



PROJECT SUMMARY

NTNU UNIVERSITY

TEAM NORGE

1 PROJECT DIMENSIONS				
Gross area	(m ²)	98.3		
Gross Volume	(m ³)	393.2		
Surface area	(m ²)	306.3		
Net floor area	(m ²)	63.2		
Conditioned Volume	(m ³)	199.1		
2 HOUSE ENVELOPE				
Insulation	Cellulose	40cm		
	Aerogel	25cm		
	VIP	8cm		
Walls area and Thermal Transmittance	(m ²)	110.2	(W/m ² ·K)	0.09
Floor area and Thermal Transmittance	(m ²)	110.0	(W/m ² ·K)	0.09
Roof area and Thermal Transmittance	(m ²)	85.12	(W/m ² ·K)	0.09
Glazing area, Thermal Transmittance & Glazing Solar gain (SHGC)	(m ²)	38.1	(W/m ² ·K)	50%
3 HVAC SYSTEMS				
Heating system _ COP 2.6	Compact unit		capacity (Kw)	
Cooling system _ COP 3.6	Compact unit			
Refrigerant	CO ₂			
Heat Recovery Ventilation (efficiency 0,92)	(Type)		capacity	
4 DOMESTIC HOT WATER				
System _ Biofuel / solar thermal exchange	Compact unit		Capacity	
Solar thermal Collectors area	(m ²)	6.0		
Storage Tanks	(capacity)	300 l		
5 ELECTRICAL ENERGY CONSUMPTION				
PV Modules	Polycrystalline			
PV panels area	(m ²)	85.0		
Installed PV power	(kWp)	9.90		
Estimated energy production	(kWh/year)	13,79		
6 ENERGY CONSUMPTION				
Estimated energy consumption	(kWh/year)	45		
Estimated electrical consumption per conditioned	(kWh/year·m ²)	20		
Energy Use Characterization (% of total energy consumption)				
Heating	(%)	10		
Cooling	(%)	18		
Ventilation	(%)	13		
Domestic Hot Water	(%)	25		
Lighting	(%)	10		
Appliances and Devices	(%)	24		
7 ENERGY BALANCE				
Estimated energy balance	(kWh/year)	+330/-65		
Estimated CO ² emissions (embodied)	(Tn/year)	31,189		
8 SINGULAR AND INNOVATIVE MATERIALS AND SYSTEMS				
VIP	(m ²)	79,2		
PCM	(m ²)	57,6		

