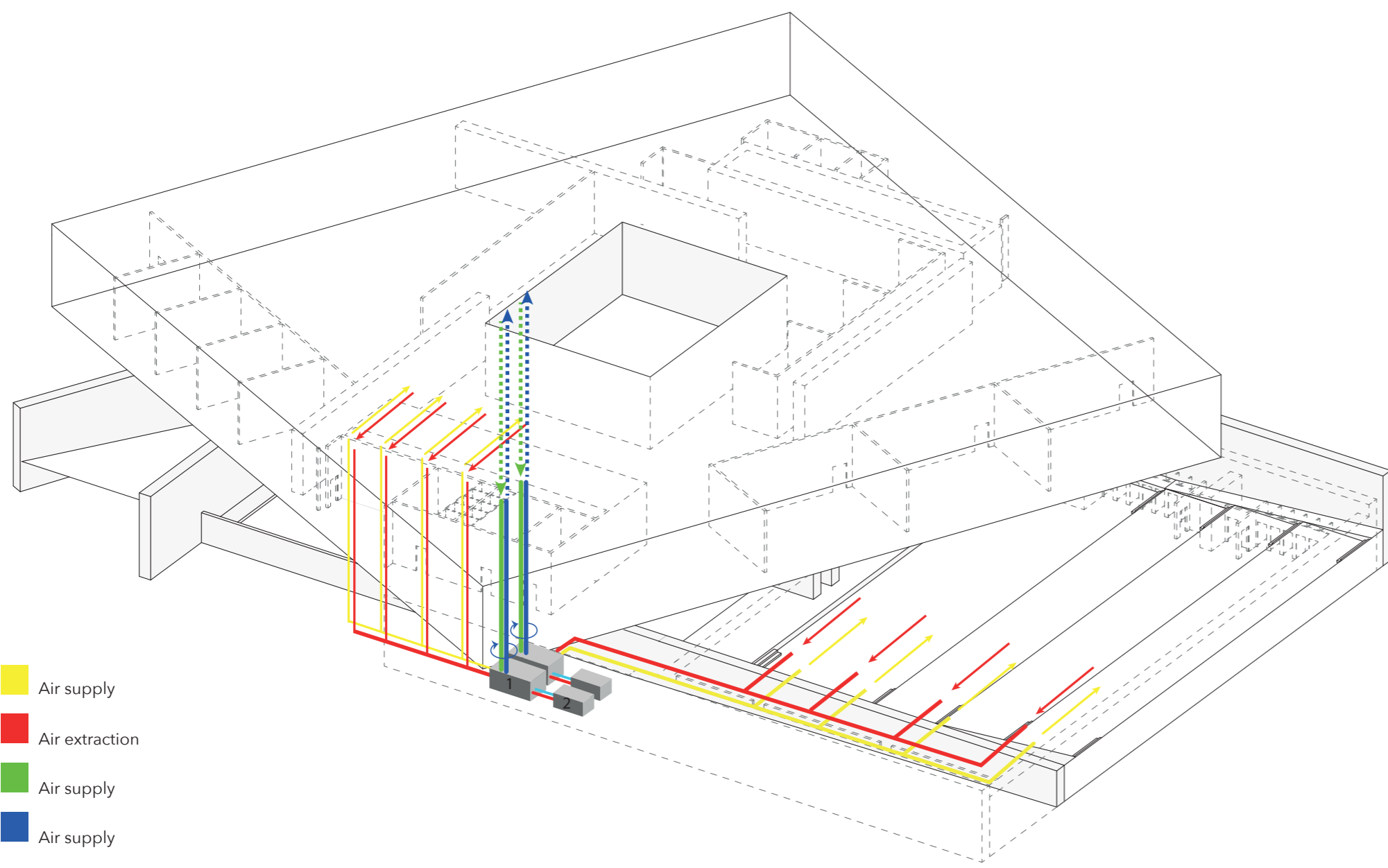


## HVAC SYSTEM



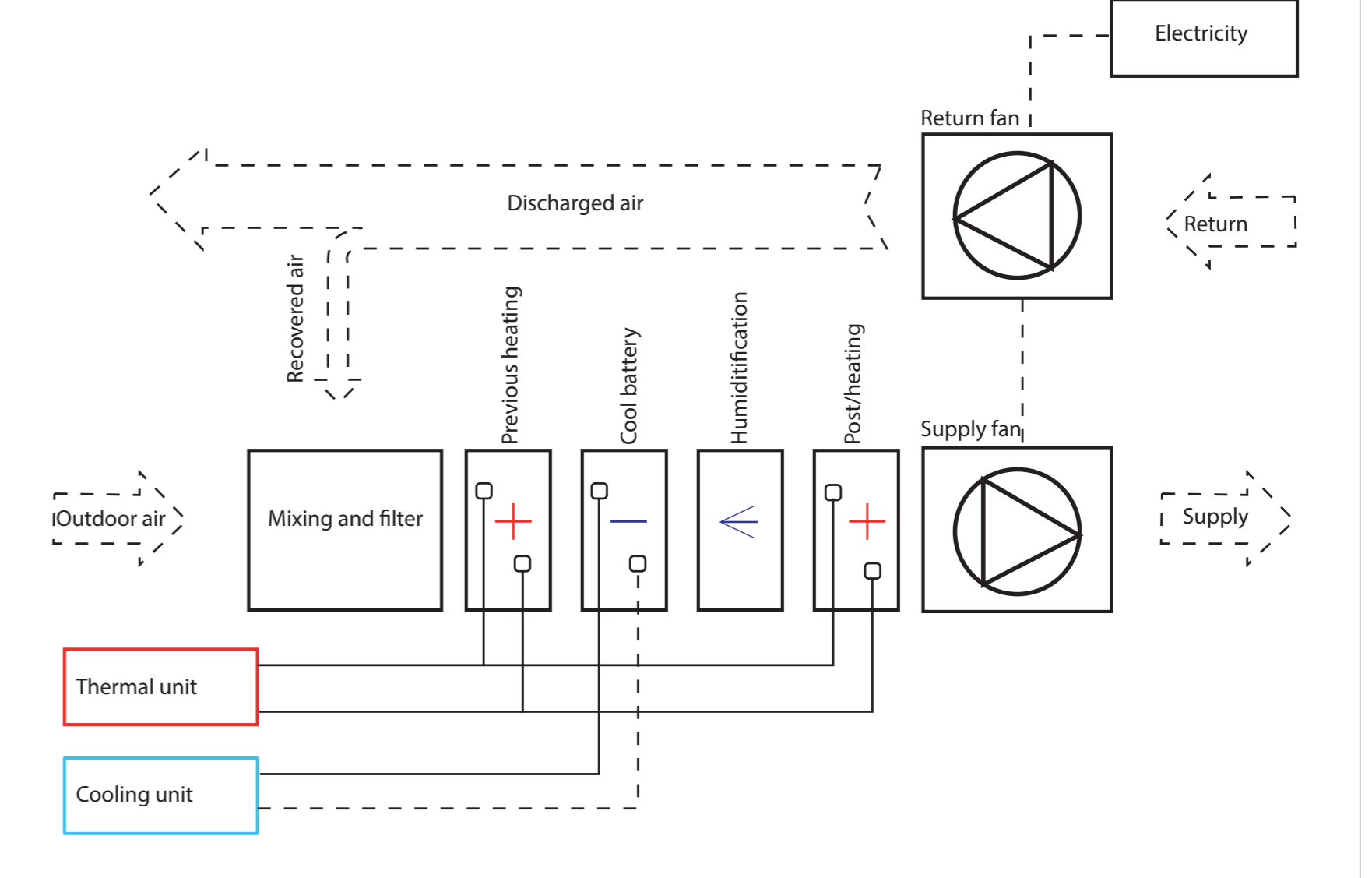
- Air supply
  - Air extraction
  - Air supply
  - Air supply
