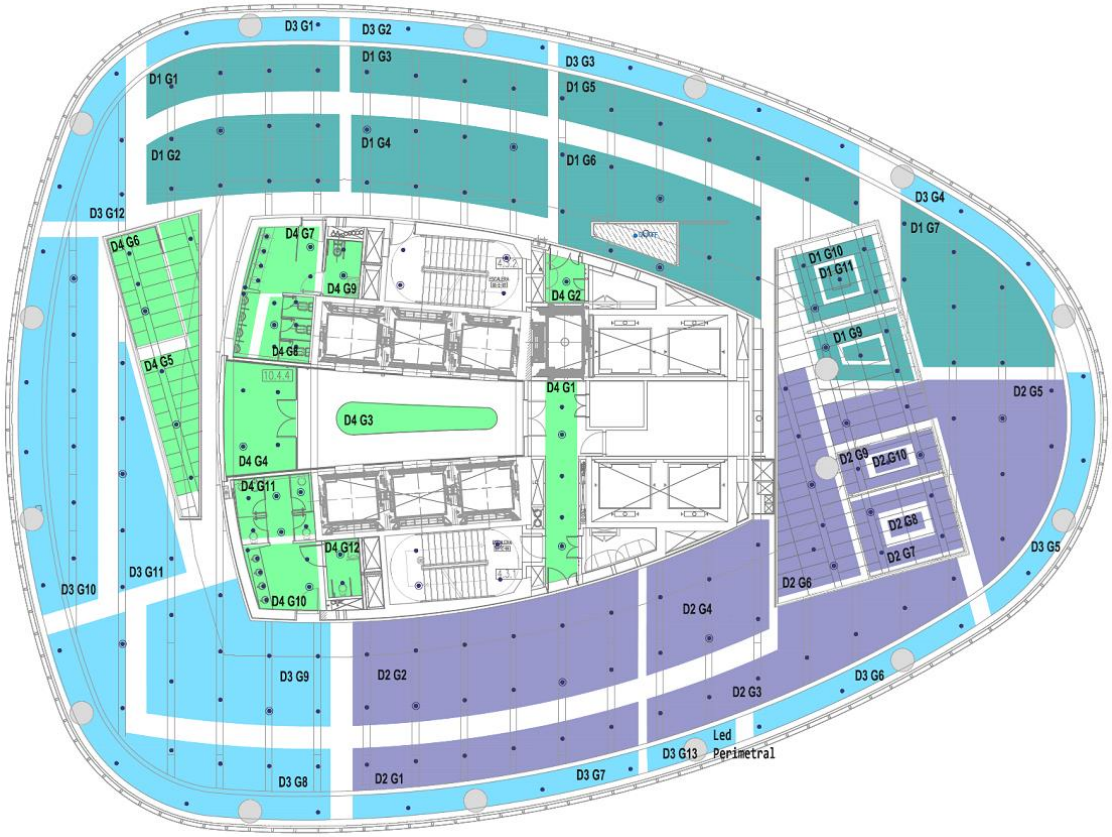
Details TBM project

1. Lighting

The lighting of the TBM is completely controlled by KNX. 90% is controlled by DALI and the rest by switch actuators.

Thanks to the DALI system, lighting control groups were created in open office areas, closed offices, meeting rooms, elevator halls, stairs, bathrooms, garages and general service areas, among others.



Each DALI lighting group has presence detector.

Open and closed offices regulate their light level according to the contribution of natural light thanks to multiple presence sensors with light control regulation and IR receiver.

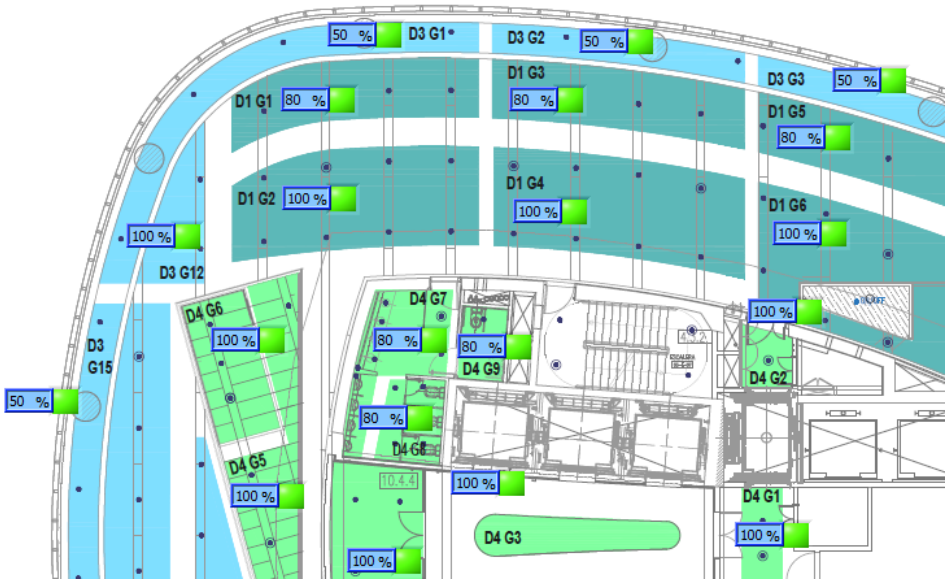
Closed offices and meeting rooms, in addition to presence sensors, include Multi-function push-button panels for scene control and IR receiver.

