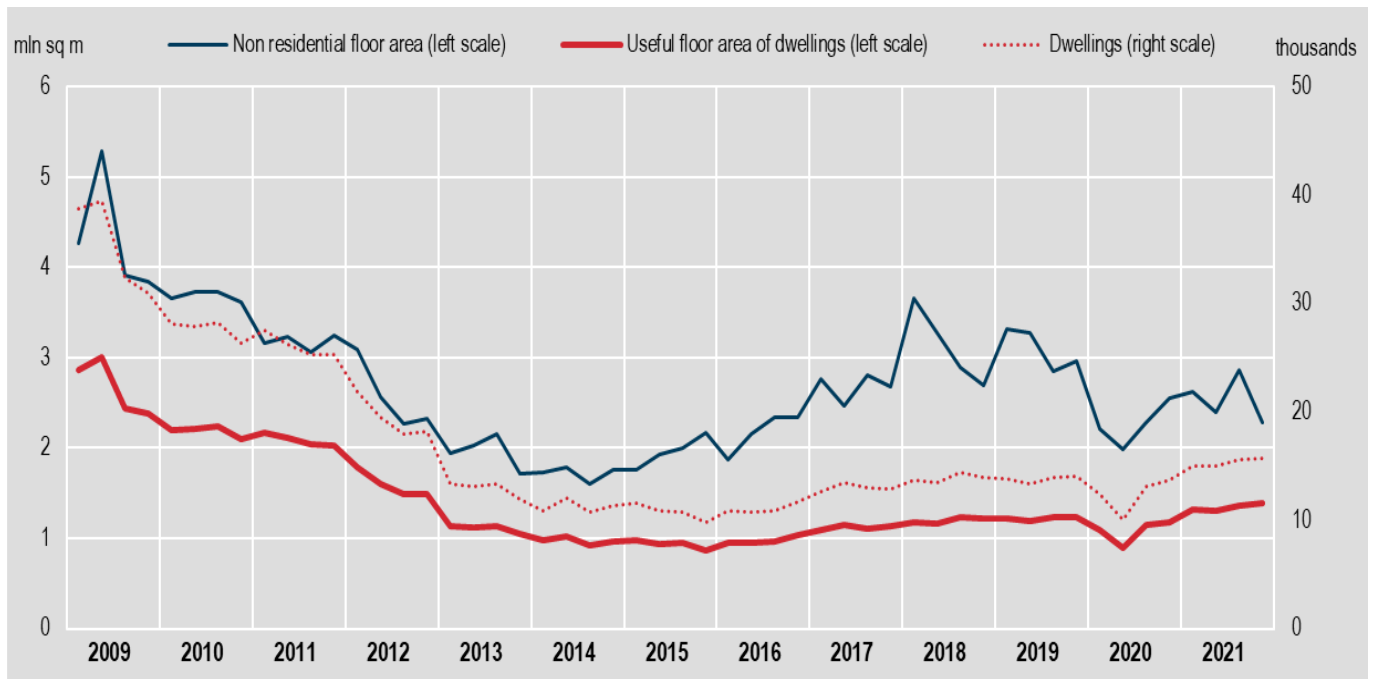


Fourth quarter 2021

BUILDING PERMITS INDICATORS

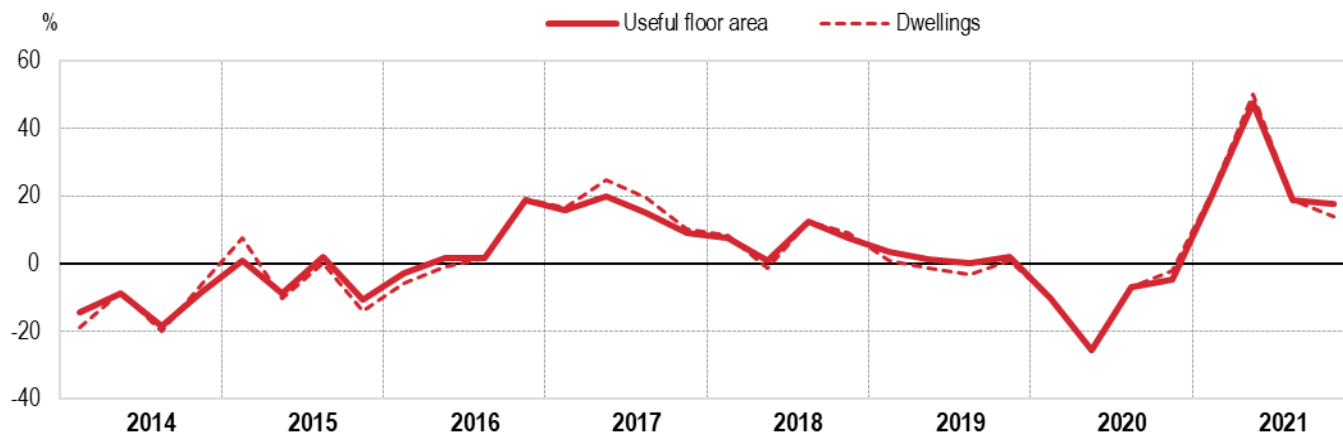
- The series disseminated on the occasion of this release have been revised since the first quarter 2000. Details are given in the methodological note, page 6.
- In residential buildings the number of dwellings increased in the fourth quarter 2021 when compared with the previous quarter (+0.9%); useful floor area increased (+1.6%) too.
- Non-residential buildings decreased by 20.3% in the fourth quarter 2021 (quarter on previous quarter).
- The number of dwellings in new buildings increased by 14.0% in the fourth quarter 2021 with respect to the same quarter a year earlier.
- In comparison with the same quarter a year ago, the useful floor area was up 17.6%.
