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Basic parameters of project

Temperature of the year period (outside)	Heating & Cooling capacities				Electrical capacity of equipment
	Emergency heating & aircurtian heating supply system	Ventilation system combined with heating systems	Hot water supply systems	Ventilation system combined with cooling systems	
°C	KWt	KWt	KWt	KWt	KWt
-8	16,7	214	60,5	-	107
+35	-	-	-	185	

- The technical solutions accepted in the project comply with the requirements environmental, sanitary, fire and other standards and rules.
- This project was developed on the basis of technical specification issued by the customer.
- Designing of HVAC system fulfilled accordingly to following standarts:
 -ISO 13790:2008 "Energy performance of buildins. Calculation of energy use for space heating and cooling"
 -DIN EN 1507:2006-07 "Ventilation for buildings-Sheet metal air ducts with rectangular section-Requirements for strength and leakage"
 -SNIP 2.04.05-91 "Heating, ventilation & aircondition"
 -SNIP 2.01.01-82 "Building climatology"
 -SNIP 2.08.02-89 "Catering companies"

- Heat supply of ventilation, heating, aircurtians systems is carried out from Roof Heating Plant located on the level +7.800 (look at sheet # 16,17).
- Cooling supply of air condition system is carried out from Roof Cooling Plant located on the level +7.800 (look at sheet # 18,19).
- In the project stipulated the manifold distributor (look at sheet # 16,17) which working with cooling supply system and heating supply system. When it will work with heating supply system, shut-off valves of cooling supply system must be closed and vice versa.
- Radiators must be installed at a height 100 mm from level of "clean" floor and 20-30 mm from finished surface of wall.
- Radiators heat system of kitchen for emergency. It was calculated for support 5 C inside (non working time).
- In working time of restaurant, heating and airconditionong system performed using by AHUs. Automatical support and regulation of inside temperature is fulfilled by regulation of flow of heat transfer agent and flow of refrigerent depending on temperature of exhaust air. More detaily to look at project of automatization system 11-2015-AE.
- Welding works must be fulfilled according to DIN-EN-ISO 5817.

- Parameters of heating circuits:
 -T1/T2 primary circle of AHU, radiators, aircurtians heating supply - water 60/50 C
 -T5/T6 secondary circle of AHU heating supply - water 60/50 C
 -T7/T8 secondary circle of radiators & aircurtians heating supply - water 60/50 C
 -T9/T10 circle of heating supply of Hot-water heater - water 80/60 C
 -T11/T12 circle of hot water supply (with recirculation) - potable water 60/55 C

- Parameters of cooling circuits:
 -T3/T4 primary circle of AHU cooling supply - water 7/12 C
 -T5/T6 secondary circle of AHU cooling supply - water 7/12 C

- Material of pipes:
 For pipes till Dn40 - PPR Pn 16 with anti-oxygen layer
 For pipes over Dn40 - steel pipes (GOST 3262-75 & GOST 10704-91)
 For drainage pipes - PPR Pn 10

- Material of ducts:
 Galvanized steel with thickness of wall 0.8 mm
 Connections of plenum-boxes - flexible ducts

- Thermic insulation:
 Pipes and fittings of heating supply system must be covered by polyethylene foam with thickness:
 9 mm - inside
 19 mm - outside
 Pipes and fittings of cooling supply system must be covered by caoutchouc foam with thickness - 19 mm.
 Ducts and fittings of cooling/heating supply system must be covered by caoutchouc foam with thickness:
 10 mm - inside
 25 mm - outside

- Complete emptying of the heating/cooling supply system with a compressor.

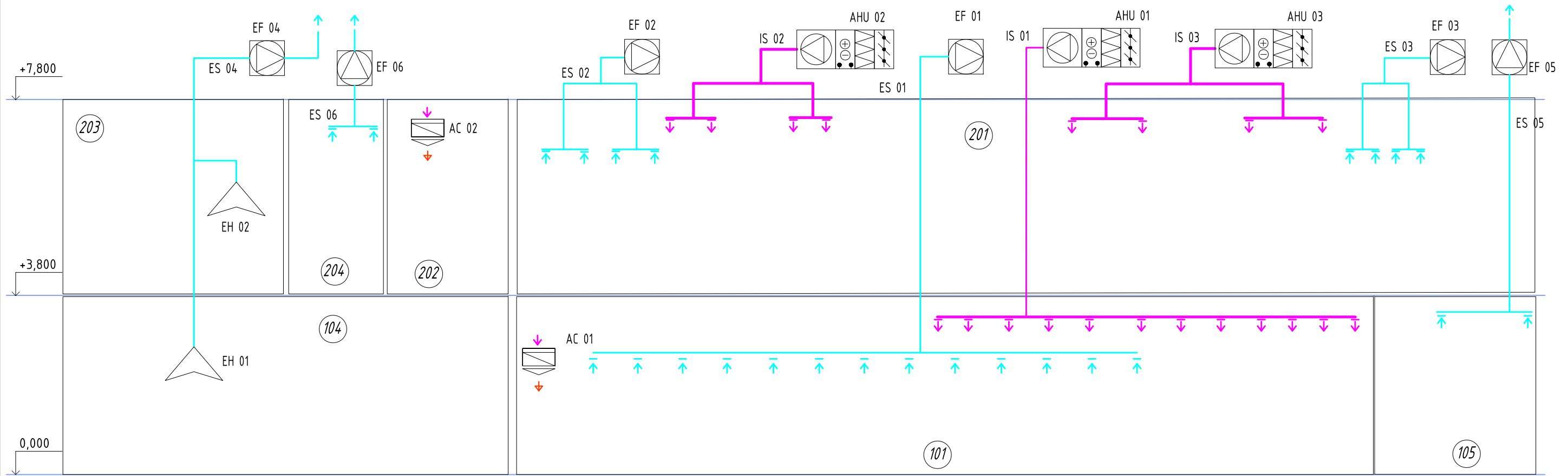
Basic parameters for calculations

	Heating & Cooling capacities			
	For heatgains calculations	For heatlosses calculations	For ventilation (summer time)	For ventilation (winter time)
Temperature °C	+35	-8	+38	-10
Humidity %	-	-	37	85

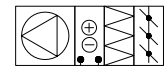
11-2015-HVAC						
Catering company (restaurant) in t. Mcheta, Georgia						
Changes	Amount	Sheet	Nº Doc	Signing	Date	
Heating Ventilation & Airconditioning				Stage	Sheet	Sheets
				WP	1	
General information				LTD "Tbilservice Group"		
Checked by	Zurabashvili					
Designed by	Matlov					

Principal scheme of ventilation system

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Notations:



-Air handling unit;



-Exhaust fan;



-Air curtain unit;



-Exhaust hood;



- Exhaust diffuser;



- Intake diffuser;



- Recirculation air;

IS 01 - intake system of 101 premises;

ES 01 - exhaust system of 101 premises;

IS 02 - intake system of 201 premises;

ES 02 - exhaust system of 201 premises;

IS 03 - intake system of 201 premises;

ES 03 - exhaust system of 201 premises;

ES 04 - exhaust system of 104; 203 premises;

ES 05 - exhaust system of 105 premises;

ES 06 - exhaust system of 106 premises;

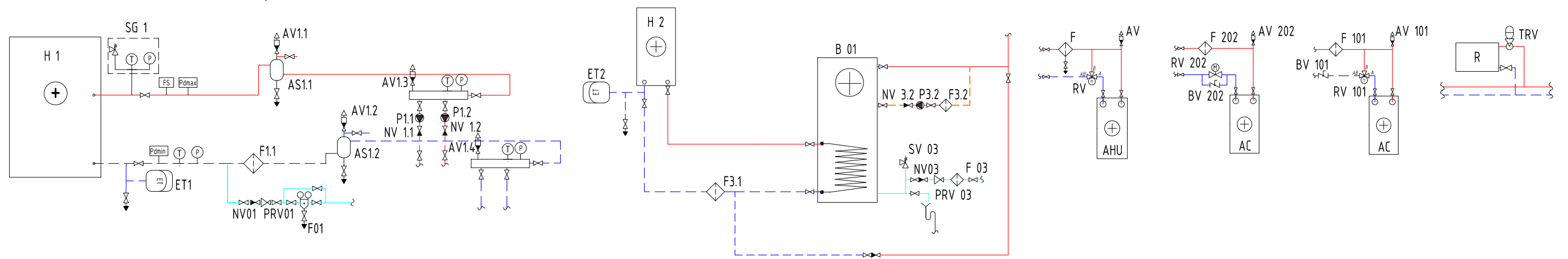
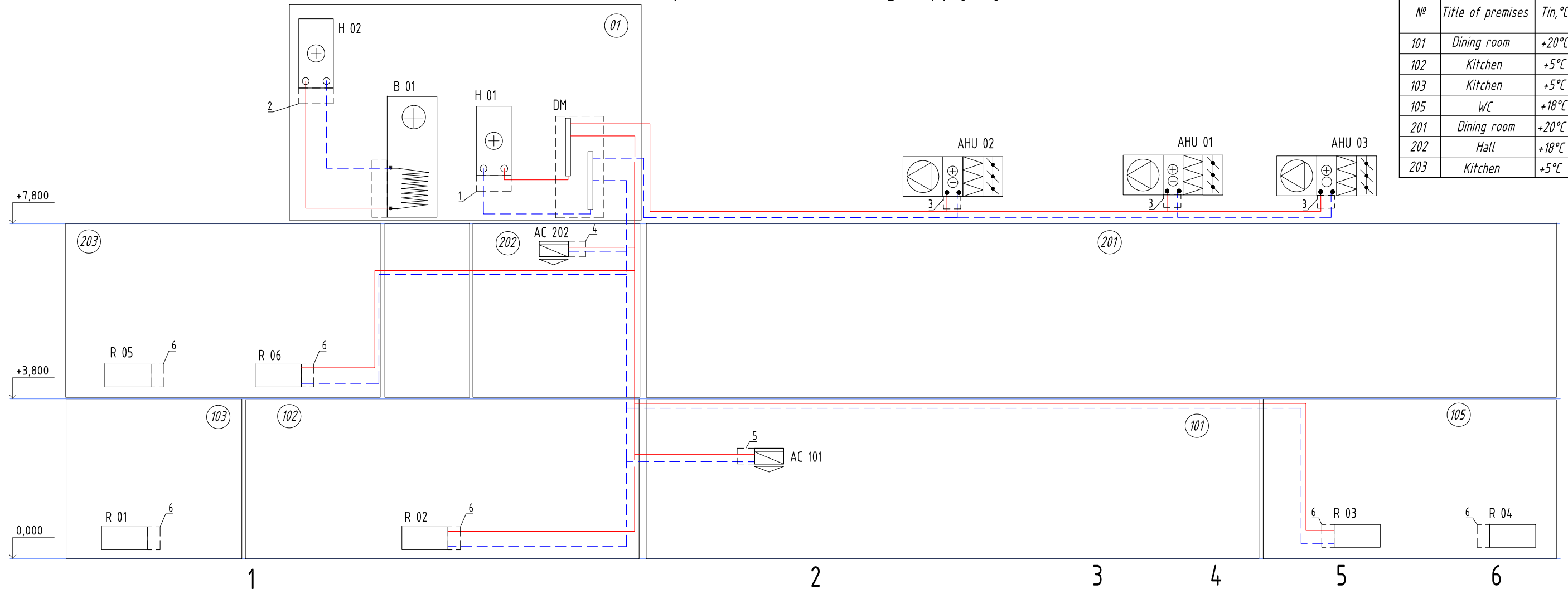
Nº	Title of premises	Tin, °C
101	Dining room	+20°C
104	Kitchen	+5°C
105	WC	+18°C
201	Dining room	+20°C
202	Hall	+18°C
203	Kitchen	+5°C
204	WC	+18°C

						11-2015-HVAC				
						Catering company (restaurant) in t. Mcheta, Georgia				
Changes	Amount	Sheet	Nº Doc	Signing	Date					
						Heating Ventilation & Airconditioning		Stage	Sheet	Sheets
								WP	2	
						Basic scheme (ventilation system)		LTD "Tbilservice Group"		
Checked by		Zurabashvili								
Designed by		Matlov								

Principal scheme of heating supply system

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Nº	Title of premises	Tin, °C
101	Dining room	+20°C
102	Kitchen	+5°C
103	Kitchen	+5°C
105	WC	+18°C
201	Dining room	+20°C
202	Hall	+18°C
203	Kitchen	+5°C

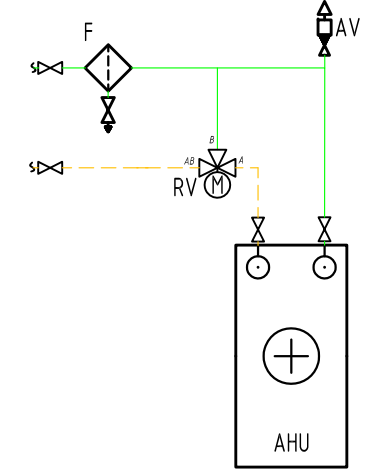
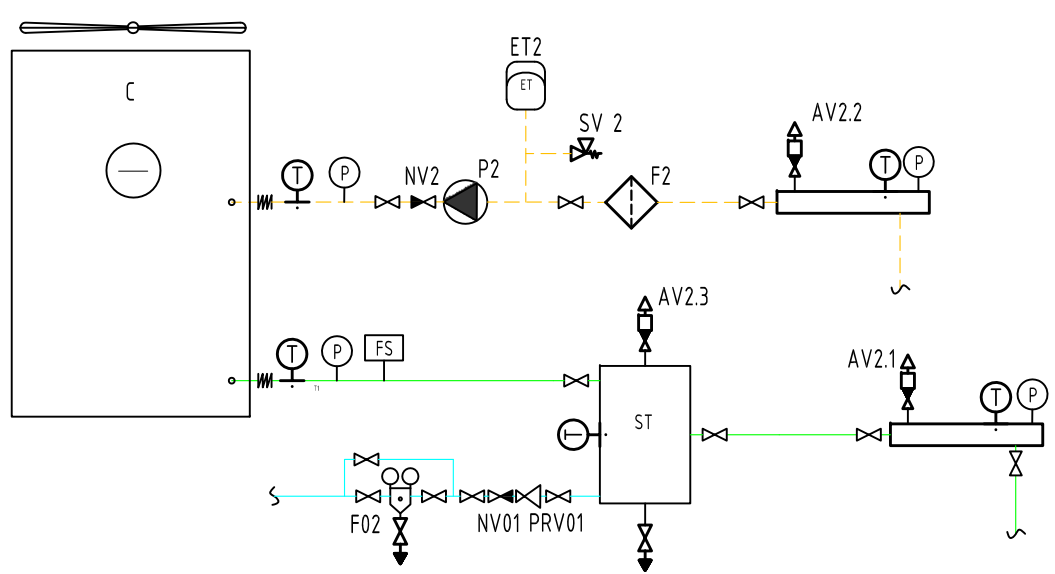
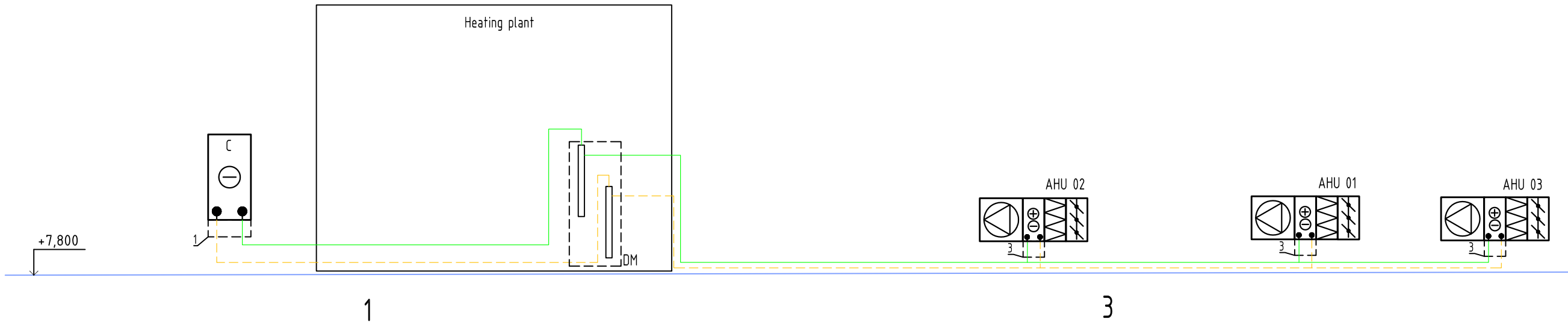