In closed offices and meeting rooms, when you press a push button scene, the presence sensor and the automatic lighting regulation are locked to keep the scene selected, and it is unlocked, when you press the scene OFF.

In the Elevator Halls, Esylux Mini sensors were installed for aesthetic reasons according to the designers' directives.

The presence sensors are locked/unlocked according to the schedule, in order to ensure that there are no lights ON at nighttime, weekends and holidays.

All lighting DALI groups can be monitored and controlled individually or general from the SCADA.

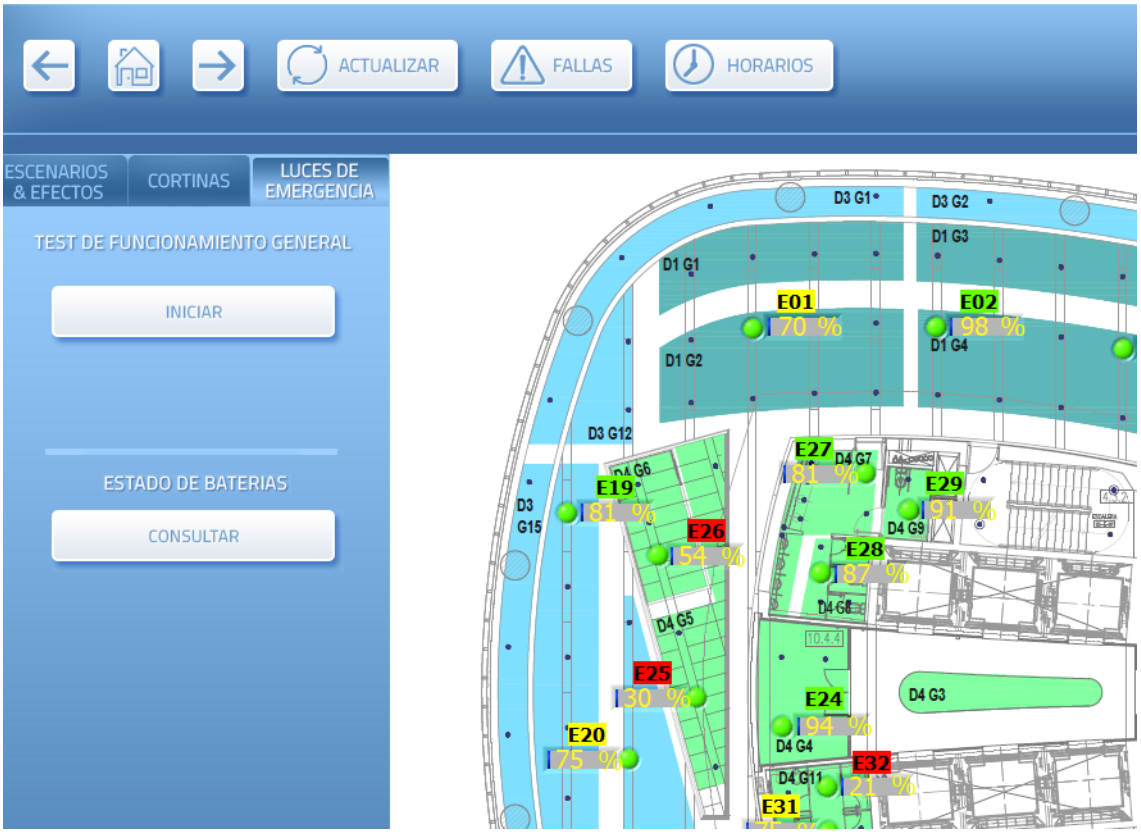


General floor scenes were defined according to occupancy, vacancy, cleaning and night supervision schedules.

