



FACTSHEET

Demonstration building

Housing complex - Via Similaun

Note: the content of this document will be subject to changes until the end of the Sinfonia project (May 2020)

Version 10/10/2017



SINFONIA stands for "Smart INitiative of cities Fully cOmmitted to iNvest In Advanced large-scaled energy". This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 609019

PROFILE

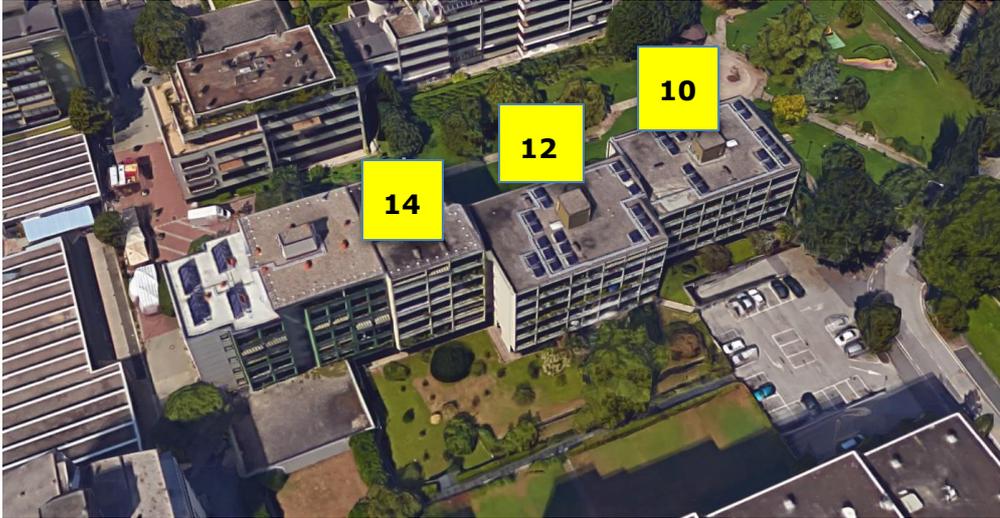
Name and address	Don Bosco Quarter Via Similaun 10-12-14
Map	 <p>Images ©2017 Google, Cartographic Data ©2017 Google</p>



Description	The building area is located in Bolzano, Via Similaun, within a densely urbanized context and consists of 3 adjacent dwelling blocks and it was built in 1978.	
Ownership	IPES-WOBI Social Building Institute of the Autonomous Province of Bolzano	
Gross volume	circa 16.798 m ³	
Gross surface	4.863,53 m ²	
Number of dwellings	59	
Energy Performance		
	Energy consumption excluded RES contribution	
	BEFORE	211,93 kWh/m ² /year (heating, domestic hot water and lighting)
	AFTER	61,34 kWh/m ² /year (heating, domestic hot water, ventilation and lighting)
	Energy consumption included RES contribution (Total Building Energy Use)	
	AFTER	43,61 kWh/m ² /year