1. Air handling unit
  2. Thermal / Cooling unit

## PROVIDED DEVICE

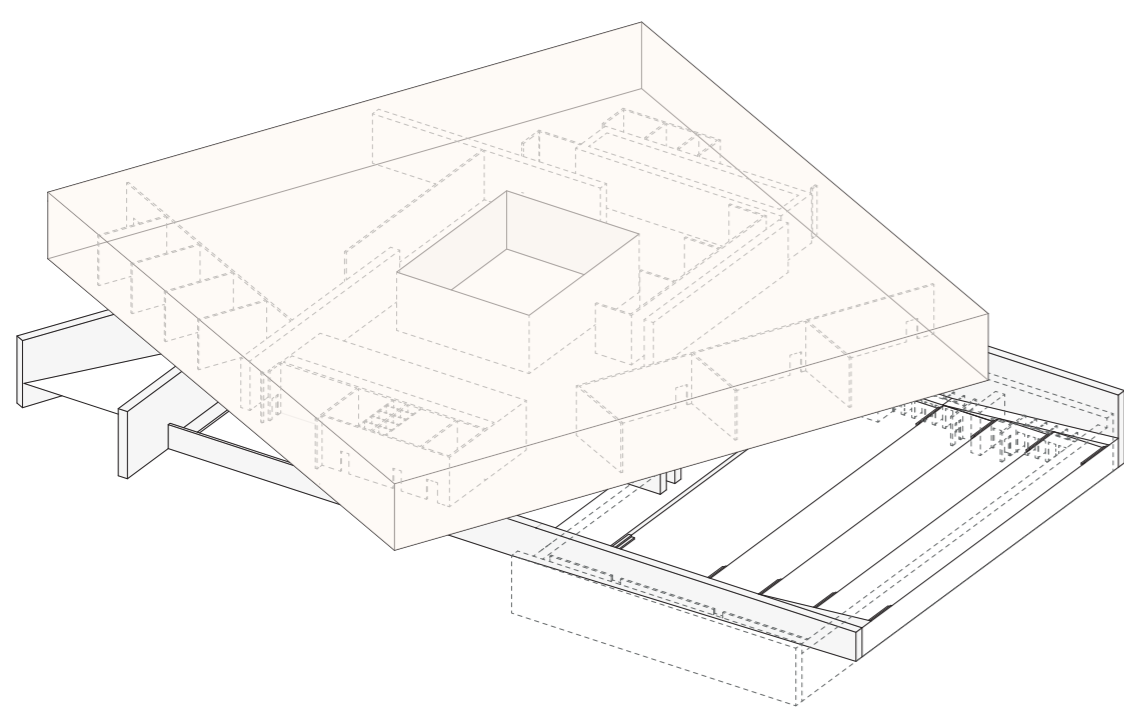
Air handling unit Ferrolli **UTA** with VD/VR thermal and cooling unit