The SCADA, in addition to controlling the groups individually, allows detecting drivers that are in failure.

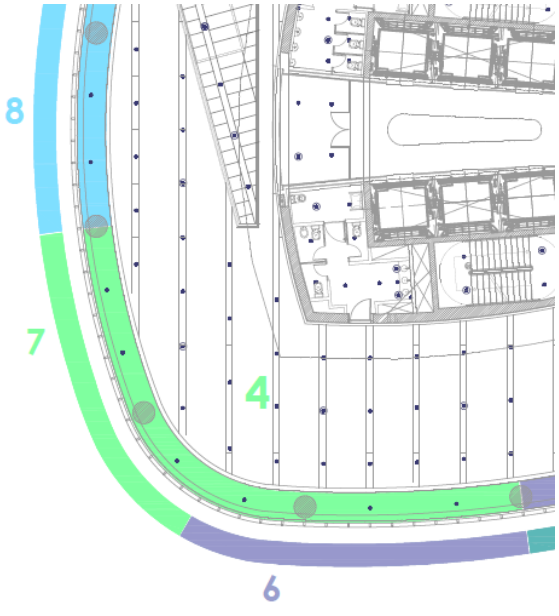
2. Emergency lights:

The emergency light fixtures have Mackwell DALI drivers that allow monitoring of the status of the battery and perform the operational tests periodically according to the schedule or do the test manually from the SCADA.



2. Shutters:

The entire perimeter of the building has translucent and black-out roller shutters, controlled by Somfy Animeo RS-485/KNX motors, which allows exact positioning. The Somfy Animeo motors can be controlled by schedule, by solar position and it is also possible to command them manually either from an IR control or from the SCADA.



3. KNX RF:

The auditorium, in addition to being completely controlled by the DALI system, has screen and HVAC control.

The control can be carried out from panels from the auditorium operating room, from the SCADA and also, the speaker can control by means of a HAGER RF remote control.

The RF remote control allows the operator to control without having to orientate the remote control towards the receiver, as would be done from an IR control.

The climate control is also activated from KNX, via the KNX/BacNet Space Lynk interface from Schneider Electric.

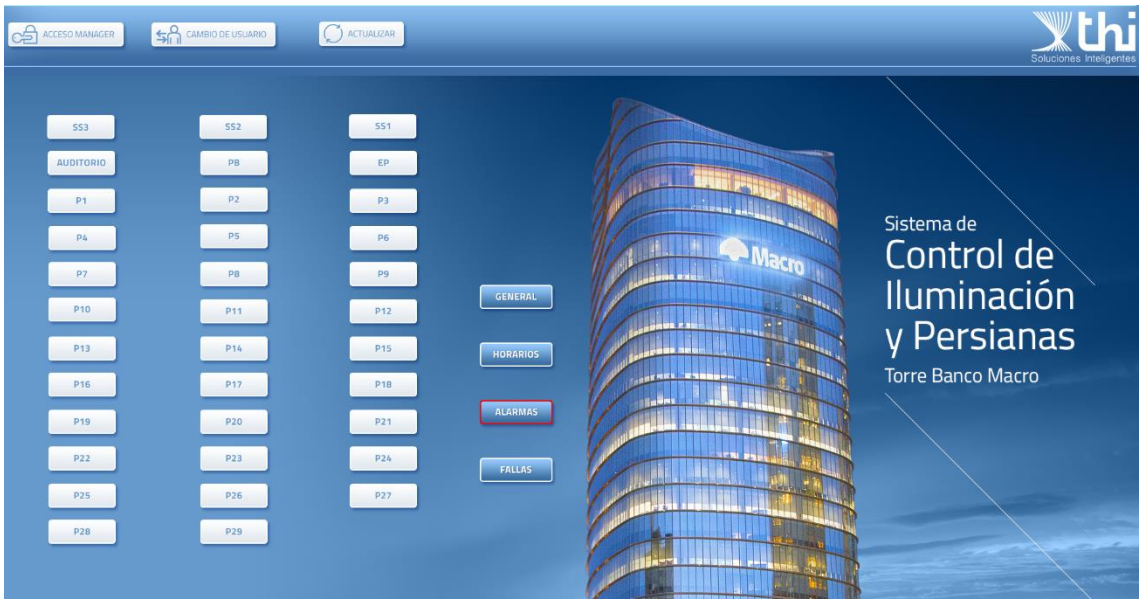
4. Weather Station:

The building has a weather station, which allows you to control the position of the rollers, according to the solar position, recognize sunny day from cloudy day, and control the interior and exterior lighting according to the light level at sunset and dawn.