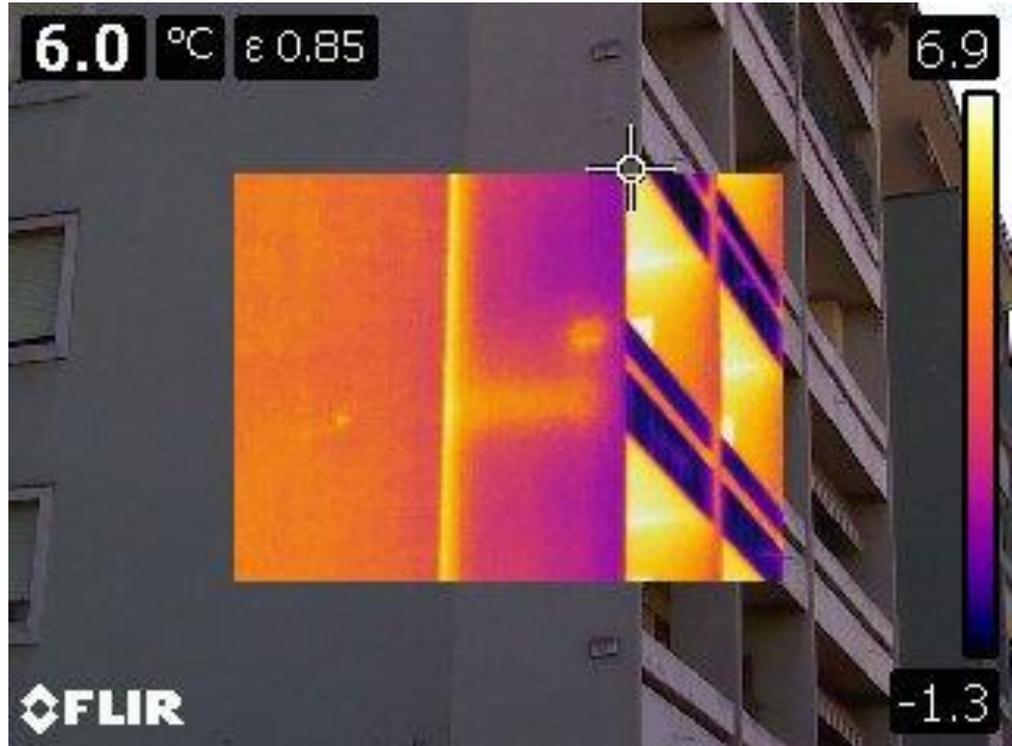


1 - Description before refurbishment

<p>Detailed characteristics of building</p>	<p>The building located in Bolzano via Similaun nr.10-12-14, is included in the area defined by P.U.C. Expansion C2 residential area. It is a complex of 59 dwellings, currently inhabited. Civic 14 is built in adherence to the Piazzetta Anne Frank 1 building. The parking area in front of the building. This residential complex was built in the 80's.</p>
<p>Plot map</p>	 <p>Images ©2017 Google, Cartographic Data ©2017 Google</p>
<p>Building envelope</p>	<p>Existing buildings are characterized by an external structural mesh that contains and frames the balconies.</p> <p>Continuous planters, running on the entire length of the balconies, considerably reduce the depth and, consequently, the usability. The introduction of additional thermal insulation will stress this limit, until making the balcony a mere facade decoration.</p>
<p>Technical system</p>	<p>The existing hydronic system is centralized. It reaches the individual flats through empty spaces located inside the building. In each apartment, a single-pipe ring serves all the radiators. Parts of the pipes are located at the perimeter walls of the building, so that the columns of the heating system serve two adjacent ones. This system is unsuitable for the realization of individual consumption accounting.</p>



Thermal image
before
refurbishment



Images: © Eurac



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Energy performance certificate




IPES - WOBI



Arrivo
Prot.: 0016956 del 19/03/2014
STB - 1 - G F4

Certificato energetico

Proprietario I.P.E.S. della Provincia Autonoma di Bolzano
 Ubicazione Via Palermo 76, 78, 80
 Comune 39100 Bolzano
 Permesso di costruire ---
 P.F. --- P.Ed. 1283 C.C. Gries
 Progettista

	Efficienza energetica dell'involucro	Efficienza complessiva	Sostenibilità ambientale
Oro			
A			
B			
C			
D			
E			
F		76,51 kg CO ₂ /m ² a (389,28 kWh/m ² a)	
G	163,30 kWh/m ² a		

Efficienza energetica dell'involucro riferito all'ubicazione **163,30 kWh/m²a**
 Indice di prestazione per la climatizzazione invernale **328,70 kWh/m²a**