- 3-way regulation valve with servomotor (RV);
- 2-way regulation valve with servomotor (RV);
- Balancing valve (BV);
- Pressure switches; - Flow switcher;
- Shut-off valve; - Reverse rinsing fine filter (F);
- Y-strainer (F); - Distribution manifold (DM); - Aircurtian (AC);
- Automatic air vent (AV); - Nonreturn valve (NV); - Heater (H);
- Expansion tank (ET); - Air separator (AS); - Boiler (B);
- Thermometer; - Pressure reduce valve (PRV); - Radiator (R);
- Manometer; - Safety group (SG); - Thermostatic valve;
- Pump;
- Safety valve (SV);

11-2015-HVAC						
Catering company (restaurant) in t. Mcheta, Georgia						
Changes	Amount	Sheet	№ Doc	Signing	Date	
Heating Ventilation & Airconditioning					Stage WP	Sheet 3
Basic scheme (heating supply system) Basic scheme (heating plant)					LTD "Tbilservice Group"	
Checked by Zurabashvili		Designed by Matlov				

Principal scheme of cooling system

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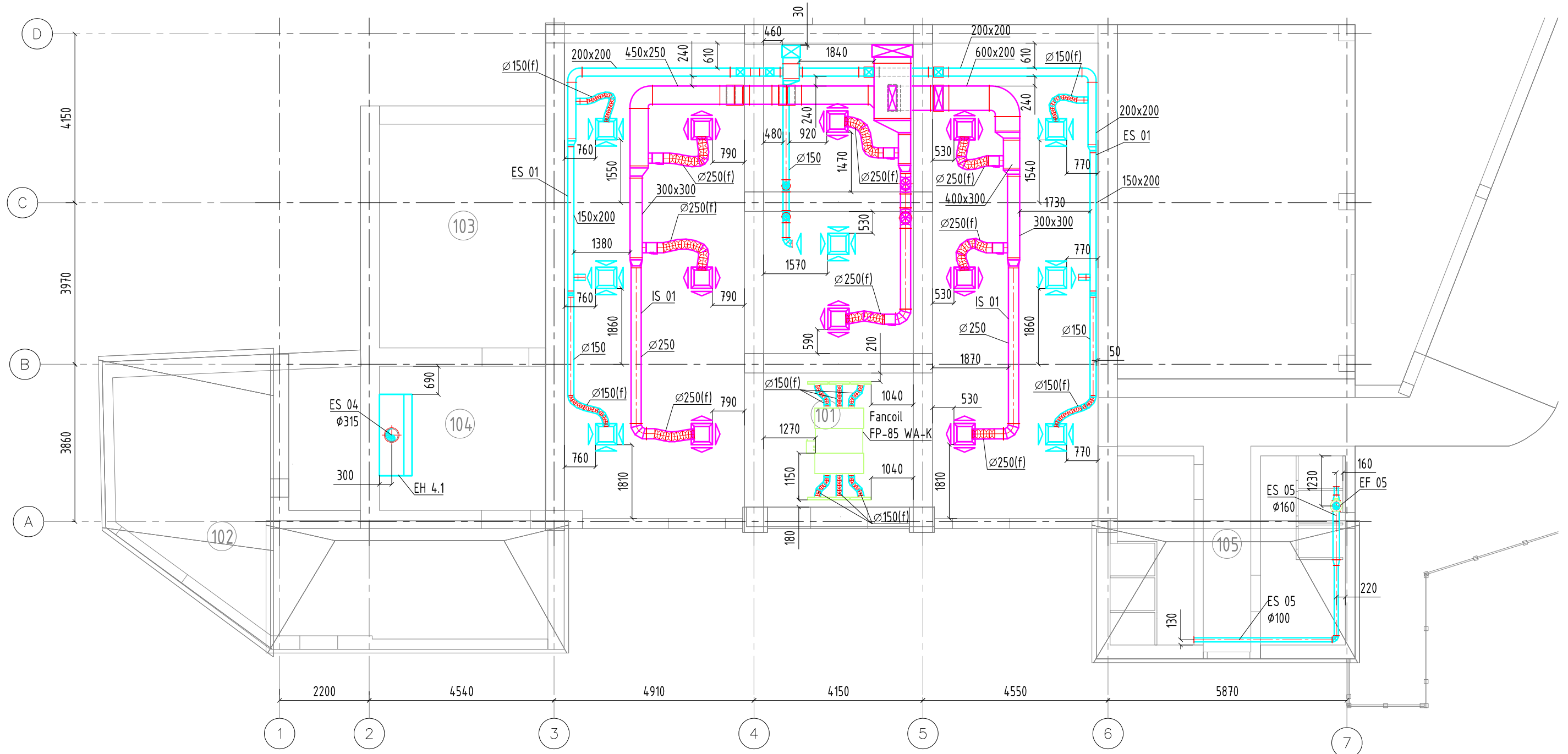


- 3-way regulation valve with servomotor (RV);
- Shut-off valve;
- Y-strainer (F);
- Automatic air vent (AV);
- Expansion tank (ET);
- Thermometer;
- Manometer;
- Storage tank (ST);
- Safety valve (SV);
- Flow switcher;
- Reverse rinsing fine filter (F);
- Nonreturn valve (NV);
- Pressure reduce valve (PRV);
- Distribution manifold (DM);
- Chiller (C);
- Heat/Cool exchanger (AHU);
- Pump;

						11-2015-HVAC				
						Catering company (restaurant) in t. Mcheta, Georgia				
Changes	Amount	Sheet	№ Doc	Signing	Date	Heating Ventilation & Airconditioning		Stage WP	Sheet 4	Sheets
						Basic scheme (cooling supply system)		LTD "Tbilservice Group"		
Checked by		Zurabashvili								
Designed by		Matlov								

Plan +0.000

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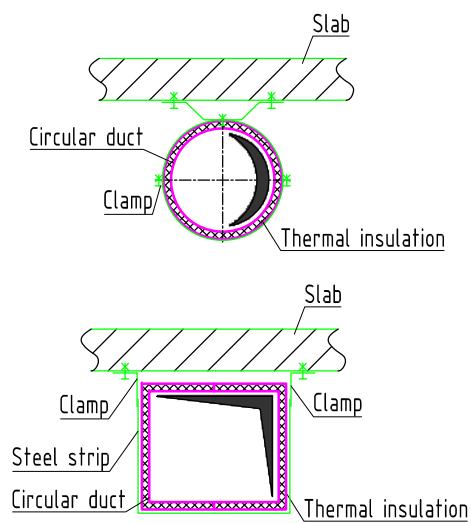


Notations:

- 350x300 - designation rectangular duct (LXH), mm
- ∅280 - designation circular duct (∅D), mm
- ∅280 (f) - designation flexible duct (∅D), mm
- IS 01 - intake system of 101 premises;
- ES 01 - exhaust system of 101 premises;
- ES 04 - exhaust system of 104; 203 premises;
- ES 05 - exhaust system of 105 premises;
- ES 06 - exhaust system of 106 premises;
- exhaust diffuser Kvadra 225 Systemair
- intake diffuser Kvadra 225 Systemair

Nº	Explication of premises	Area, m2
101	Dinning area	151.5
102	Kitchen	46.2
103	Kitchen	22.5
104	Kitchen	14.6
105	WC	31.6

Duct mount:



Changes	Amount	Sheet	Nº Doc	Signing	Date
Checked by	Zurabashvili				
Designed by	Matlov				

11-2015-HVAC

Catering company (restaurant) in t. Mcheta, Georgia

Heating Ventilation & Airconditioning

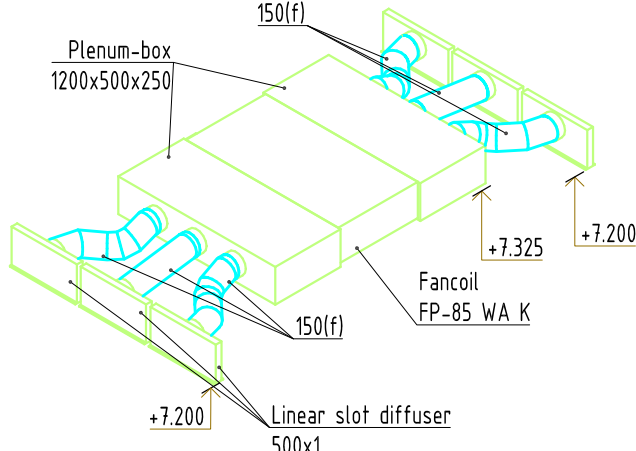
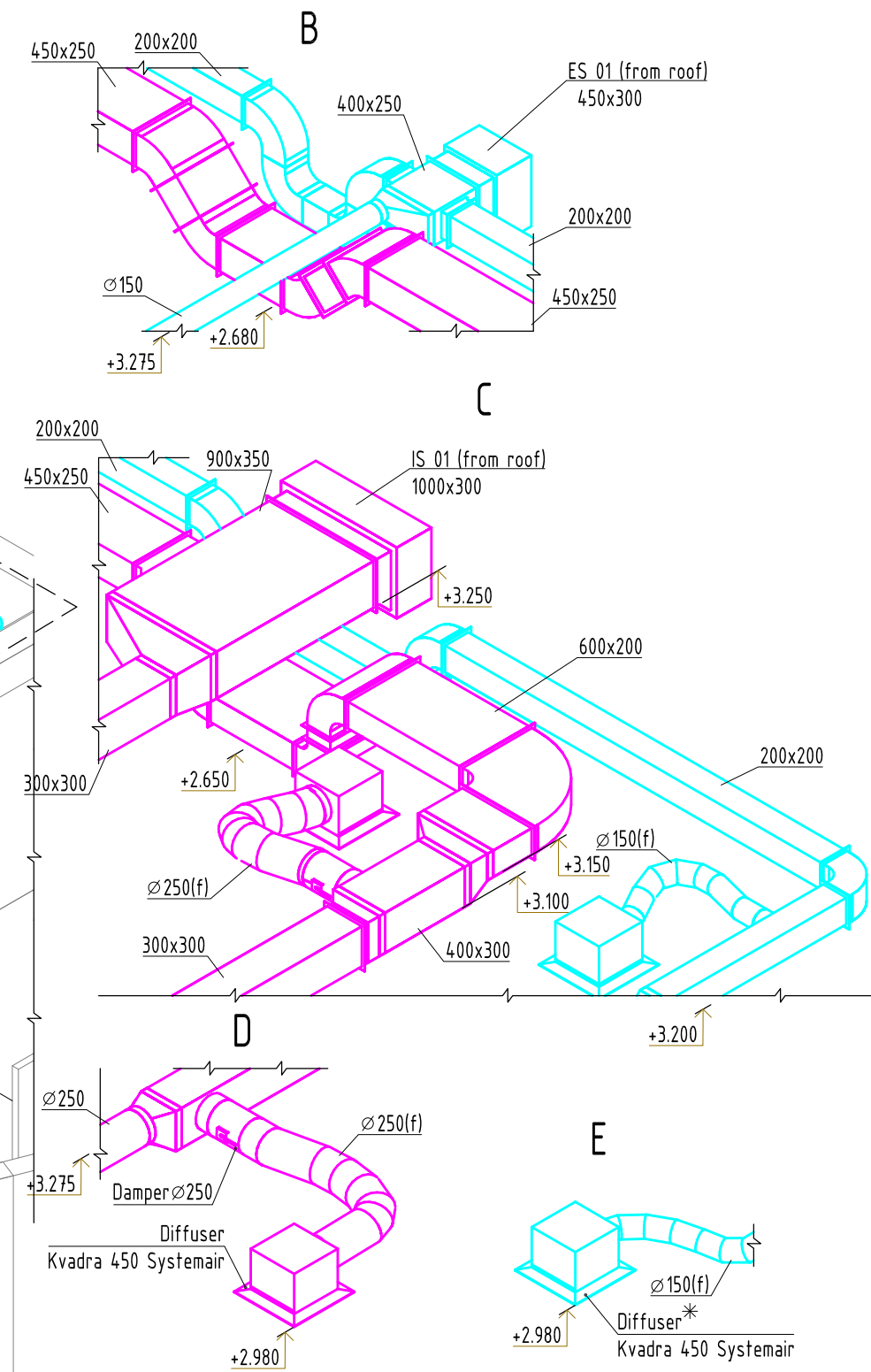
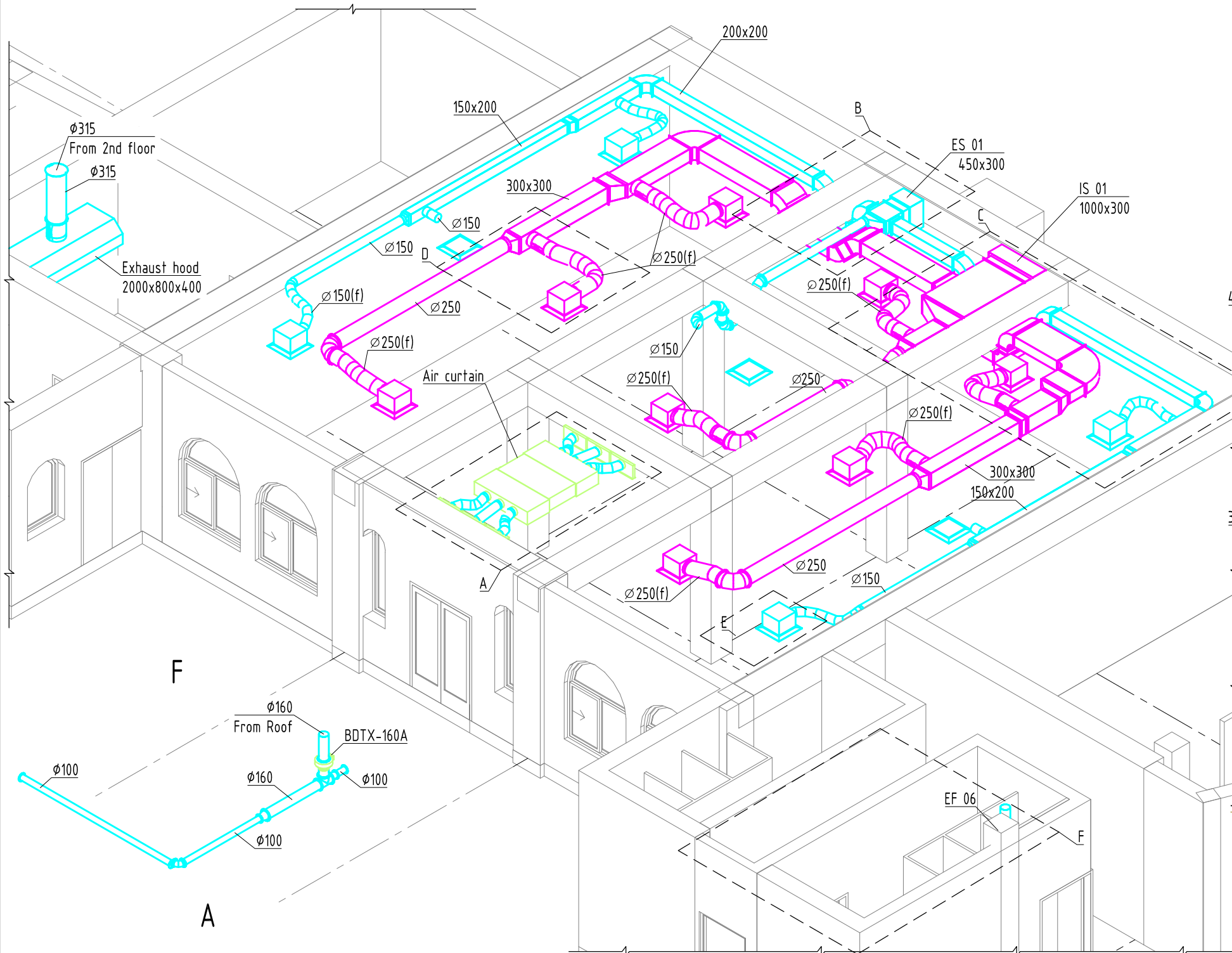
Plan 0.000 (ventilation system)

Stage	Sheet	Sheets
WP	5	

LTD "Tbilservice Group"

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3D View 1st floor



Notations:

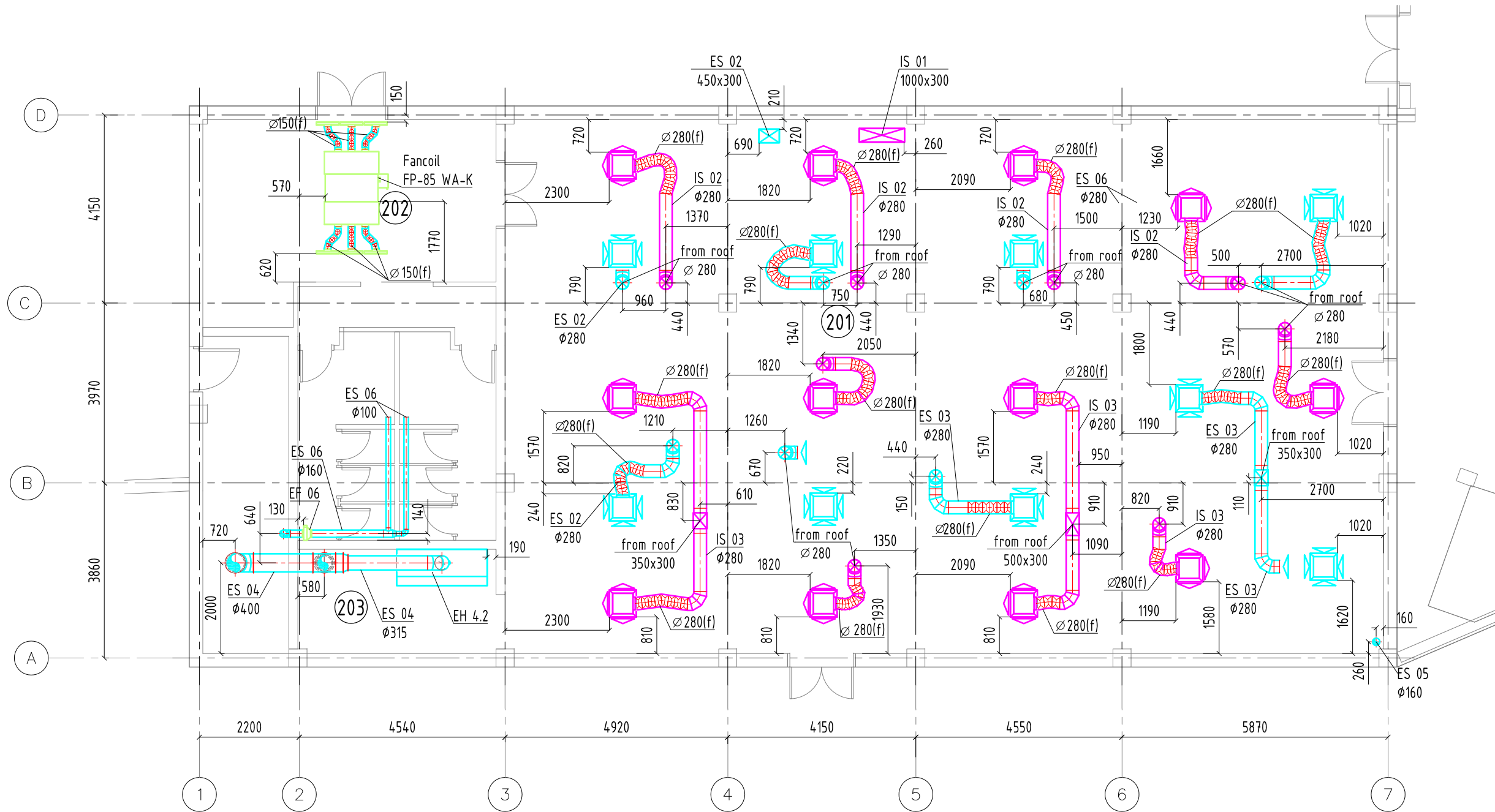
- 350x300 - designation rectangular duct (LXH), mm
- Ø280 - designation circular duct (ØD), mm
- Ø280 (f) - designation flexible duct (ØD), mm
- IS 01 - intake system of 101 premises;
- ES 01 - exhaust system of 101 premises;
- ES 04 - exhaust system of 104; 203 premises;
- ES 05 - exhaust system of 105 premises;
- ES 06 - exhaust system of 106 premises;

* - directing labels must be dismantled

						11-2015-HVAC				
						<i>Catering company (restaurant) in t. Mcheta, Georgia</i>				
Changes	Amount	Sheet	№ Doc	Signing	Date	Heating Ventilation & Airconditioning		Stage WP	Sheet 6	Sheets
						3D View 0.000 (ventilation system)		LTD "Tbilservice Group"		
Checked by		Zurabashvili								
Designed by		Matlov								

Plan +3.800

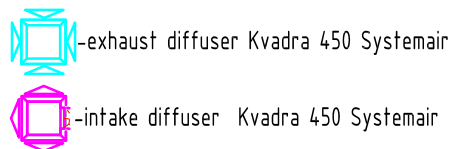
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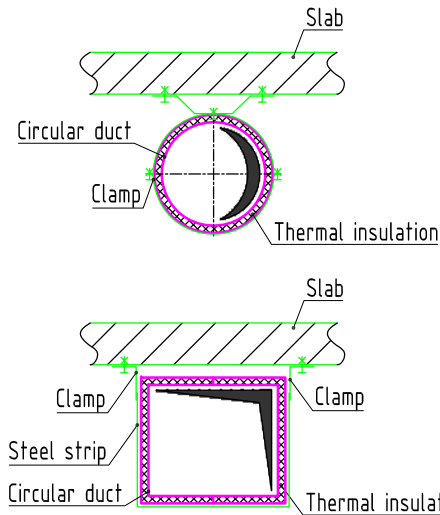
Notations:

Nº	Explication of premises	Area, m2
201	Dinning area	227.5
202	Hall	30.4
203	Kitchen	22.7

- 350x300 - designation rectangular duct (LXH), mm
- ∅280 - designation circular duct (D), mm
- ∅280 (f) - designation flexible (D), mm
- IS 01 - intake system of 101 premises;
- ES 01 - exhaust system of 101 premises;
- IS 02 - intake system of 201 premises;
- ES 02 - exhaust system of 201 premises;
- IS 03 - intake system of 201 premises;
- ES 03 - exhaust system of 201 premises;
- ES 04 - exhaust system of 104; 203 premises;
- ES 05 - exhaust system of 105 premises;
- ES 06 - exhaust system of 106 premises;



Duct mount:

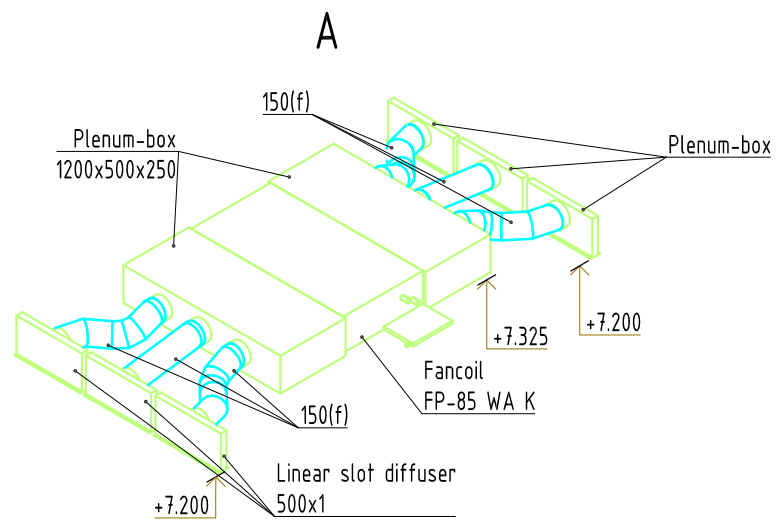
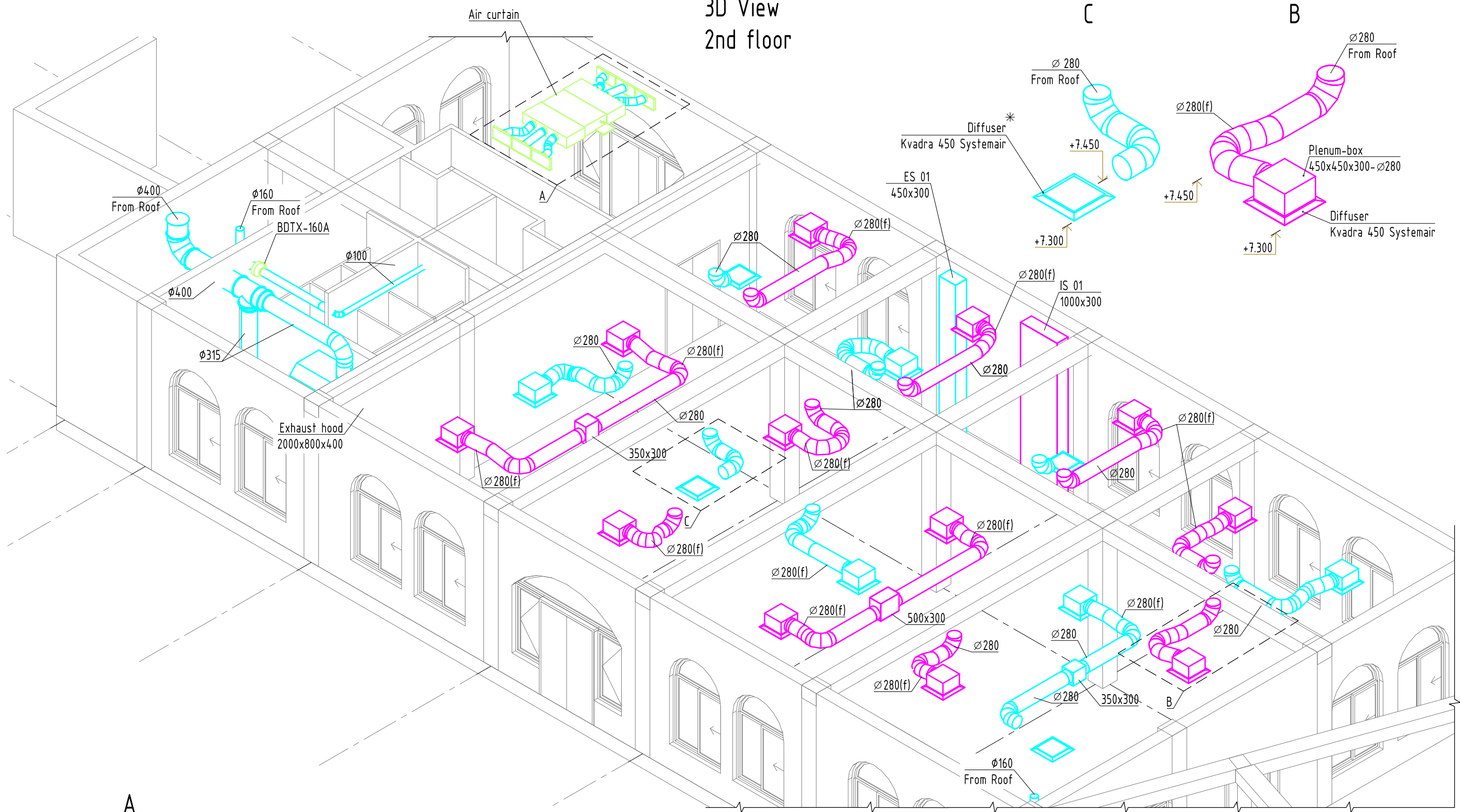


Changes	Amount	Sheet	Nº Doc	Signing	Date
Checked by	Zurabashvili				
Designed by	Matlov				

11-2015-HVAC		
Catering company (restaurant) in t. Mcheta, Georgia		
Heating Ventilation & Airconditioning		Stage WP
Plan +3.800 (ventilation system)		Sheet 7
LTD "Tbilservice Group"		Sheets

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3D View 2nd floor



Notations:

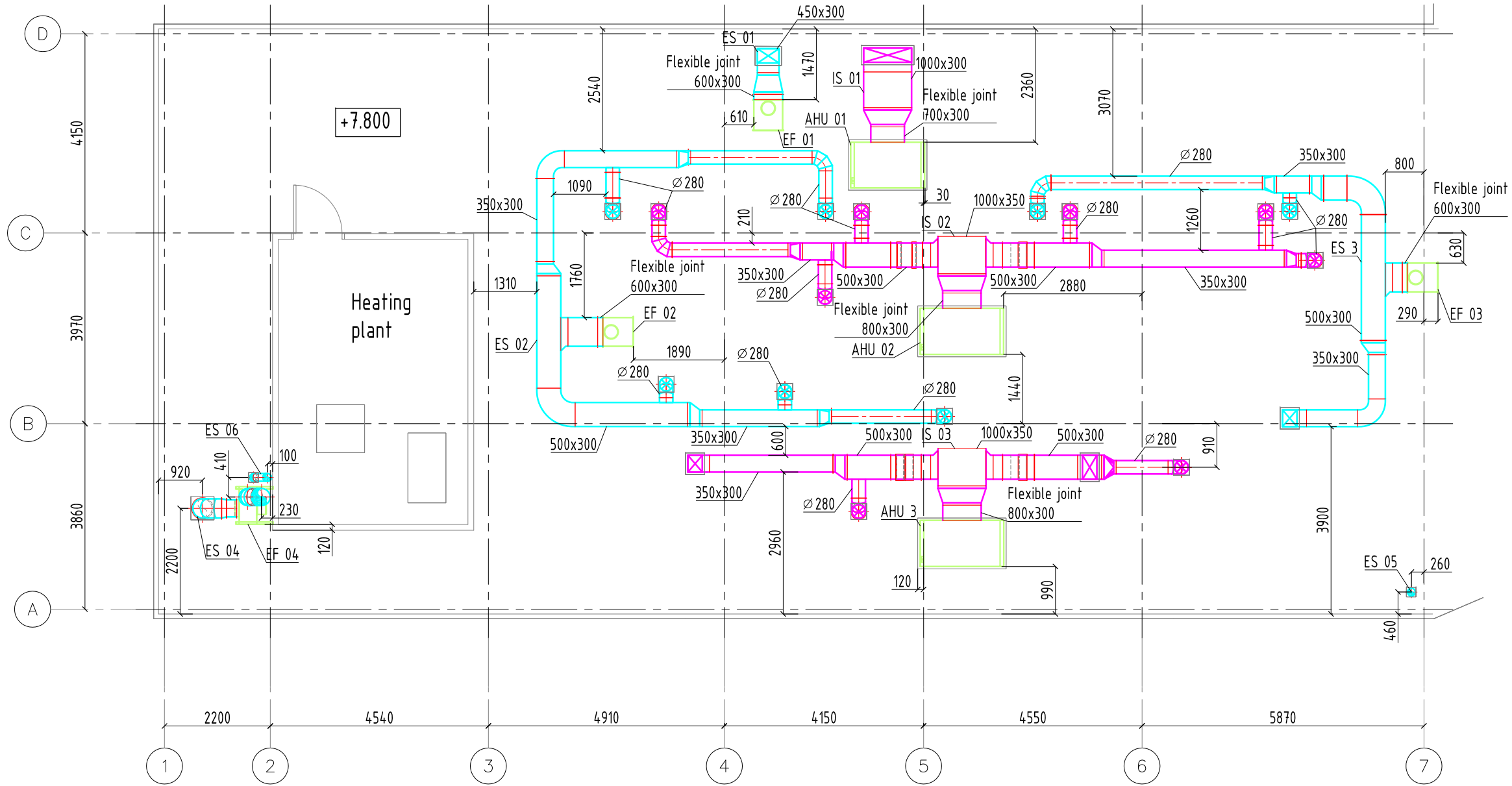
- 350x300 - designation rectangular duct (LXH), mm
- 280 - designation circular duct (D), mm
- 280 (f) - designation flexible duct (D), mm
- IS 01 - intake system of 101 premises;
- ES 01 - exhaust system of 101 premises;

* - directing labels must be dismantled

						11-2015-HVAC				
						<i>Catering company (restaurant) in t. Mcheta, Georgia</i>				
Changes	Amount	Sheet	№ Doc	Signing	Date	Heating Ventilation & Airconditioning		Stage WP	Sheet 8	Sheets
						3D View +3.800 (ventilation system)		<i>LTD "Tbilservice Group"</i>		
Checked by		Zurabashvili								
Designed by		Matlov								

Plan +7.800

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Notations:

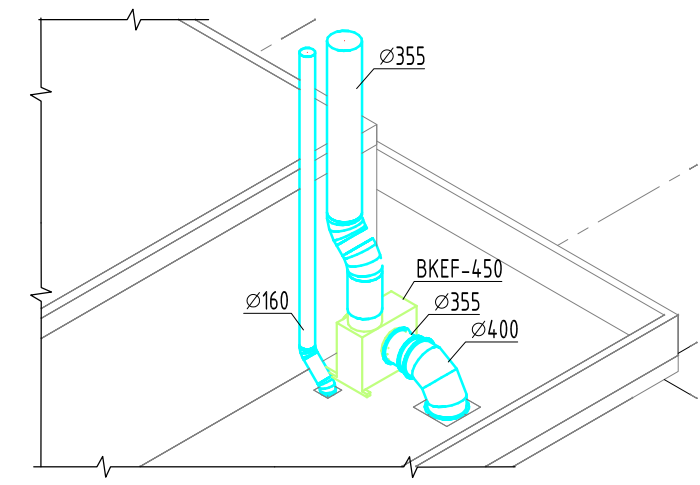
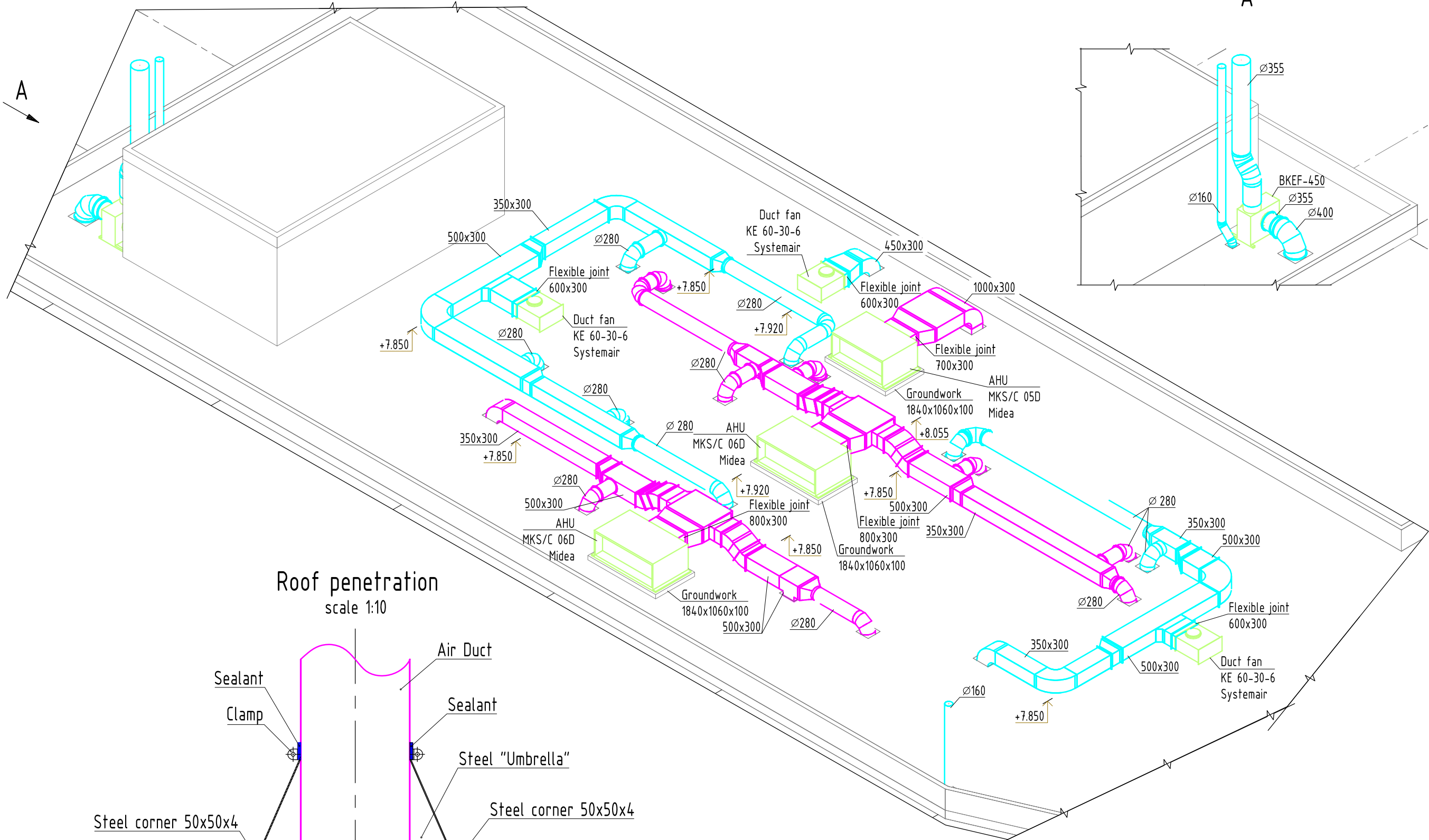
- | | |
|--|--|
| IS 01 - intake system of 101 premises; | 350x300 - designation rectangular duct (LXH), mm |
| ES 01 - exhaust system of 101 premises; | ø280 - designation circular duct (øD), mm |
| IS 02 - intake system of 201 premises; | EF- exhaust fan |
| ES 02 - exhaust system of 201 premises; | AHU- air handling unit |
| IS 03 - intake system of 201 premises; | |
| ES 03 - exhaust system of 201 premises; | |
| ES 04 - exhaust system of 104; 203 premises; | |
| ES 05 - exhaust system of 105 premises; | |
| ES 06 - exhaust system of 106 premises; | |

						11-2015-HVAC				
						Catering company (restaurant) in t. Mcheta, Georgia				
Changes	Amount	Sheet	Nº Doc	Signing	Date					
						Heating Ventilation & Airconditioning		Stage WP	Sheet 9	Sheets
						Plan +7.800 (ventilation system)		LTD "Tbilservice Group"		
Checked by		Zurabashvili								
Designed by		Matlov								

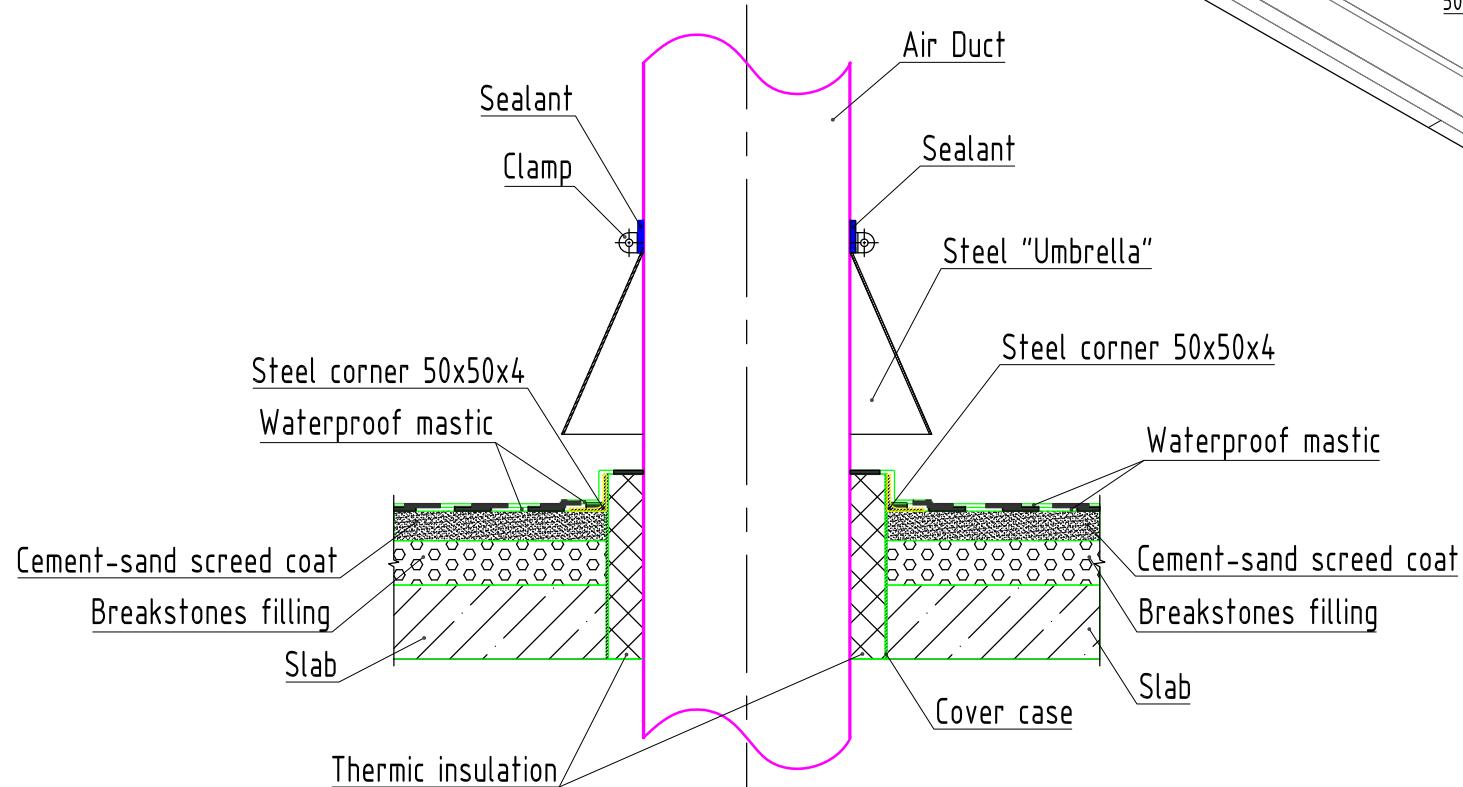
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3D View

A

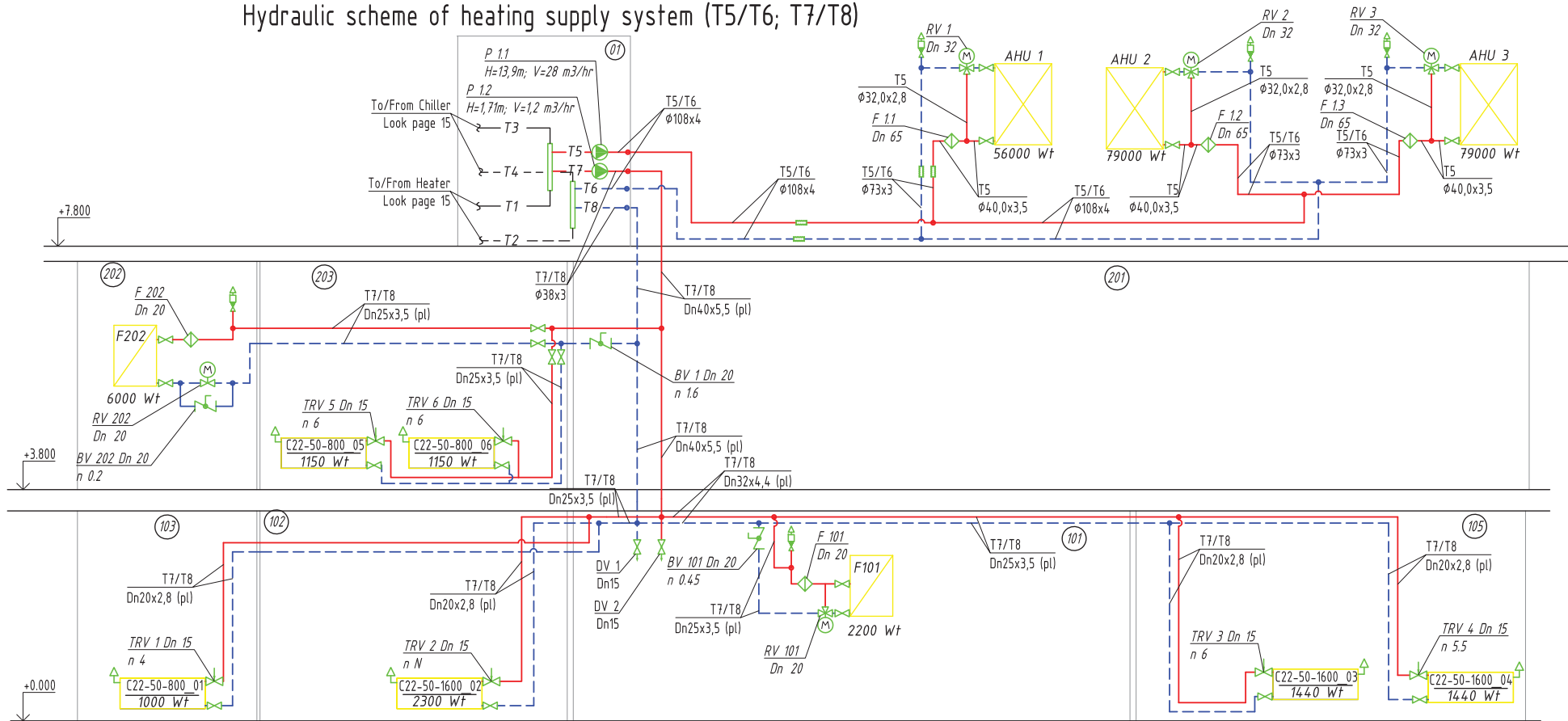


Roof penetration scale 1:10



						11-2015-HVAC				
						Catering company (restaurant) in t. Mcheta, Georgia				
Changes	Amount	Sheet	Nº Doc	Signing	Date	Heating Ventilation & Airconditioning		Stage WP	Sheet 10	Sheets
						3D view +7.800 (ventilation system)		LTD "Tbilservice Group"		
Checked by	Zurabashvili									
Designed by	Matlov									

Hydraulic scheme of heating supply system (T5/T6; T7/T8)



Notations

- balancing valve;
- shut-off valve;
- thermostatic valve;
- Y-strainer;
- 3-way regulation valve with servomotor;
- 2-way regulation valve with servomotor;;
- Automatic air vent;
- Flexible joint;
- Radiator air vent;
- Pump;
- Radiator;
- Fancoil;
- Air handling unit;

Designation of radiators

- $C22-50-L$ 01..06
 — Sequence number of radiators
 — Length (mm)
 — High (cm)
 — Type of radiators
- $\rightarrow T5 \rightarrow$ - supply heat system line of AHU
 $\rightarrow T6 \rightarrow$ - return heat system line of AHU
 $\rightarrow T7 \rightarrow$ - supply heat system line of radiators & aircurtians
 $\rightarrow T8 \rightarrow$ - return heat system line of radiators & aircurtians
- $\phi 73 \times 3$ -electrically welded steel line-weld tubes (GOST 10704-91)
 — wall thickness
 — outside diametr
- $\phi 32,0 \times 2,8$ -water-supply steel pipe (GOST 3262-75)
 — wall thickness
 — nominal diametr
- $Dn20 \times 2,8(pl)$ -pipe PPR Stabi
 — wall thickness
 — outside diametr

Parameters of radiators circle: (T1/T2; T7/T8)

$dP=16,5$ kPa;
 $G=1,2$ m³/hr;
 $dT=10^{\circ}C$ (60°-50°C);
 $Qo=16,7$ kWt

Parameters of AHU circle: (T1/T2; T5/T6)

$dP=133,9$ kPa;
 $G=28,0$ M³/4;
 $dT=10^{\circ}C$ (60°-50°C);
 $Qo=214$ kWt

Designation	Title of equipment	Quantity
TRV1...TRV6	Thermostatic valve "Danfoss" RA-N Dn15 thermostat head RA 2000	6
RV101	2-way regulation valve "Honeywell" V5823	1
RV202	3-way regulation valve "Honeywell" V5823	1
RV1...RV3	3-way regulation valve "Honeywell" V5013	3
BV101, BV202, BV202	Balancing valve "Danfoss" USV-I	3
P1.1	Pump TOP-S 80/20, Wilo	1
P2.2	Pump Star-RS 25/2, Wilo	1