5. SCADA:

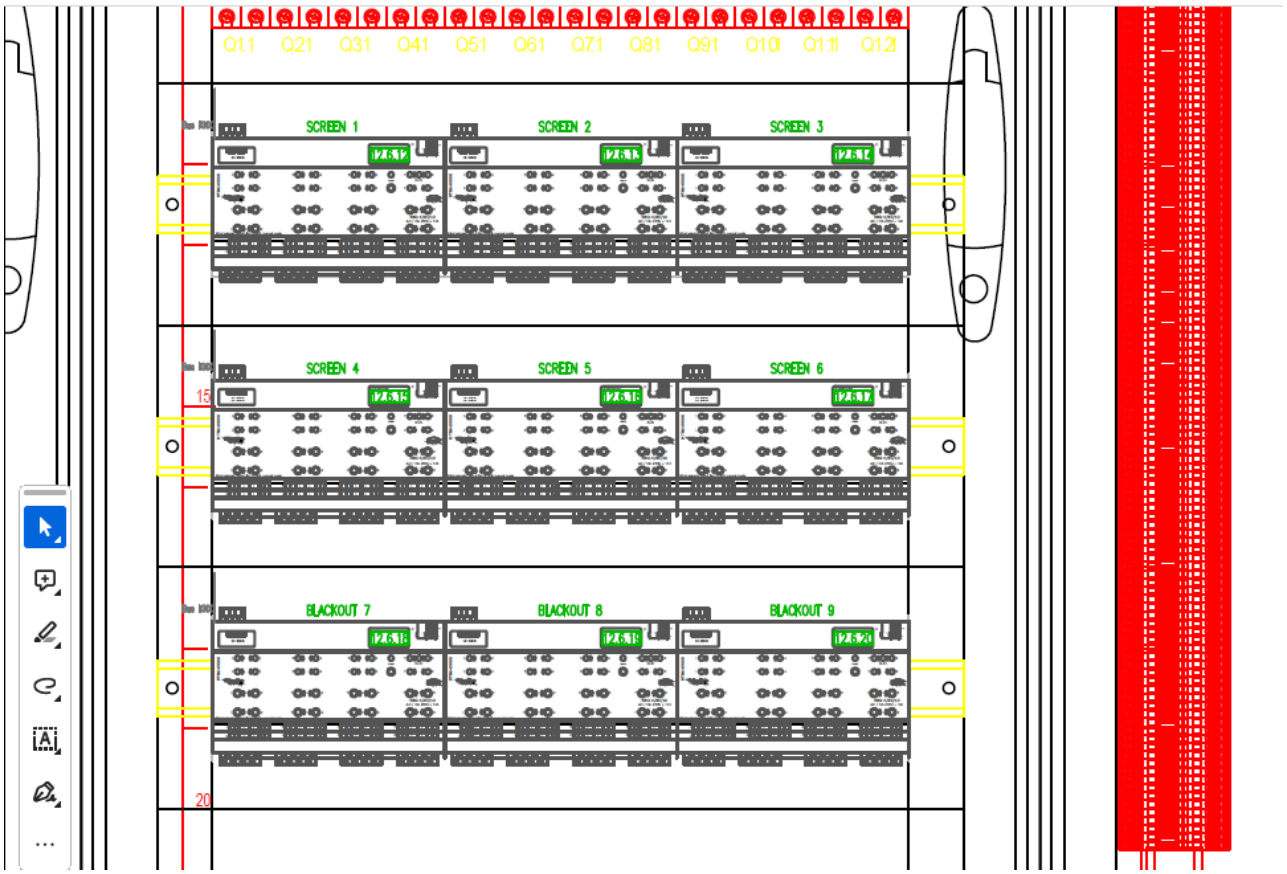
The SCADA controls and monitors more than 30,000 variables. It is an intuitive, easy-to-use HMI that allows operators to constantly monitor the building and report errors in such a way that faults are easy to find. The SCADA generates databases with fault logs, to be analyzed and evaluated.