AUTONOME PROVINZ BOZEN SÜDTIROL



PROVINCIA AUTONOMA DI BOLZANO ALTA ADIGE

Agenzia per l'Energia Alto Adige - CasaClima

Direttore Ulrich Santsa

Other relevant technical aspects

None



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2 – Refurbishment Concept

Concept	<p>(From the project report)</p> <p>The project goal is to perform the energy target while saving the architectural theme of the mesh. After taking out the current planters and veneers in concrete, it will introduced the thermal insulation layers. These layers eliminate the thermal bridges and align the soles and the vertical seams on one face. In front of this a second structure is added. It makes visible the constant modular pitch of the entire system, now constituted by a set of larger modules of two different dimensions, arranged in a sequential sequence on the Three buildings. This lightweight metallic structure will serve the anchoring of the grid panels of parapets and new planters distributed in a timely and orderly manner, but in coherence with the new module. The planters are rectangular tanks arranged in number of two for each balcony and accommodation. The structured mesh thus obtained finally has a larger thickness frame that closes the sides, the cover and the soles of the foreground and form the roof parapet. The latter constitutes an element of final closure, towards the sky, and gives a fair proportion to the facades.</p> <p>On the ground floor, organic volumes delimited three areas that identify common spaces. In each area, in addition to the entrance to the corresponding civic number - differentiated by color and size – there are some spaces used for bicycles and/or strollers. The walls that make up these structures have been designed with a lightweight structure in easy-to-realize and maintenance-friendly micro-perforated aluminum panels.</p>
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Images: © Area Architetti Associati

Energy Solutions

(From the project report)

The works planned are: the insulation of the entire envelope, facades and floors, with the elimination of thermal bridges; in the roof, solar thermal and photovoltaic panels will be installed; exterior windows and doors will be replaced with new ones with thermal cut. Above the windows, new insulated bins will help to accommodate the motorized roller shutters. Decentralized controlled ventilation system (with heat recovery) will be set up in these bins. The renovation of the balconies with the introduction of a new metal structure for parapets, flower boxes and shingles.

It is expected to remove the methane gas network and lightly modify the electrical and thermo-hydraulic system of all existing