Cultural Center:		Dimension:		Total amount of winter load:	
Airflow (m <sup>3</sup> /h)	31000	H (mm):	3200	155682 (W)	
Thermal Power (kw)	376	B (mm):	5000	Total amount of summer load:	
Cooling Power(kw)	429	L (mm):	2400	(detailed calculation in report)	
Museum:				Total amount of winter load:	
Airflow (m <sup>3</sup> /h)	8500	H (mm):	1800	69648 (W)	
Thermal Power (kw)	167	B (mm):	2400	Total amount of summer load:	
Cooling Power(kw)	181	L (mm):	2400	(detailed calculation in report)	

## AHC DIAGRAM SYSTEM



## CULTURAL CENTER



Air change due to UNI 10339

Function	Area (m <sup>2</sup> )	Expected crowding factor (f)	l/s each person	vol/h	A*f	Air change
Library	1632	0,2	5,5	326,4		6462,72
Exhibition	90	0,3	6	27		583,2
offices/meeting room	320	0,8	10	256		9216
open space/ circulation	570	0,12	11	68,4		2708,64
Restrooms	97		8			304
tot: 678 pp						

Ducts and provided devices

DUCT	ACTIVITIES AND AIRFLOW DUE	DEVICES
Duct A	library zone 1 circulation 3960	AIRCAR MA10 Q100 4
Duct B	Meeting rooms 2 restrooms 4616	
Duct C	conference rooms circulation 4600	
Duct D	restroom library zone 2 81,2	

Ducts and fans for each room

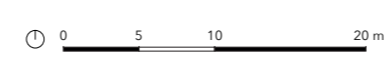
Function	Air (m <sup>3</sup> /h)	Provided device	Function	Air (m <sup>3</sup> /h)	Provided device	Function	Air (m <sup>3</sup> /h)	Provided device	Function	Air (m <sup>3</sup> /h)	Provided device	Function	Air (m <sup>3</sup> /h)	Provided device	Function	Air (m <sup>3</sup> /h)	Provided device		
Library zone 1	3960	AIRCAR MA10 Q250: 12 units	Library zone 2	2502	AIRCAR MA10 Q250: 10 units	Exhibitions	583,2	AIRCAR MA10 Q200: 3 units	open space/circulation	2708,64	AIRCAR MA10 Q100: 3 units	offices type 1 (conference room)	4600	1st unit	1533,33	2nd unit	1533,33	3rd unit	1533,33