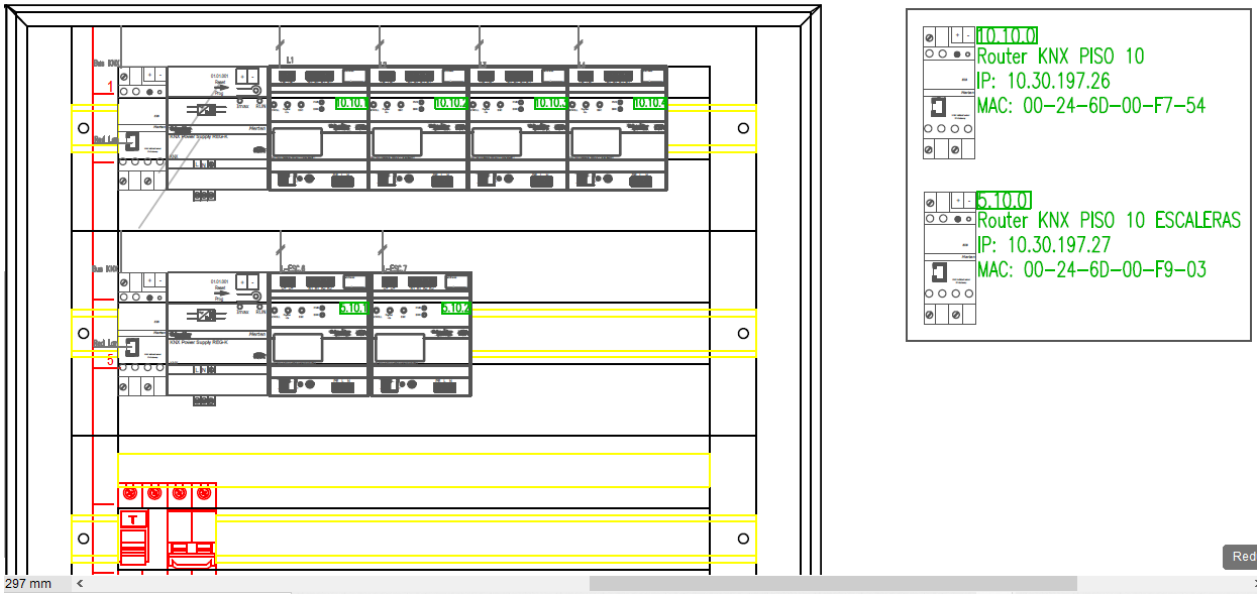
The SCADA allows a general management of the building according to dates and times, in order to guarantee the efficient use of energy.