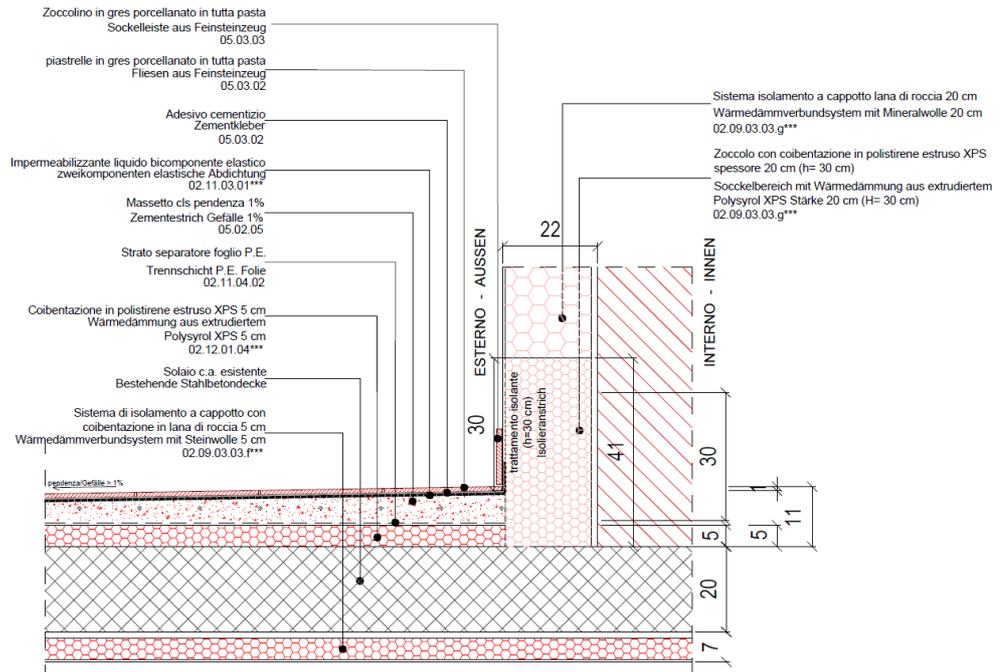


	<p>housing to introduce a counting/monitoring system and electric cooking plates to replace the gas ovens;</p> <p>Within each apartment, it is planned to replace all the manual adjustment valves of each radiator with low inertia thermostatic valves.</p> <p>The project involves modification of the existing thermal power plant. In this case, the existing six gas-fired boilers will be dismantled, replaced by a 300 kW sub-district heating plant connected to the grid. The supply and management of the new generator is entrusted to the service provider. The generator is provided with a circulation pump, serving the primary circuit. Distribution on secondary circuits is ensured by two pumping groups: one serving the thermal system and one serving hot water production. The solar thermal plant will cover DHW demands in summer and cooperate with district heating during winter season.</p>	
Performances Targets	CasaClima A	
	Total Building Energy Use	43,61 kWh/m ² yr
	Global efficiency	13,55 kg CO ₂ /m ² yr
	RES contribution	58%
Financing Model	-	