Air change due to UNI 10339

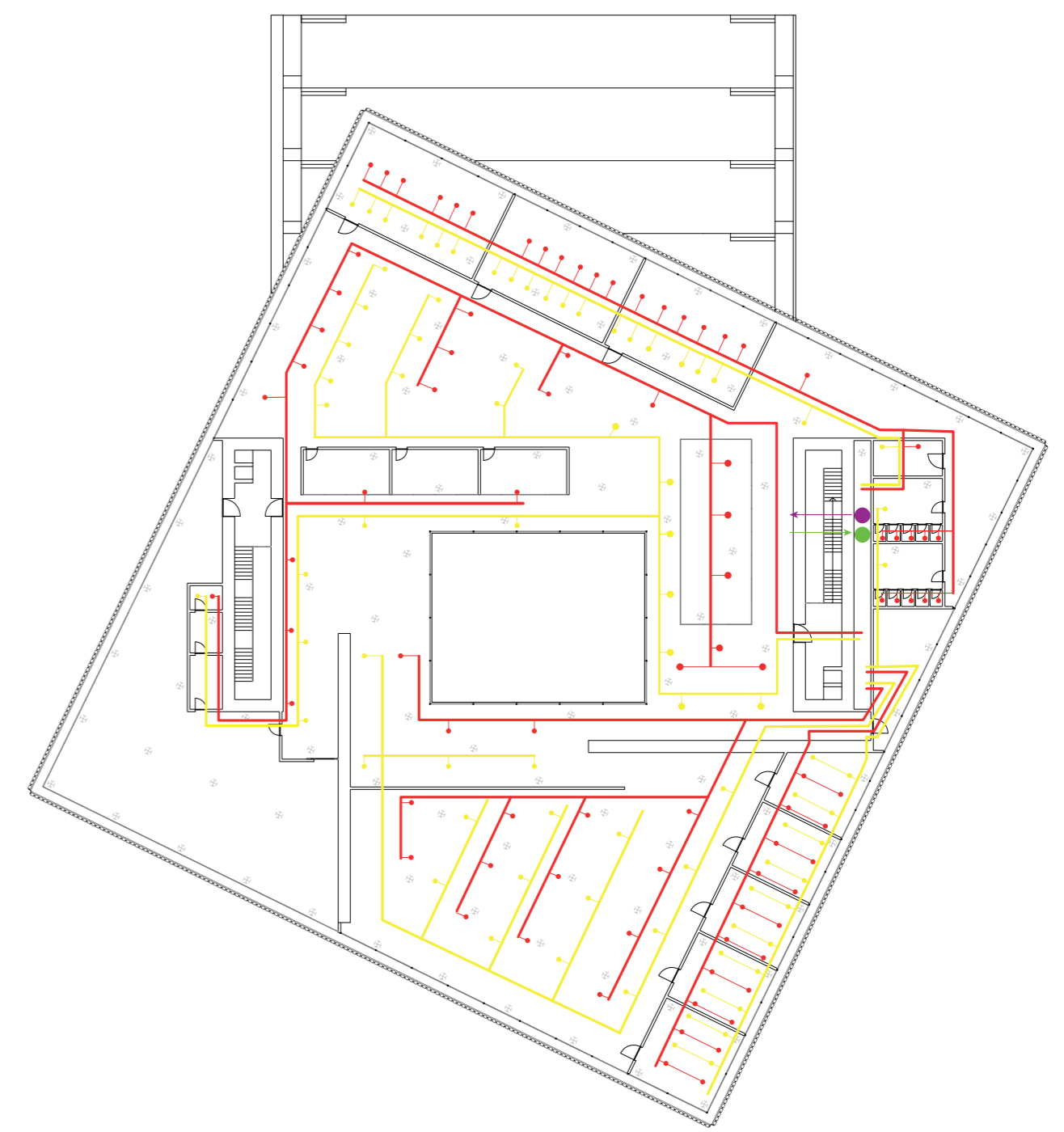
Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	Function	Air (m <sup>3</sup> /h)	
offices type 2 (meeting room)	4616	1st unit	AIRCAR MA10 Q 250: 4 units	2nd unit	923,2	3rd unit	923,2	4th unit	923,2	5th unit	923,2	restrooms	304	10 units	9 (public units) (3 services)	243,6	1 (cafeteria)	70,4

## VENTILATION DUCTS LAYOUT

PLAN + 4,50 m 1:500

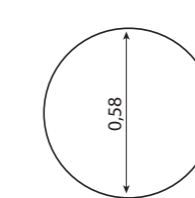


- AIR SUPPLY
- AIR EXTRACTION

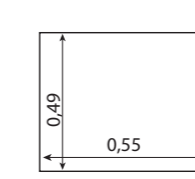


Ducts sections:

Equi Circular section:



Equi. rectangular section:



DUCTS SIZING:

Q	19274,96	m <sup>3</sup> /h	Airflow
Q	5,35	m <sup>3</sup> /s	
w=	9,0	m/s	speed
A	0,59	m <sup>2</sup>	section
Rectangular section duct:			
h	0,80	m	h dimension
L	0,74	m	b dimension
Equi. circular section duct:			
D	0,870	m	hydraulic dim. Equi.
D <sub>ce</sub>	0,843	m	circular dim. Equi.
<b>4 main ducts</b>			
Q	4818,64	m <sup>3</sup> /h	Airflow
Q	1,34	m <sup>3</sup> /s	
w=	5	m/s	Speed
A	0,27	m <sup>2</sup>	section
rectangular section duct:			
h	0,55	m	h dimension
L	0,49	m	b dimension
Equi. circular section duct:			
D	0,584	m	hydraulic dim. Equi.
D <sub>ce</sub>	0,565	m	circular dim. Equi.