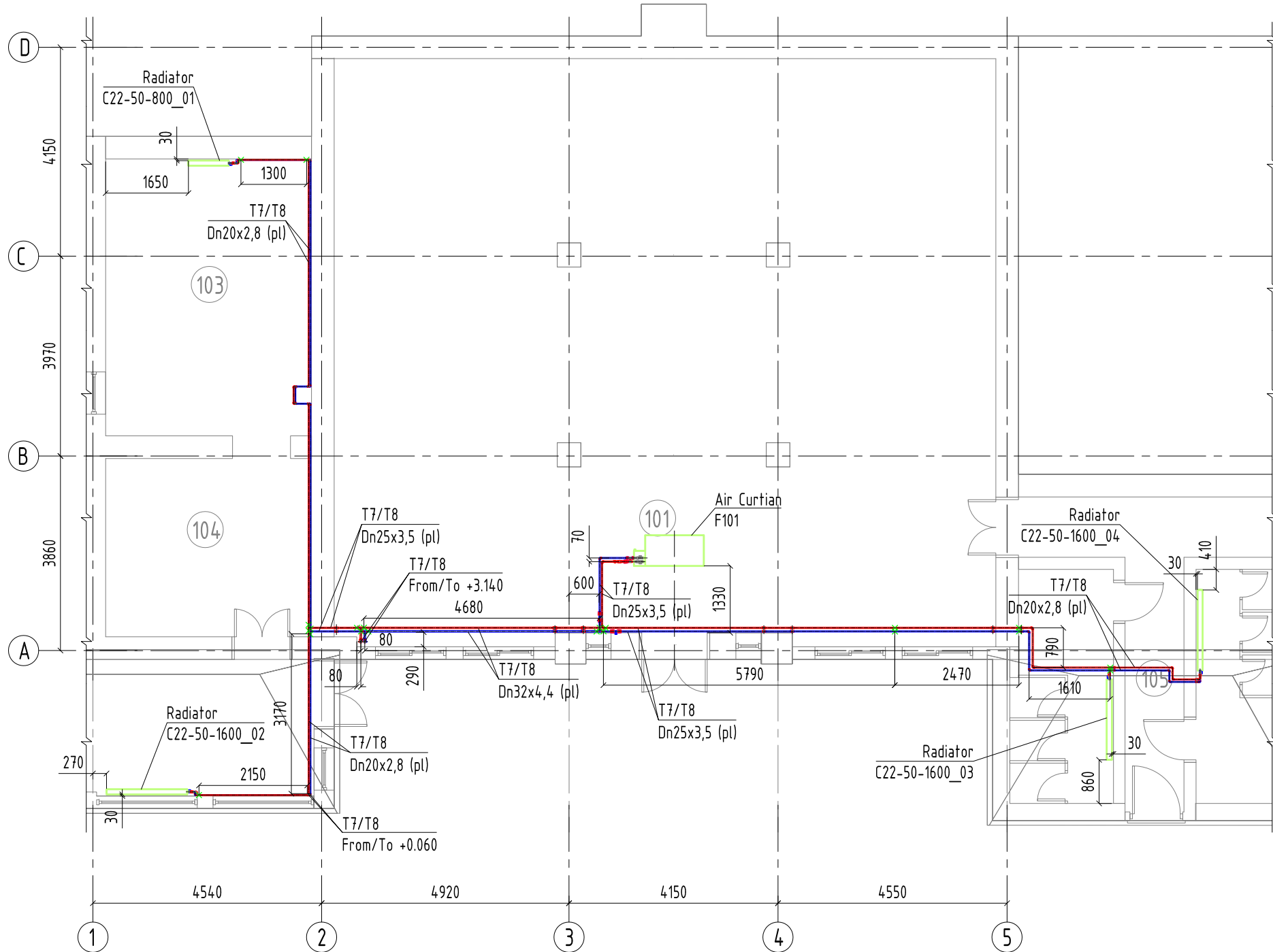
Dn20x2,8 (pl) - pipe near all radiators

Nº	Title of premises	Tin, °C
101	Dining room	+20°C
102	Kitchen	+5°C
103	Kitchen	+5°C
105	WC	+18°C
201	Dining room	+20°C
202	Hall	+18°C
203	Kitchen	+5°C
01	Heating plant	+5°C

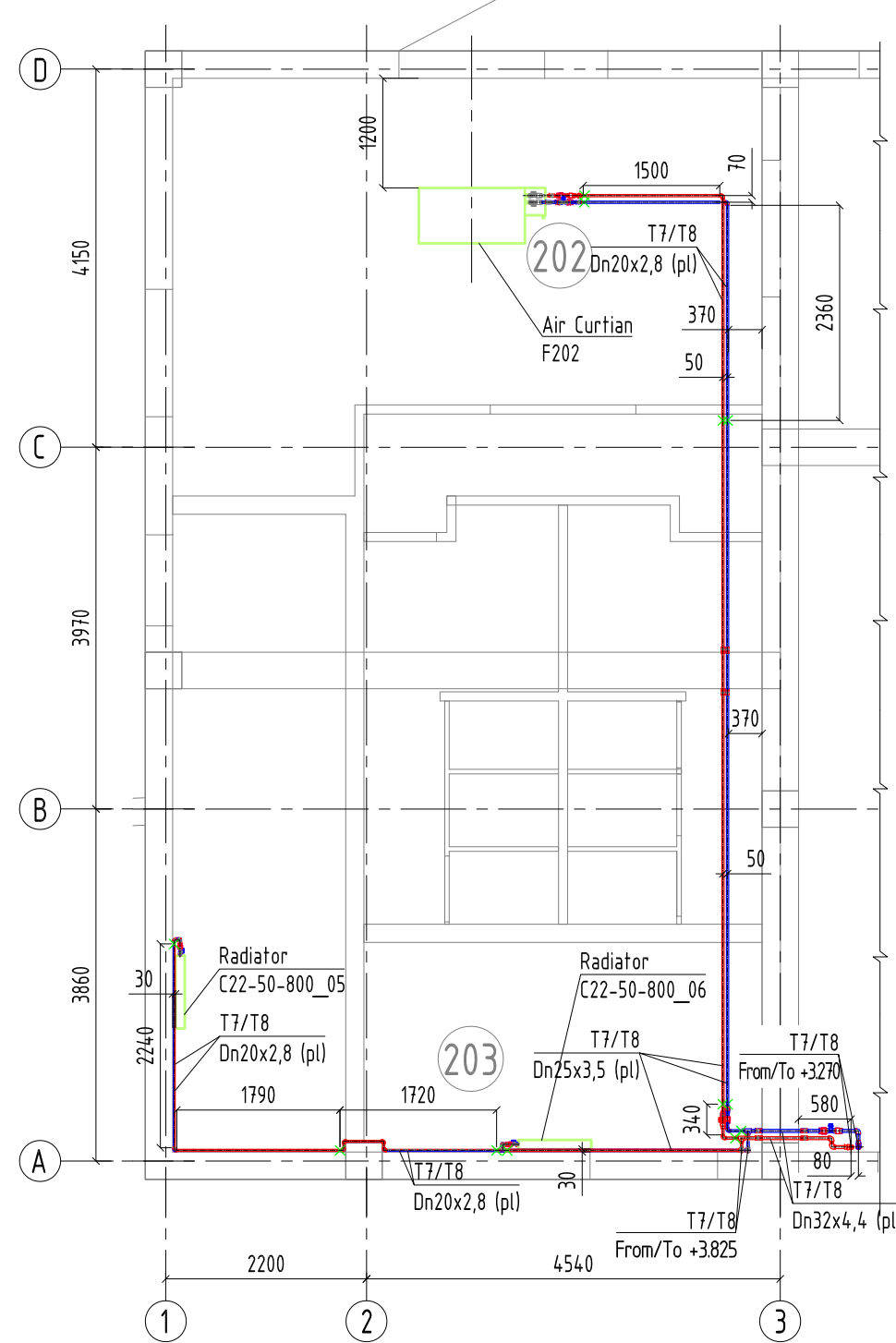
11-2015-HVAC					
Catering company (restaurant) in t. Mcheta, Georgia					
Changes	Amount	Sheet	Nº Doc	Signing	Date
Heating Ventilation & Airconditioning					
			Stage	Sheet	Sheets
			WP	11	
Hydraulic scheme (heating supply system)				LTD "Tbilservice Group"	
Checked by	Zurabashvili				
Designed by	Matlov				

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+0.000
Scale 1:100



+3.800
Scale 1:75



Designation of radiators

C22-50-L_01...06
 — Sequence number of radiators
 — Length (mm)
 — High (cm)
 — Type of radiators

Designation of pipes

Dn20x2,8(pl)-pipe PPR Stabi
 — wall thickness
 — outside diametr
 — T7 — - supply heat system line of radiators & aircurtians
 — T8 — - return heat system line of radiators & aircurtians

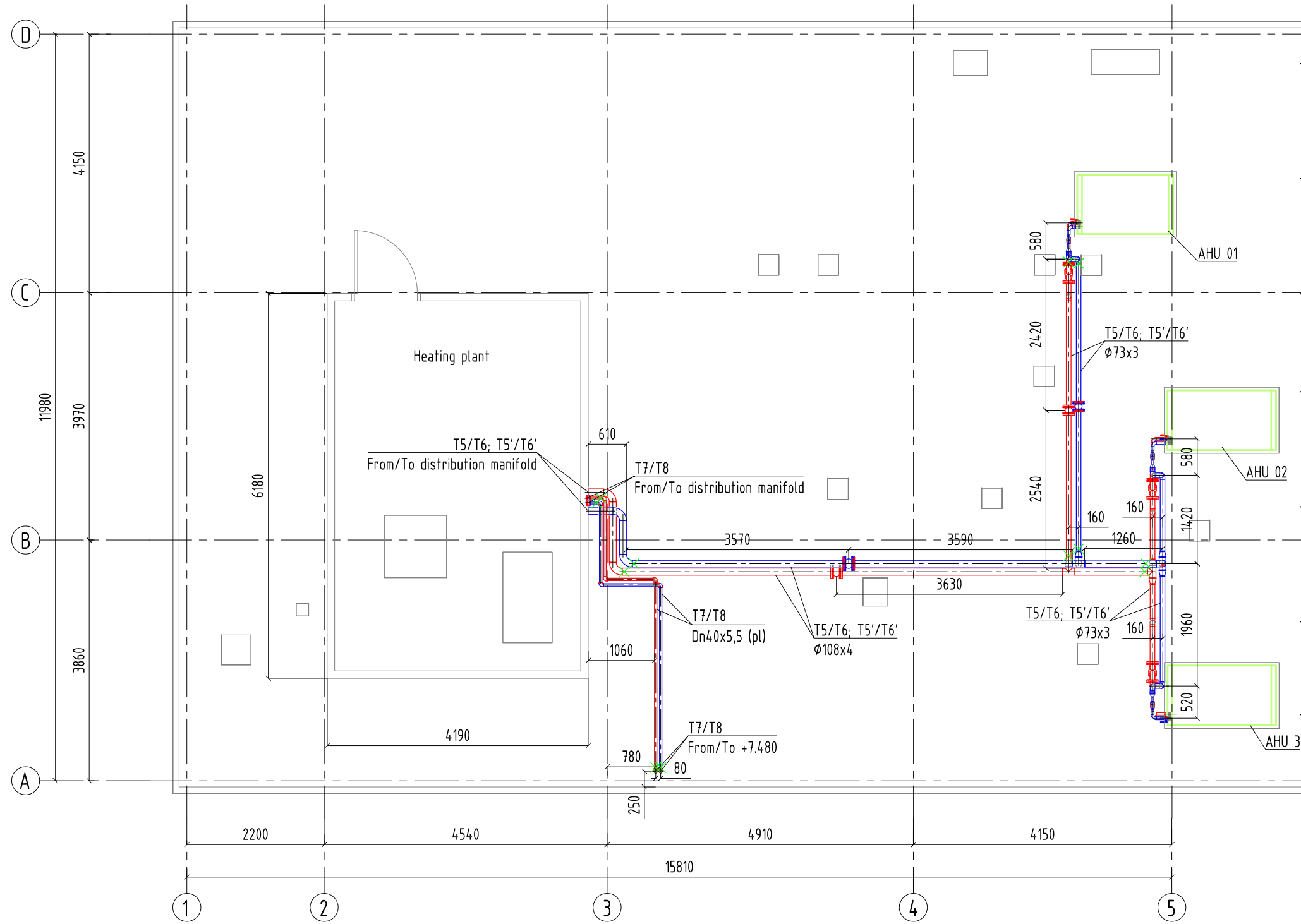
Nº	Title of premises	Tin, °C
101	Dining room	+20°C
102	Kitchen	+5°C
103	Kitchen	+5°C
105	WC	+18°C
201	Dining room	+20°C
202	Hall	+18°C
203	Kitchen	+5°C

Changes	Amount	Sheet	Nº Doc	Signing	Date
Checked by	Zurabashvili				
Designed by	Matlov				

11-2015-HVAC		
<i>Catering company (restaurant) in t. Mcheta, Georgia</i>		
Heating Ventilation & Airconditioning		Stage WP
Plans +0.000; +3.800 (heating supply system)		Sheet 12
LTD "Tbilservice Group"		Sheets

+7.800
Scale 1:75

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Dn20x2,8(pl)-pipe PPR Stabi
 wall thickness
 outside diametr

φ73x3-electrically welded steel line-weld tubes (GOST 10704-91)
 wall thickness
 outside diametr

φ32,0x2,8-water-supply steel pipe (GOST 3262-75)
 wall thickness
 nominal diametr

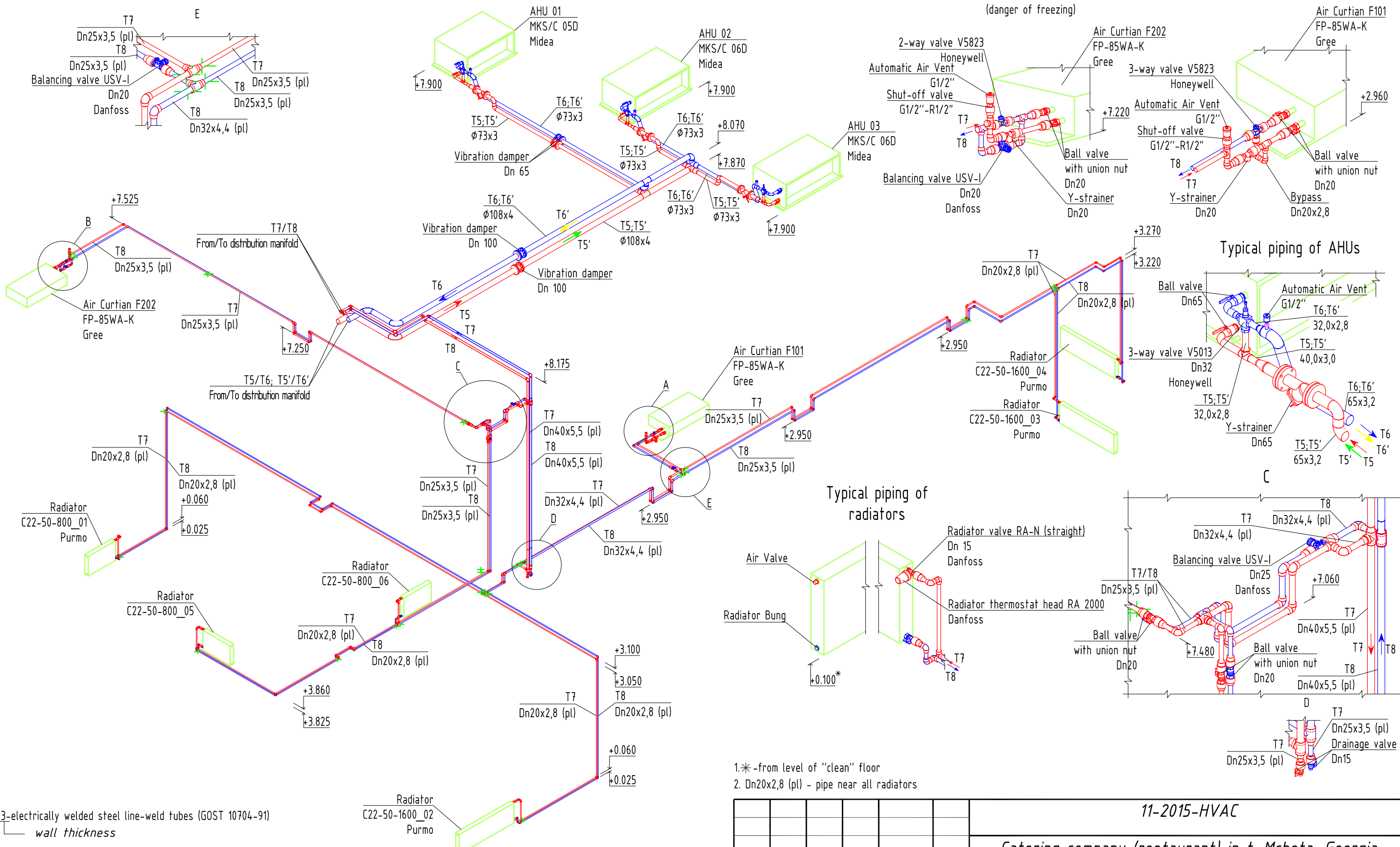
→ T5 → - supply heat system line of AHU
 → T6 → - return heat system line of AHU
 → T7 → - supply heat system line of radiators & aircurtians
 → T8 → - return heat system line of radiators & aircurtians