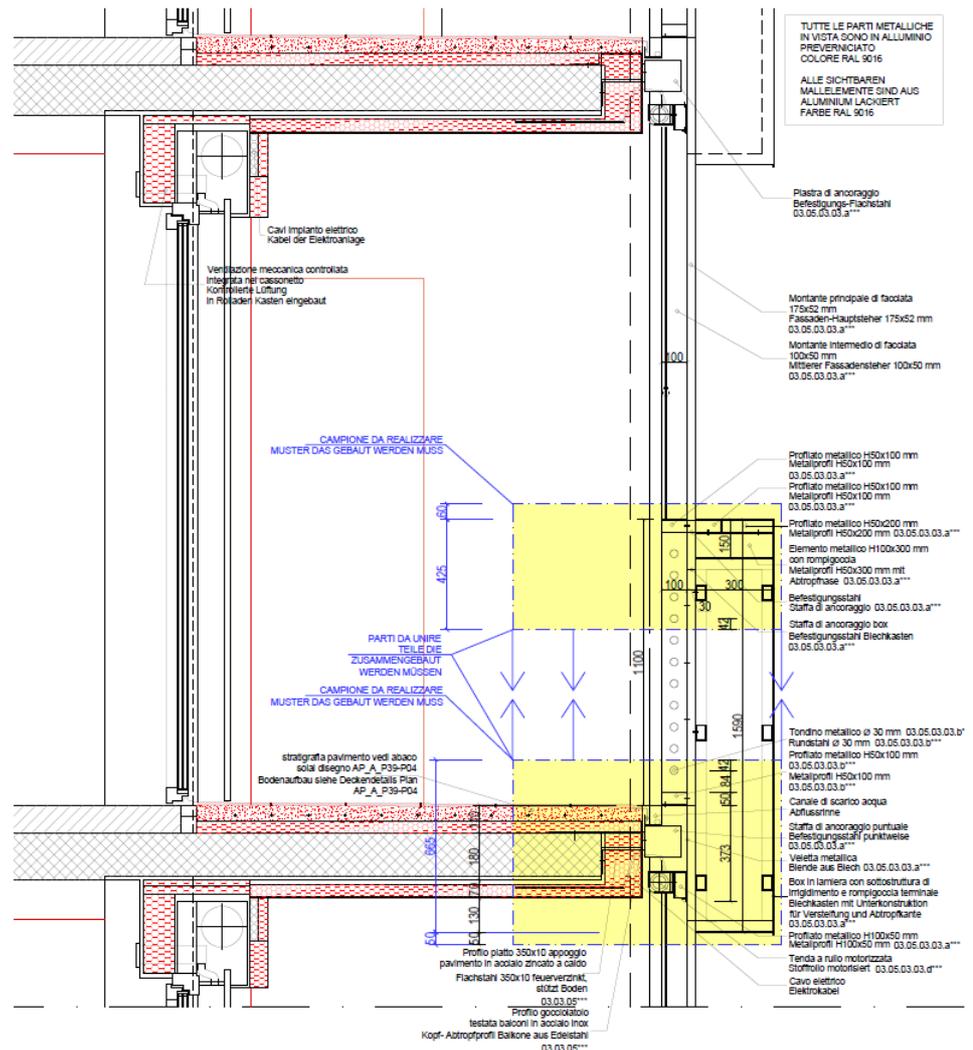


Envelope details

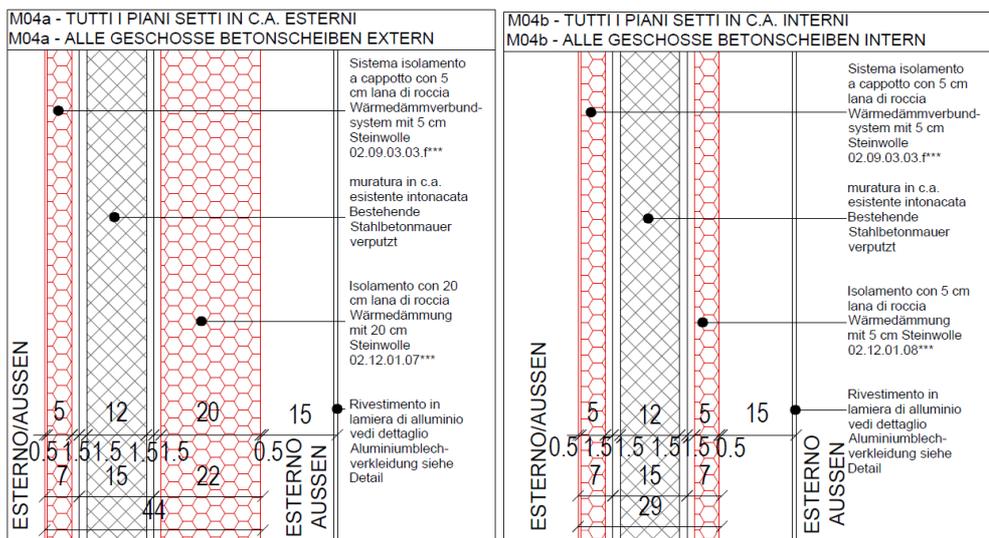
Balcony refurbishment (thermal bridge)



**Multifunfional
Façade and
wall section**



Wall section



Images: © Area Architetti Associati



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Technical system

Mechanical ventilation



LEGENDA/ LEGENDE

Simbolo Zeichen	Codice Code	Descrizione Beschreibung
		<p>Ventilatore centrifugo per installazione in cassonetto, caratterizzato da:</p> <ul style="list-style-type: none"> - filtrazione modulare graduale; - recupero di calore termico efficienza da 69% a 81% in funzione della portata; - recupero entalpico efficienza da 45% a 66% in funzione della portata; - pressione sonora massima 24 db (portata minima); - ventilazione regolabile su 5 livelli; - portata da 15mc/h a 41mc/h; - sensore di CO₂; - motore alimentato 24V; - sezionatore alimentazione elettrica a bordo macchina; - telecomando di azionamento per il controllo della velocità completo di supporto per installazione a muro. <p><i>Ventilators für die Installation im Rollladenkasten mit folgenden Eigenschaften:</i></p> <ul style="list-style-type: none"> - stufenweise modulare Filterung; - thermische Wärmerückgewinnung, Wirkungsgrad von 69% bis 81% je nach Durchflussmenge; - Enthalpie-Rückgewinnung Wirkungsgrad von 45% bis 66% je nach Durchflussmenge; - maximaler Schalldruckpegel 24 dB (Minstdurchflussmenge); - auf 5 Niveaus einstellbare Belüftung; - Fördermenge von 15 m³/h bis 41 m³/h; - CO₂-Fühler; - Motor mit 24 V gespeist; - Trenner der Stromversorgung an Bord der Maschine. - Betätigungsfernbedienung für die Kontrolle der Geschwindigkeit samt Halterung für die Wandinstallation.