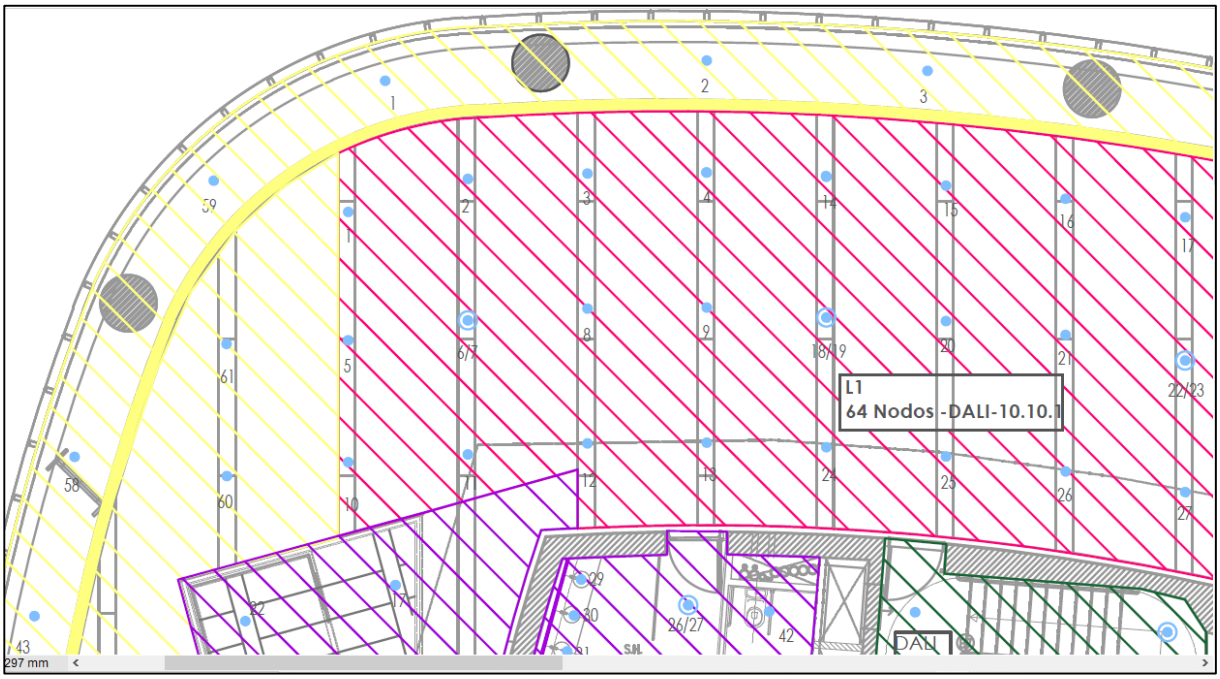


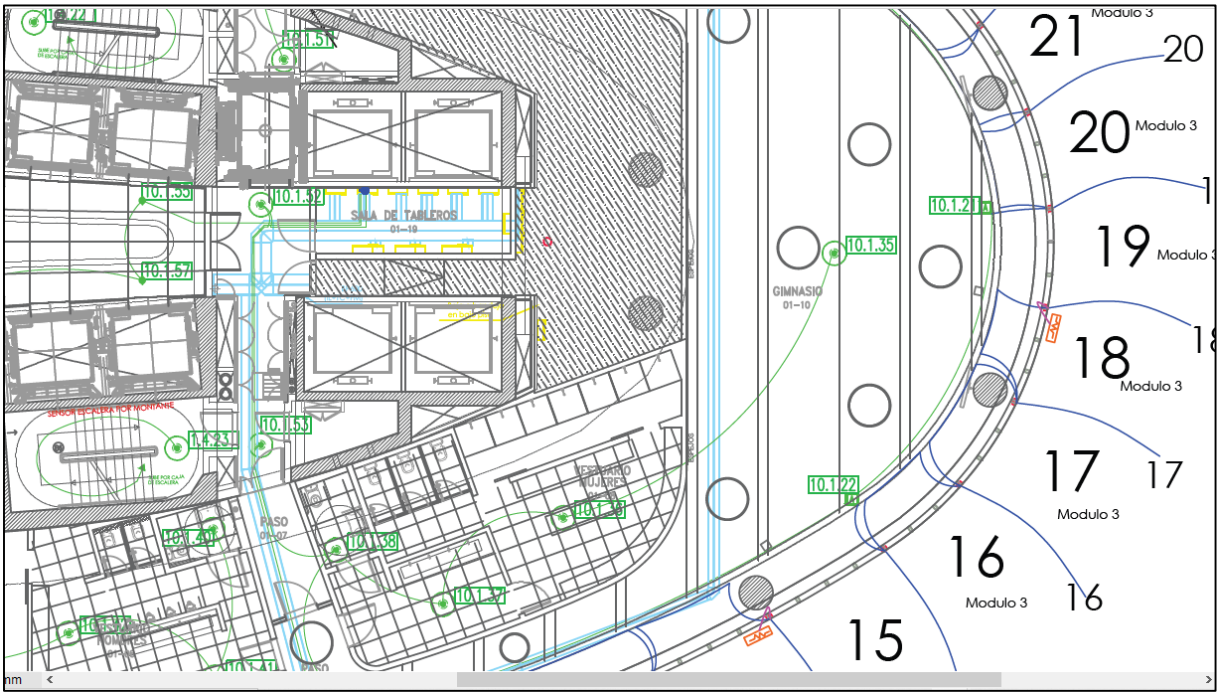
7. Planning:

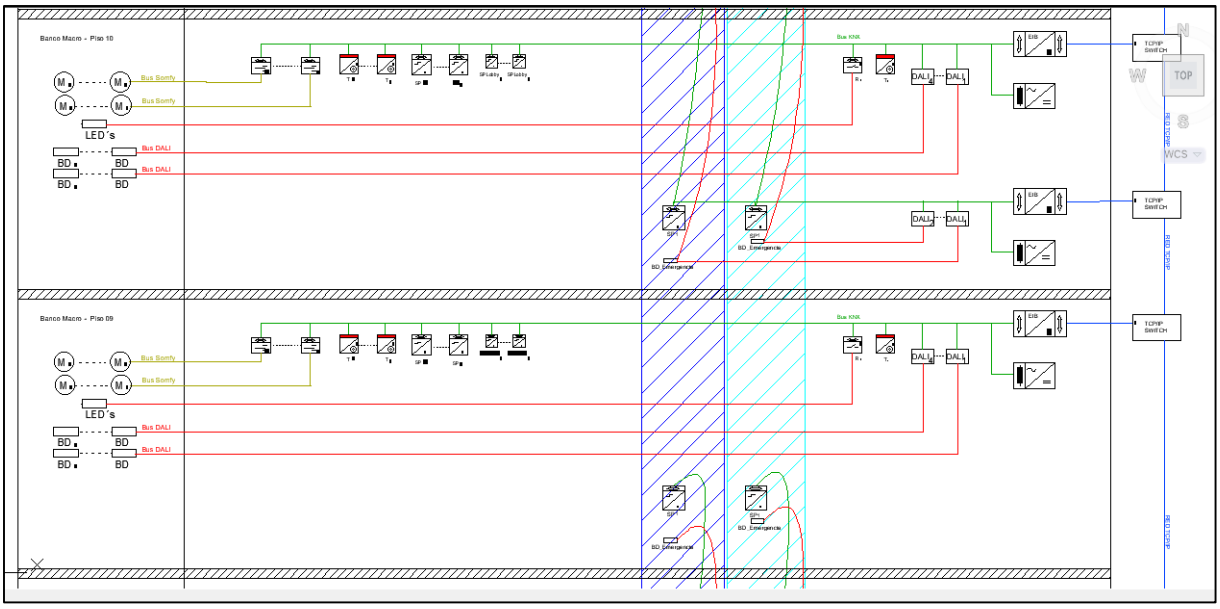
The planning of the TBM project required the preparation of more than 300 general and detail plans, including those of KNX, DALI and Somfy Bus cabling, those of location of field components (presence sensors, keyboards, etc.), those of shutter motors, those of panels, topological and DALI zones among others.

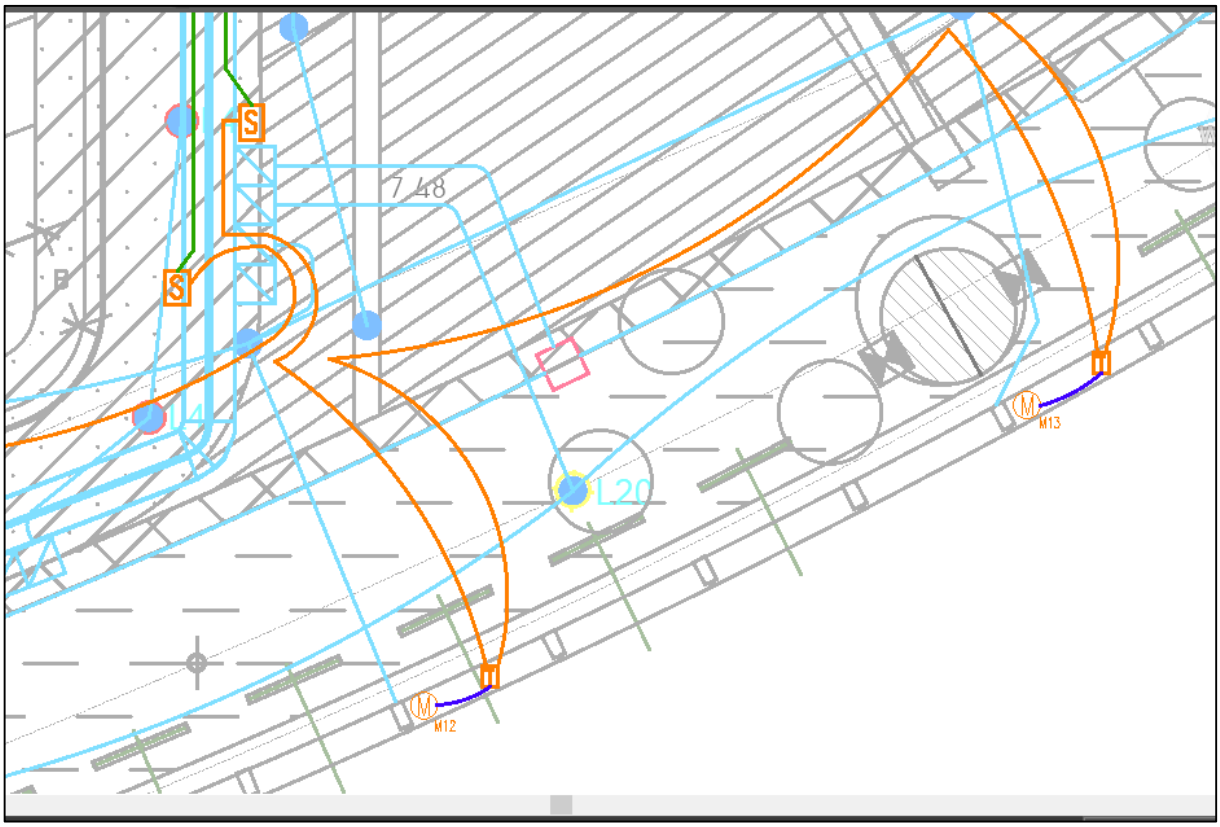





L1
64 Nodos -DALI-10.10.1
DALI


SALA DE TABLEROS
01-10
GIMNASIO
01-10
Modulo 3
Modulo 3
Modulo 3
Modulo 3
Modulo 3