Changes	Amount	Sheet	Nº Doc	Signing	Date
Checked by	Zurabashvili				
Designed by	Matlov				

11-2015-HVAC						
Catering company (restaurant) in t. Mcheta, Georgia						
Heating Ventilation & Airconditioning				Stage	Sheet	Sheets
Plan +7.800 (heating supply system)				WP	13	
LTD "Tbilservice Group"						

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3D view of heating supply system



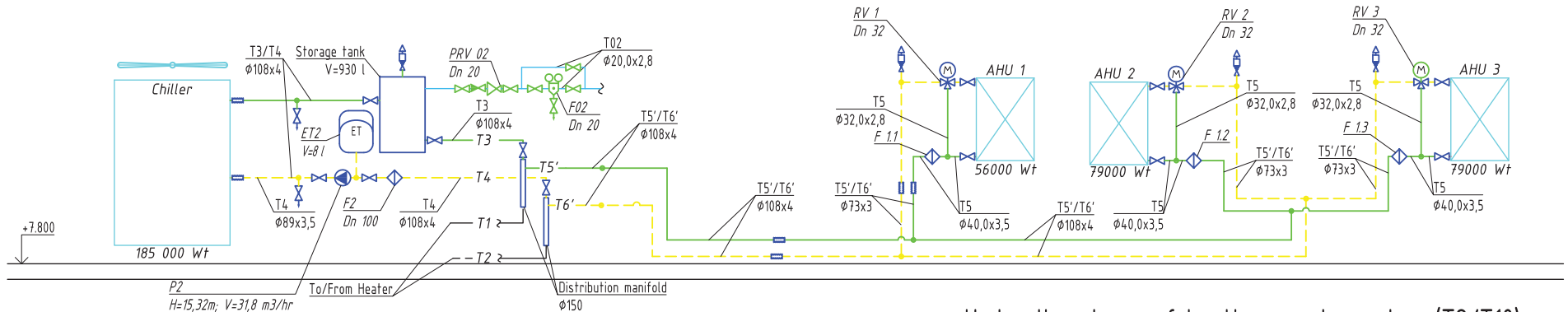
1.* -from level of "clean" floor
 2. Dn20x2,8 (pl) - pipe near all radiators

- φ73x3-electrically welded steel line-weld tubes (GOST 10704-91)
 - wall thickness
 - outside diametr
- φ32,0x2,8-water-supply steel pipe (GOST 3262-75)
 - wall thickness
 - nominal diametr
- Dn20x2,8(pl)-pipe PPR Stabi
 - wall thickness
 - outside diametr
- T5' → - supply cooling system line of AHU
- T6' → - return cooling system line of AHU
- T5 → - supply heat system line of AHU
- T6 → - return heat system line of AHU
- T7 → - supply heat system line of radiators & aircurtians
- T8 → - return heat system line of radiators & aircurtians
- C22-50-L 01...06
 - Sequence number of radiators
 - Length (mm)
 - High (cm)
 - Type of radiators
- × - fixed bearing

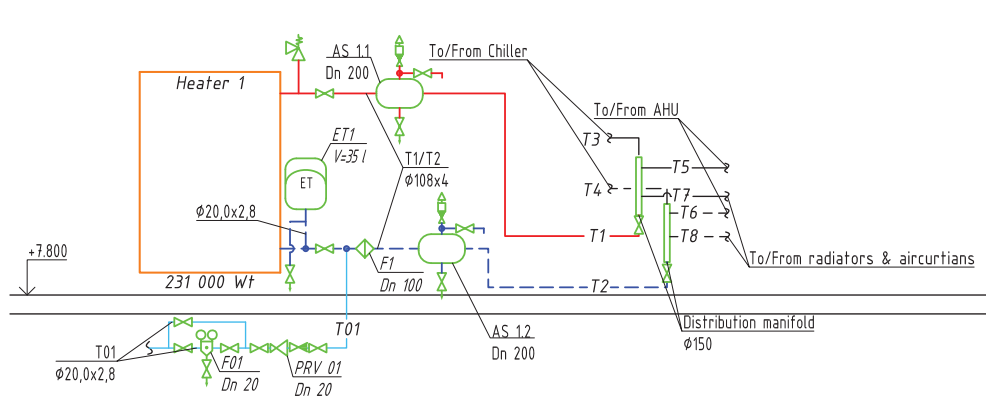
Changes	Amount	Sheet	Nº Doc	Signing	Date
Checked by	Zurabashvili				
Designed by	Matlov				

11-2015-HVAC			
Catering company (restaurant) in t. Mcheta, Georgia			
Heating Ventilation & Airconditioning		Stage WP	Sheet 14
3D view (heating supply system)		LTD "Tbilservice Group"	

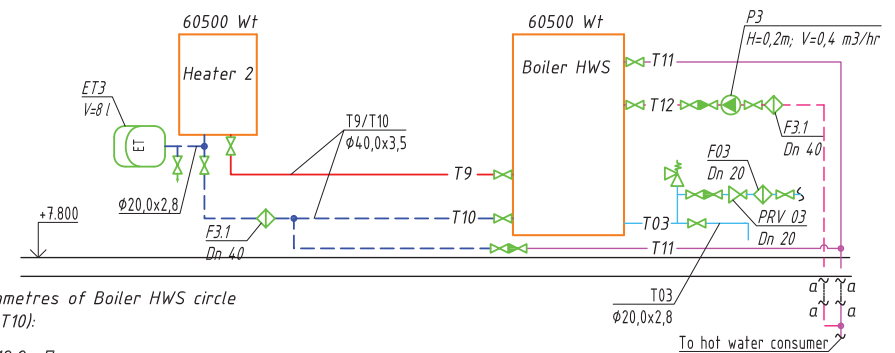
Hydraulic scheme of cooling supply system (T3/T4;T5'/T6')



Hydraulic scheme of heating supply system (T1/T2)



Hydraulic scheme of heating supply system (T9/T10)



Parameters of Boiler HWS circle (T9/T10):

$dP=19,2 \text{ kPa};$
 $G=2,63 \text{ m}^3/\text{h};$
 $dT= 20^\circ\text{C} (80^\circ-60^\circ\text{C});$
 $Q_0=60,5 \text{ kWt}$

Parameters of AHU circle (T3/T4;T5'/T6'):

$dP=150,2 \text{ kPa};$
 $G=31,8 \text{ m}^3/\text{h};$
 $dT= 5^\circ\text{C} (7^\circ-12^\circ\text{C});$
 $Q_0=185 \text{ kWt}$

Designation	Title of equipment	Quantity
ET2, ET3	Expansion tank ER 8 CE, Flamco	2
ET1	Expansion tank Flexcon C35, Flamco	1
PRV 01, PRV 02	Pressure reducing valve D06F-3/4A1 Dn20, Honeywell	2
RV1...RV3	3-way regulation valve "Honeywell" V5013	3
P2	Pump IPL 80/120-4/2, Wilo	1
P3	Pump Star-Z 20/4, Wilo	1

- safety valve;
- balancing valve;
- shut-off valve;
- Y-strainer;
- 3-way regulation valve with servomotor;
- 2-way regulation valve with servomotor;;
- Automatic air vent;
- Expansion tank;
- Nonreturn valve;
- Flexible joint;
- Radiator air vent;
- Pump;
- Pressure reduce valve;
- Reverse rinsing fine filter;
- Air separator;
- Storage tank;

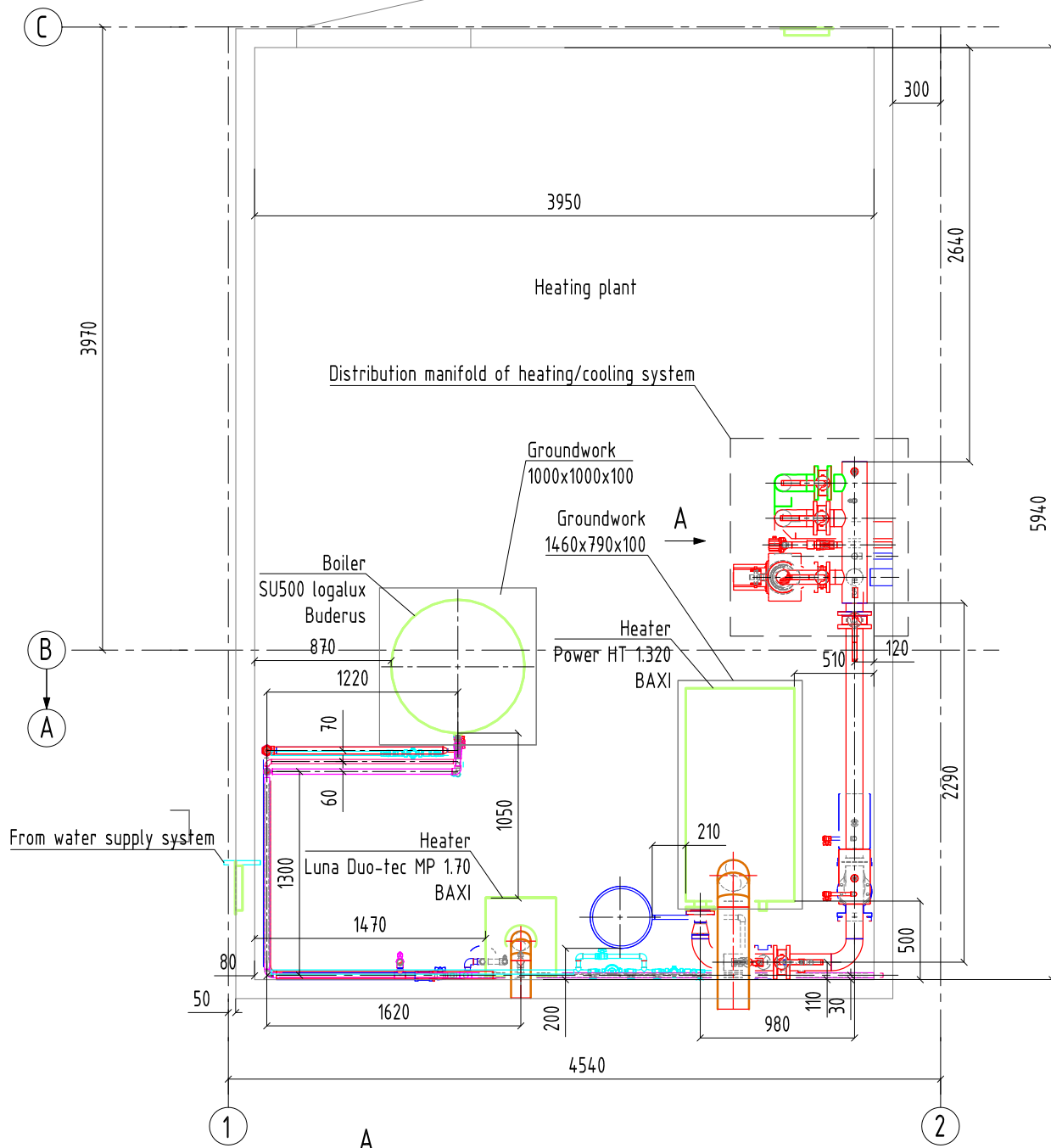
- $\phi 73 \times 3$ -electrically welded steel line-weld tubes (GOST 10704-91)
 — wall thickness
 — outside diametr
- $\phi 32,0 \times 2,8$ -water-supply steel pipe (GOST 3262-75)
 — wall thickness
 — nominal diametr
- Dn20x2,8(pl)-pipe PPR Stabi
 — wall thickness
 — outside diametr

- $\rightarrow T1 \rightarrow$ - supply heat system line of distribution manifold
- $\rightarrow T2 \rightarrow$ - return heat system line of distribution manifold
- $\rightarrow T3 \rightarrow$ - supply cooling system line of distribution manifold
- $\rightarrow T4 \rightarrow$ - return cooling system line of distribution manifold
- $\rightarrow T5 \rightarrow$ - supply cooling system line of AHU
- $\rightarrow T6 \rightarrow$ - return cooling system line of AHU
- $\rightarrow T5 \rightarrow$ - supply heat system line of AHU
- $\rightarrow T6 \rightarrow$ - return heat system line of AHU
- $\rightarrow T7 \rightarrow$ - supply heat system line of radiators & aircurtians
- $\rightarrow T8 \rightarrow$ - return heat system line of radiators & aircurtians
- $\rightarrow T9 \rightarrow$ - supply heat system line of boiler HWS
- $\rightarrow T10 \rightarrow$ - return heat system line of boiler HWS
- $\rightarrow T11 \rightarrow$ - line of hot water supply system
- $\rightarrow T12 \rightarrow$ - recirculation line of hot water supply system
- $\rightarrow T01 \rightarrow$ - line of feeding water supply system
- $\rightarrow T02 \rightarrow$ - line of feeding water supply system
- $\rightarrow T03 \rightarrow$ - line of feeding water supply system

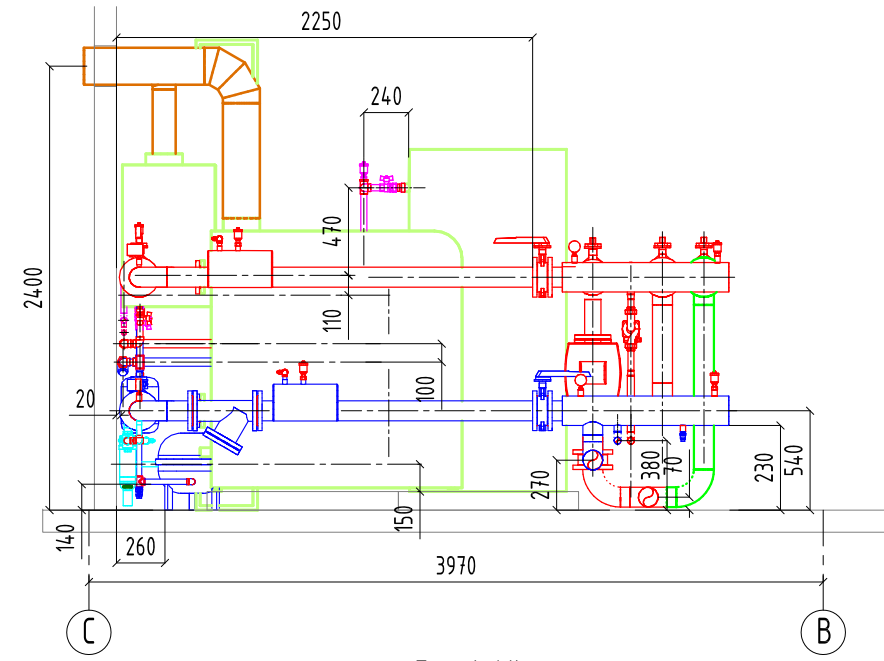
11-2015-HVAC					
Catering company (restaurant) in t. Mcheta, Georgia					
Changes	Amount	Sheet	№ Doc	Signing	Date
		WP	15		
Checked by		Zurabashvili		Hydraulic scheme (cooling supply system)	
Designed by		Matlov		Hydraulic scheme (Cooling plant)	
				Hydraulic scheme (Heating plant)	
				LTD "Tbilservice Group"	