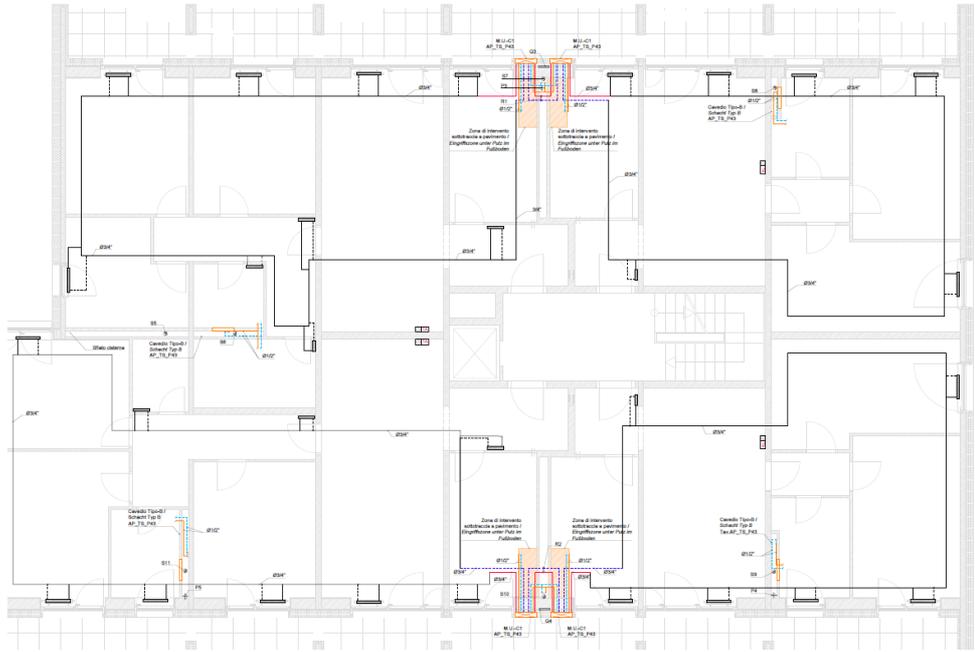
NOTA BENE/ACHTUNG:

Tutte le lavorazioni indicate in progetto devono essere effettuate nel rispetto: della normativa vigente, delle direttive IPES definite nelle relative norme tecniche, e comunque secondo le regole di buona tecnica per la perfetta realizzazione e posa in opera. Nel caso in cui gli elaborati progettuali presentino dati discordanti dovrà essere presa in considerazione la situazione peggiore a carico dell'installatore. In ogni caso sarà possibile procedere alle lavorazioni solo previo accordo con la DL che ne darà disposizione per iscritto.

Alle aufgeführten Arbeiten im Projekt müssen wie folgt ausgeführt werden: nach geltenden Vorschriften, die durch die WOBI Richtlinien in den technischen Normen definiert sind. In jedem Fall muss unter Berücksichtigung der geltenden Regeln der Technik fuer eine perfekte Ausfuerung des Werks gearbeitet werden. Im Falle, dass gegensätzliche Daten der Projektausführung vorliegen, muss die schlechteste Betrachtung zu Lasten des Installateurs angenommen werden. In jedem Fall koennen die Arbeiten nur weitergefuehrt werden, sofern eine vorherige Vereinbarung mit der Projektleitung (DL), die eine schriftliche Anordnung verfuegen kann, vorliegt.



Hot water distribution



Images: © Brescia 2 Progetti srl

Electric renewable integration

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