Banco Macro - Piso 10
Bus Somfy
Bus Somfy
LED´s
Bus DALI
BD
BD
Bus DALI
BD
BD
Banco Macro - Piso 09
Bus Somfy
Bus Somfy
LED´s
Bus DALI
BD
BD
Bus DALI
BD
BD
Bus KNX
DALI
DALI
EIB
TCP/IP SWITCH
TOP
WCS


7.48
L4
L20
M12
M13

Due to the large number of variables, "free" KNX addressing was used, maintaining a constant between similar objects of different components, which allows indirect addressing for SCADA programming.

	AGRUPACIÓN_F	NOMBRE_F	DIRECCIÓN_F	PISO	DISPOSITIVO	AGRUPACIÓN_NF	NOMBRE_NF	DIRECCIÓN_NF
651	P03-BO1.10-VAL	P03 Cort. BO1.10 Value 8b	3649	P03	Cortina 1	P03-BO1.10-ERR	P03 Cort. BO1.10 Error 1b	33649
652	P03-S01-1b	P03 Sensor 1 Switch 1b	3650	P03	Cortina 1	P03-BO1.10-RES	P03 Cort. BO1.10 Reserva	33650
653	P03-S01-4b	P03 Sensor 1 Dimming 4b	3651	P03	Reserva	Reserva	Reserva	33651
654	P03-S01-8b	P03 Sensor 1 Value 8b	3652	P03	Reserva	Reserva	Reserva	33652
655	P03-S01-BL	P03 Sensor 1 Bloqueo 1	3653	P03	Reserva	Reserva	Reserva	33653
656	P03-S01-LUX	P03 Sensor 1 Lux 16b	3654	P03	Reserva	Reserva	Reserva	33654
657	P03-S01-IR1	P03 Sensor 1 IR 1	3655	P03	Reserva	Reserva	Reserva	33655
658	P03-S01-IR2	P03 Sensor 1 IR 2	3656	P03	Reserva	Reserva	Reserva	33656
659	P03-S01-IR3	P03 Sensor 1 IR 3	3657	P03	Reserva	Reserva	Reserva	33657
660	P03-S01-IR4	P03 Sensor 1 IR 4	3658	P03	Reserva	Reserva	Reserva	33658
661	P03-S01-IR5	P03 Sensor 1 IR 5	3659	P03	Reserva	Reserva	Reserva	33659
662	P03-S02-1b	P03 Sensor 2 Switch 1b	3660	P03	Reserva	Reserva	Reserva	33660
663	P03-S02-4b	P03 Sensor 2 Dimming 4b	3661	P03	Reserva	Reserva	Reserva	33661
664	P03-S02-8b	P03 Sensor 2 Value 8b	3662	P03	Reserva	Reserva	Reserva	33662
665	P03-S02-BL	P03 Sensor 2 Bloqueo 1	3663	P03	Reserva	Reserva	Reserva	33663
666	P03-S02-LUX	P03 Sensor 2 Lux 16b	3664	P03	Reserva	Reserva	Reserva	33664
667	P03-S02-IR1	P03 Sensor 2 IR 1	3665	P03	Reserva	Reserva	Reserva	33665
668	P03-S02-IR2	P03 Sensor 2 IR 2	3666	P03	Reserva	Reserva	Reserva	33666
669	P03-S02-IR3	P03 Sensor 2 IR 3	3667	P03	Reserva	Reserva	Reserva	33667
670	P03-S02-IR4	P03 Sensor 2 IR 4	3668	P03	Reserva	Reserva	Reserva	33668
671	P03-S02-IR5	P03 Sensor 2 IR 5	3669	P03	Reserva	Reserva	Reserva	33669
672	P03-S03-1b	P03 Sensor 3 Switch 1b	3670	P03	Reserva	Reserva	Reserva	33670

Planta tipo | Hoja2 | Hoja1 | PB | SSs y EP

The physical addresses of the components were recorded in the office, so that they could be installed according to the drawings, this simplified and decreased commissioning times.