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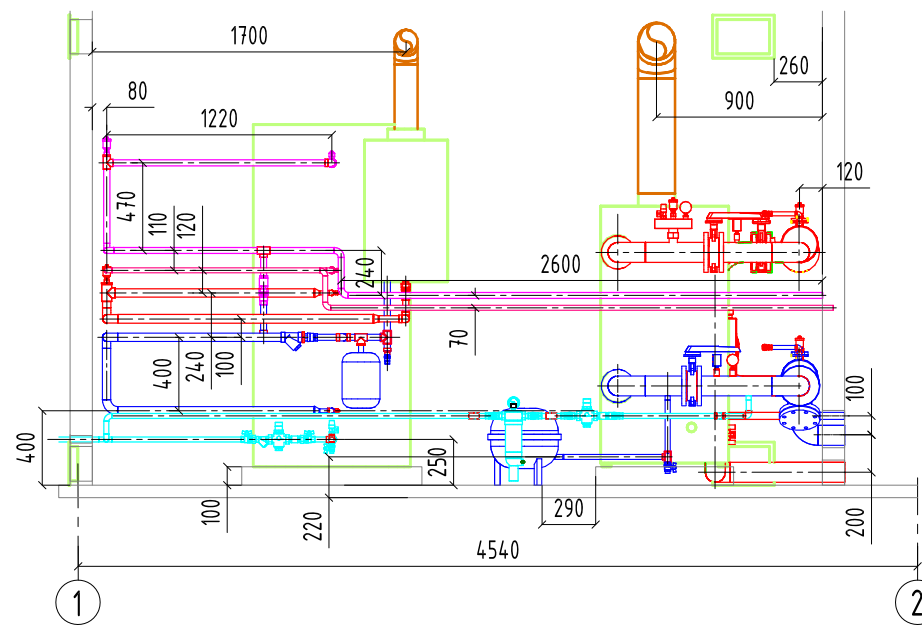
Plan +7.800
Scale 1:40



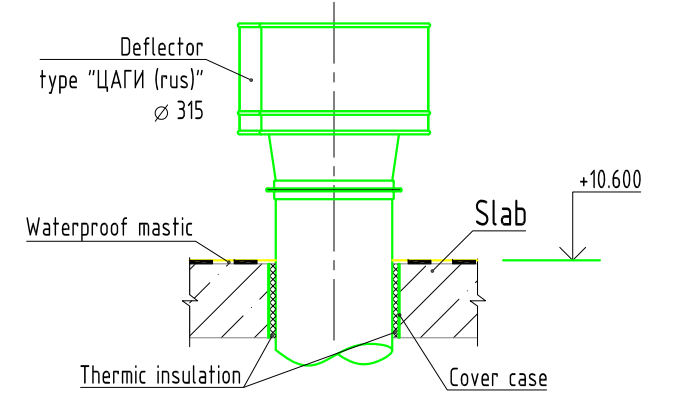
Right View
Scale 1:40



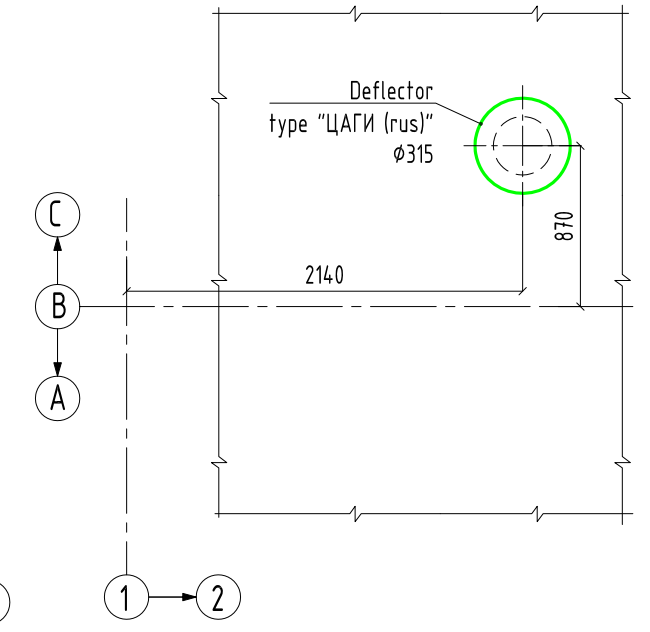
Front View
Scale 1:40



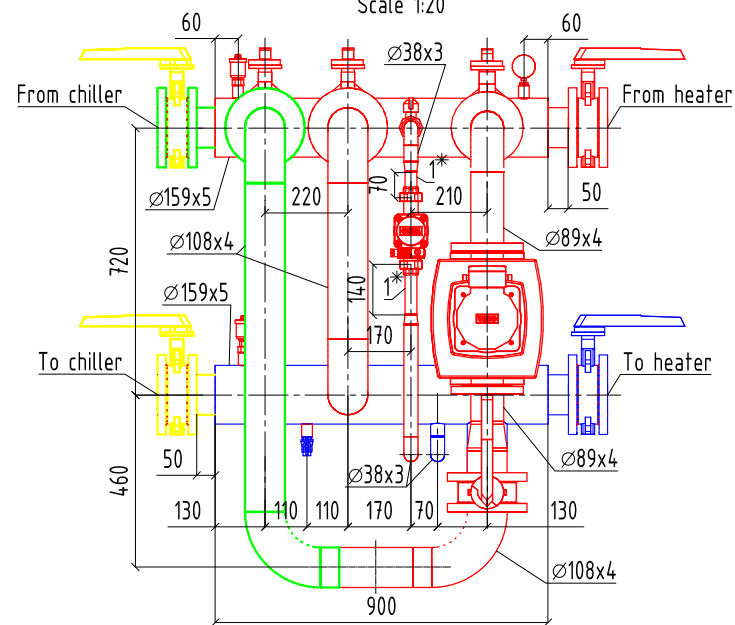
Roof penetration
Scale 1:20



Plan +7.800
Scale 1:40



A
Scale 1:20



- ∅73x3-electrically welded steel line-weld tubes (GOST 10704-91)
— wall thickness
— outside diametr
- ∅32,0x2,8-water-supply steel pipe (GOST 3262-75)
— wall thickness
— nominal diametr
- Dn20x2,8(pl)-pipe PPR Stabi
— wall thickness
— outside diametr

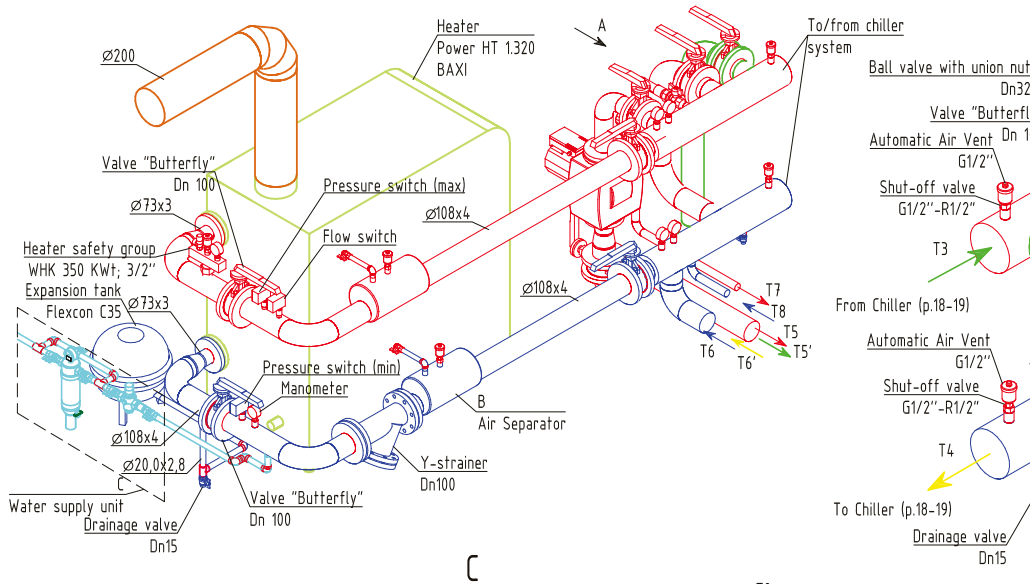
* - ∅25,0x3,5

Changes	Amount	Sheet	Nº Doc	Signing	Date
Checked by	Zurabashvili				
Designed by	Matlov				

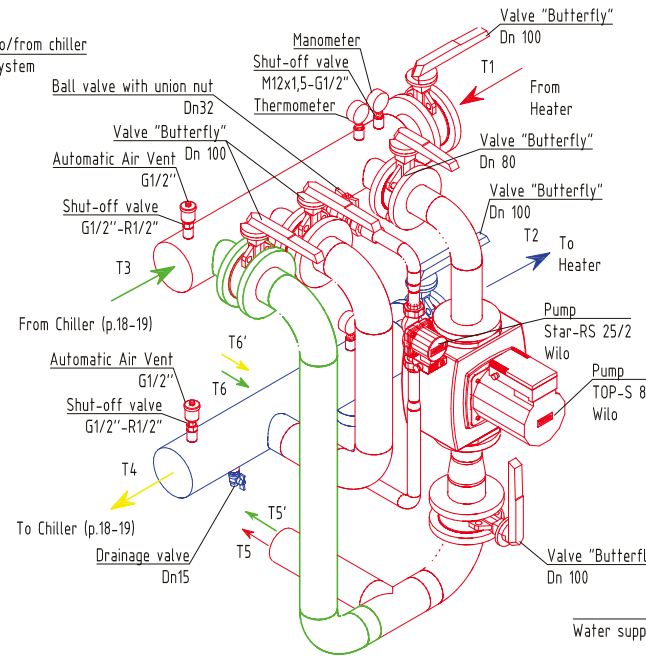
11-2015-HVAC					
Catering company (restaurant) in t. Mcheta, Georgia					
Heating Ventilation & Airconditioning				Stage	Sheet
Plan +7.800; Right view; Front view (heating plant)				WP	16
				LTD "Tbilservice Group"	

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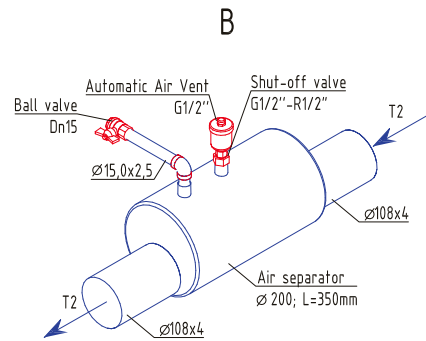
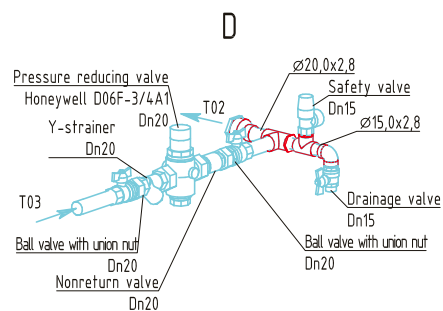
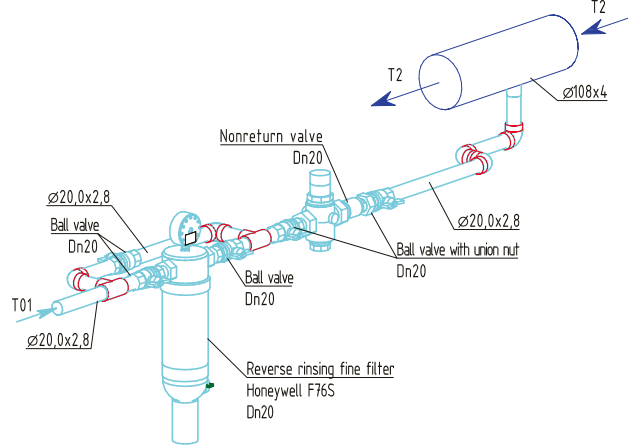
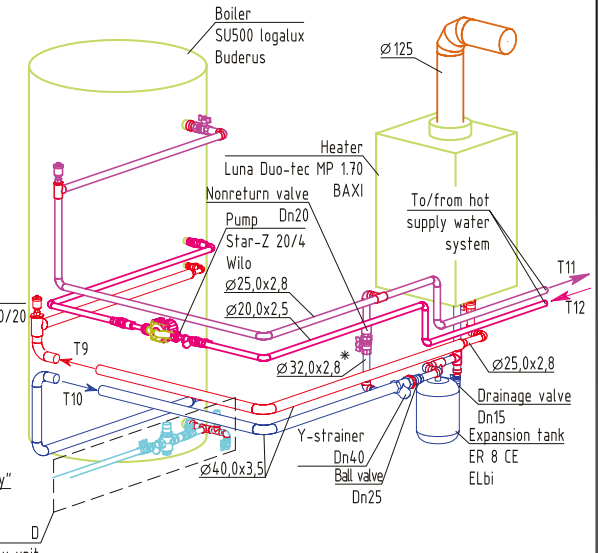
Piping of Heater - Power HT 1.320 (T1/T2)



View A



Piping of Heater - Luna Duo-Tec MP 1.70 & SU500 logalux(T9/T10; T11/T12)



- T1 → - supply heat system line of distribution manifold
- T2 → - return heat system line of distribution manifold
- T3 → - supply cooling system line of distribution manifold
- T4 → - return cooling system line of distribution manifold
- T5 → - supply heat system line of AHU
- T6 → - return heat system line of AHU
- T7 → - supply heat system line of radiators & aircurtians
- T8 → - return heat system line of radiators & aircurtians
- T9 → - supply heat system line of boiler HWS
- T10 → - return heat system line of boiler HWS
- T11 → - line of hot water supply system
- T12 → - recirculation line of hot water supply system
- T01 → - line of feeding water supply system
- T03 → - line of feeding water supply system

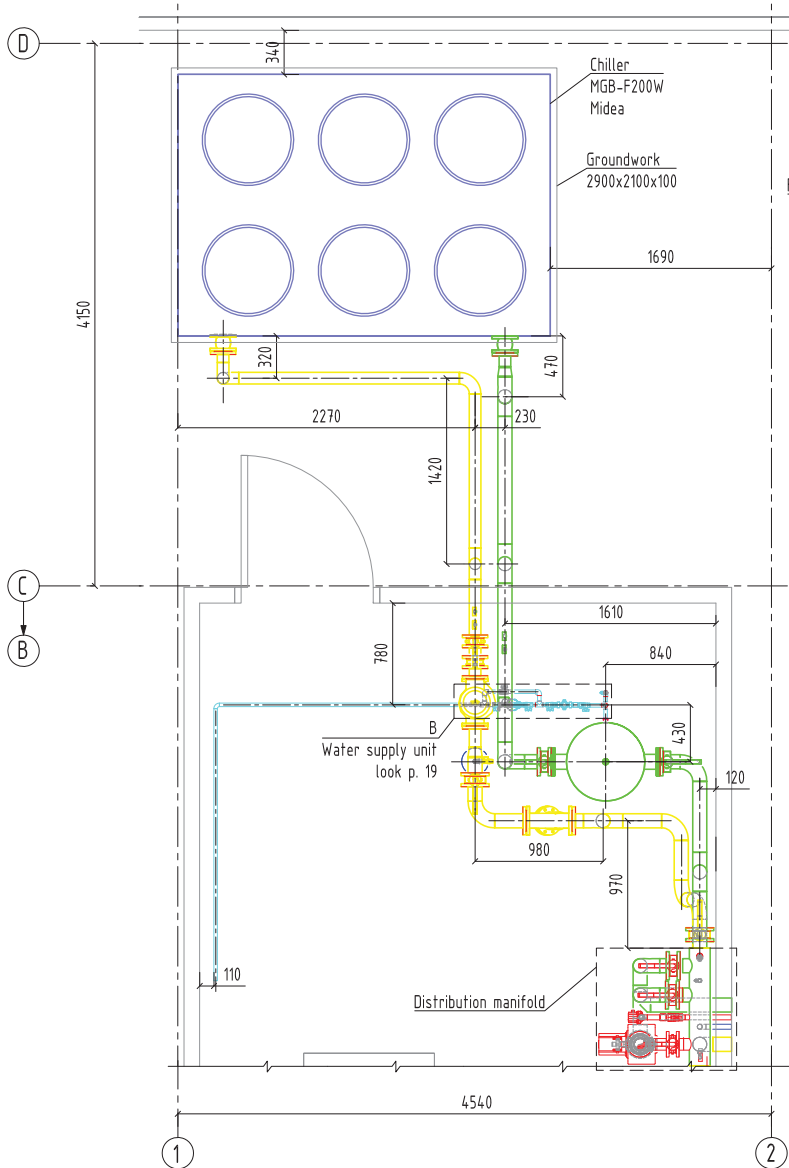
- ø73x3 - electrically welded steel line-weld tubes (GOST 10704-91)
 - wall thickness
 - outside diameter
- ø32,0x2,8 - water-supply steel pipe (GOST 3262-75)
 - wall thickness
 - nominal diameter
- Dn20x2,8(pl) - pipe PPR Stabi
 - wall thickness
 - outside diameter
- * - bypass for water supply from hot water supply system

11-2015-HVAC					
Catering company (restaurant) in t. Mcheta, Georgia					
Changes	Amount	Sheet	№ Doc	Signing	Date
Heating Ventilation & Airconditioning				Stage	Sheet
				WP	17
3D view (heating plant)				LTD "Tbilservice Group"	
Checked by	Zurabashvili				
Designed by	Matlov				

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Plan +7.800

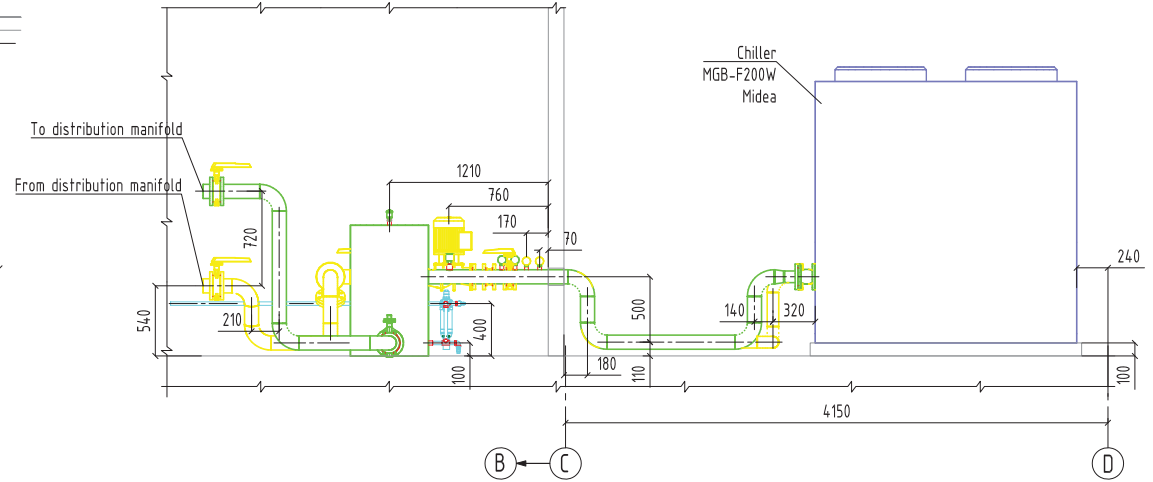
Scale 1:40



- ↗-T3↖ - supply cooling system line of distribution manifold
- ↗-T4↖ - return cooling system line of distribution manifold
- ↗-T5'↖ - supply cooling system line of AHU
- ↗-T6'↖ - return cooling system line of AHU
- ↗-T02↖ - line of feeding water supply system

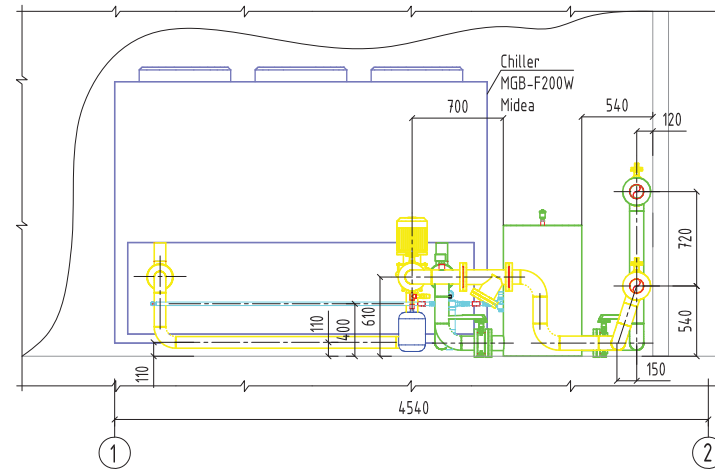
Right View

Scale 1:40



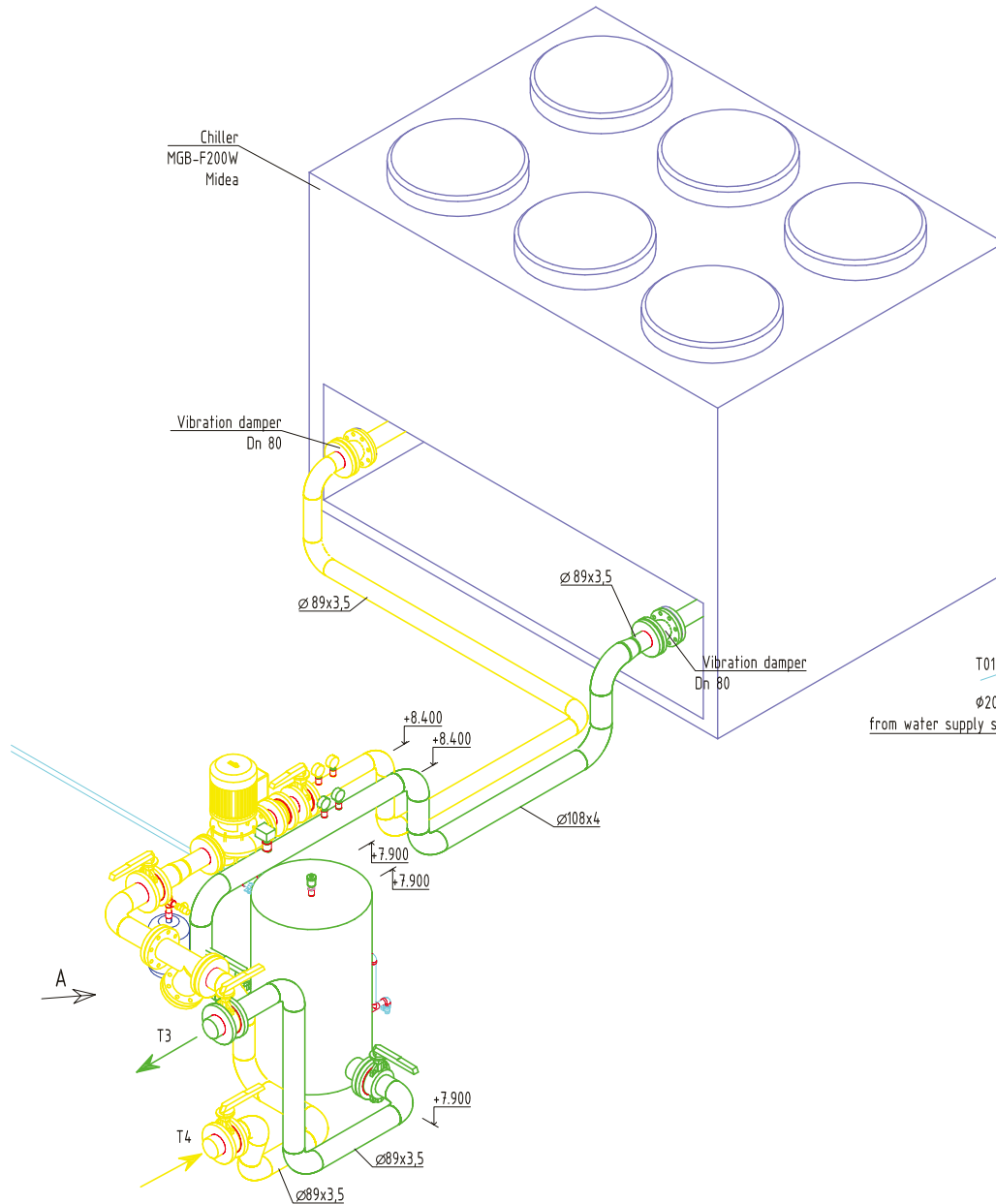
Front View

Scale 1:40

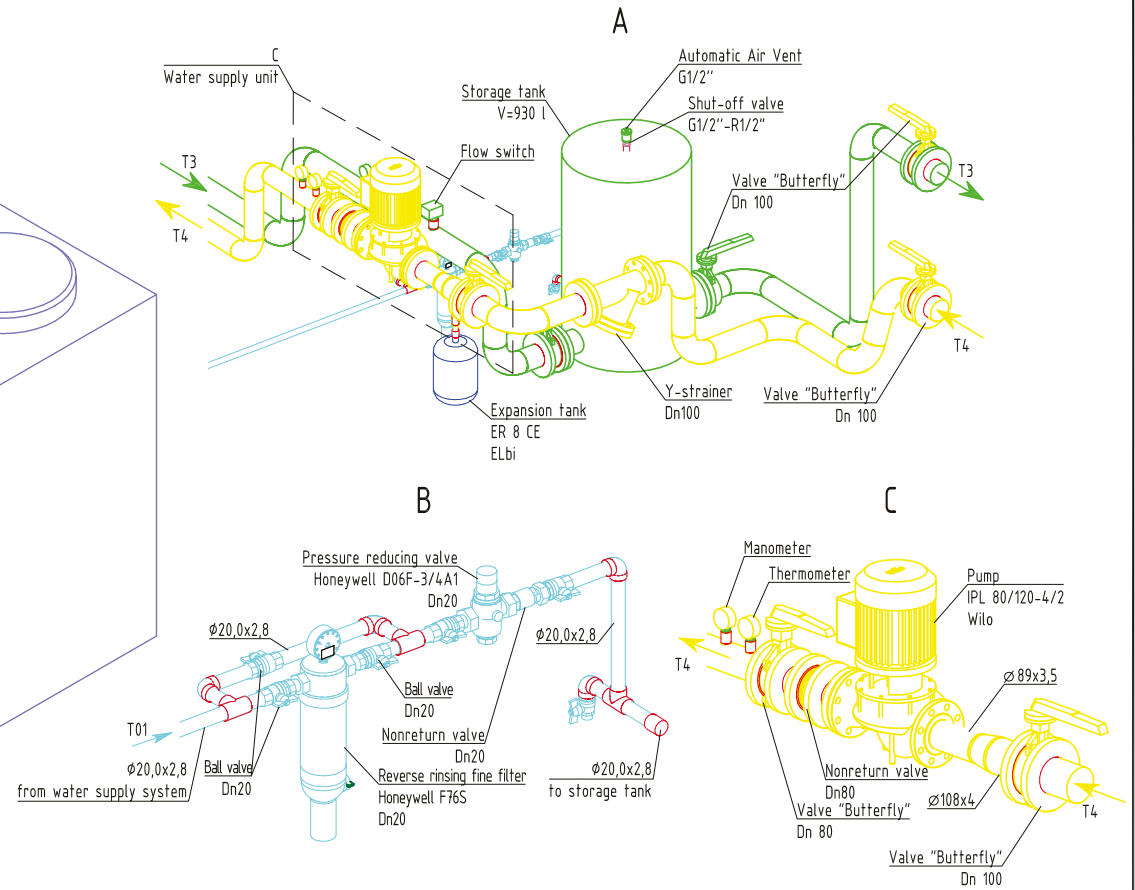


						11-2015-HVAC				
						Catering company (restaurant) in t. Mcheta, Georgia				
Changes	Amount	Sheet	Nº Doc	Signing	Date	Heating Ventilation & Airconditioning		Stage	Sheet	Sheets
								WP	18	
Checked by	Zurabashvili					Plan +7.800; Right view; Front view (cooling plant)		LTD "Tbilservice Group"		
Designed by	Matlov									

Piping of Chiller - Power HT 1.320 (T3/T4)



- ↗ T3 ↘ - supply cooling system line of distribution manifold
- ↗ T4 ↘ - return cooling system line of distribution manifold
- ↗ T5' ↘ - supply cooling system line of AHU
- ↗ T6' ↘ - return cooling system line of AHU
- ↗ T02 ↘ - line of feeding water supply system

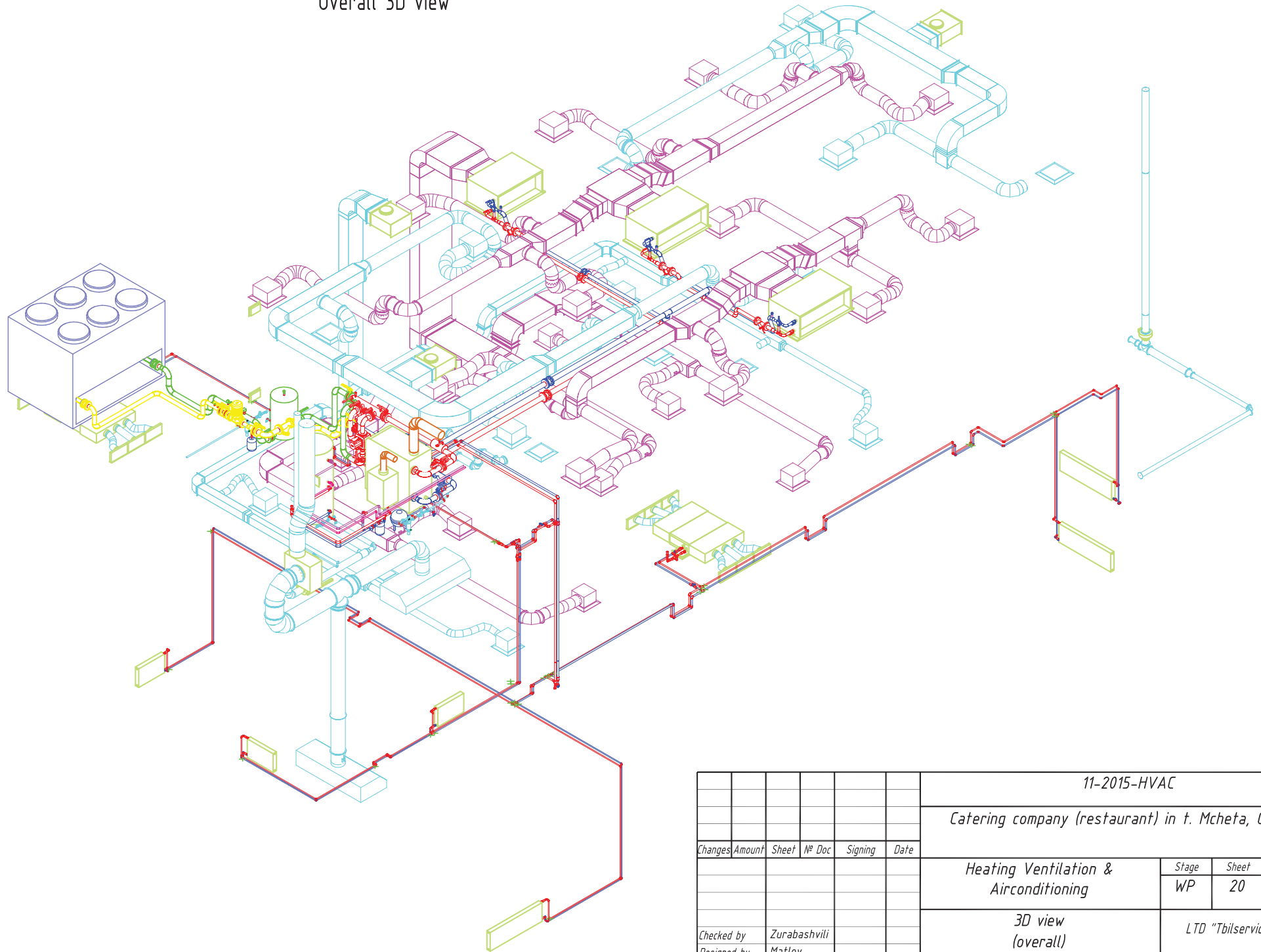


- φ73x3-electrically welded steel line-weld tubes (GOST 10704-91)
 - wall thickness
 - outside diametr
- φ32,0x2,8-water-supply steel pipe (GOST 3262-75)
 - wall thickness
 - nominal diametr

						11-2015-HVAC				
						<i>Catering company (restaurant) in t. Mcheta, Georgia</i>				
Changes	Amount	Sheet	№ Doc	Signing	Date	Heating Ventilation & Airconditioning		Stage	Sheet	Sheets
						3D view of cooling plant; A, B, C views		WP	19	
Checked by		Zurabashvili				LTD "Tbilservice Group"				
Designed by		Matlov								

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Overall 3D view



						11-2015-HVAC				
						<i>Catering company (restaurant) in t. Mcheta, Georgia</i>				
<i>Changes</i>	<i>Amount</i>	<i>Sheet</i>	<i>Nº Doc</i>	<i>Signing</i>	<i>Date</i>	<i>Heating Ventilation & Airconditioning</i>		<i>Stage</i>	<i>Sheet</i>	<i>Sheets</i>
						<i>3D view (overall)</i>		<i>WP</i>	<i>20</i>	
<i>Checked by</i>	<i>Zurabashvili</i>					<i>LTD "Tbilservice Group"</i>				
<i>Designed by</i>	<i>Matlov</i>									