- Non-residential area decreased year-on-year, falling by 11.1% in the fourth quarter 2021, reversing the previous trend.

CHART 1. USEFUL FLOOR AREA OF DWELLINGS AND OF NON-RESIDENTIAL BUILDINGS, NUMBER OF DWELLINGS
Q1 2009 – Q4 2021, seasonally adjusted, absolute values (a)



(a) Provisional data

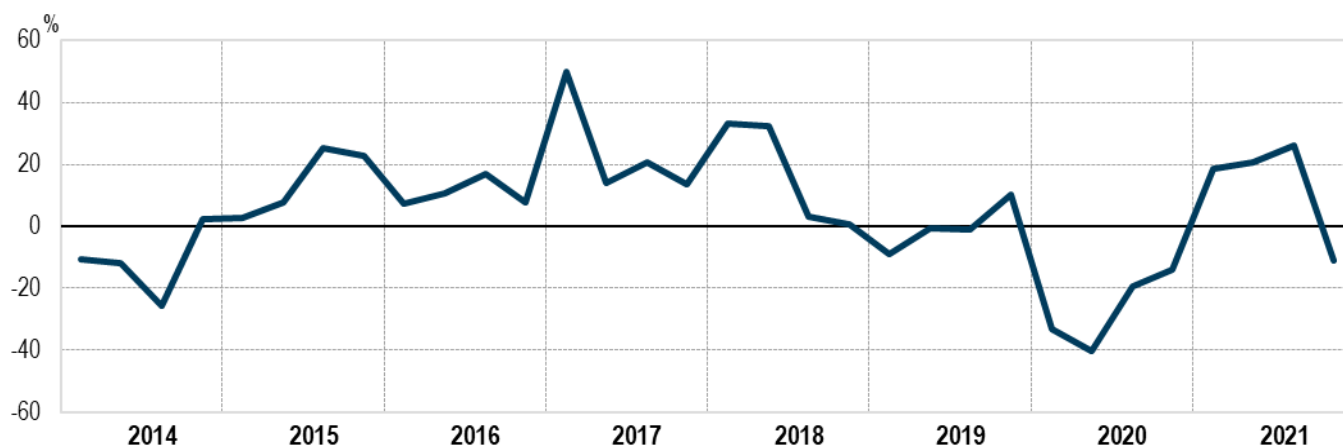
CHART 2. USEFUL FLOOR AREA OF DWELLINGS AND NUMBER OF DWELLINGS OF NEW RESIDENTIAL BUILDINGS
 Q1 2014 – Q4 2021, quarter on same quarter a year ago percentage changes – non-adjusted data (a)



(a) Provisional data starting from I quarter 2021

CHART 3. FLOOR AREA OF NEW NON-RESIDENTIAL BUILDINGS

Q1 2014 – Q4 2021, quarter on same quarter a year ago percentage changes – non-adjusted data (a)



(a) Provisional data starting from I quarter 2021

TABLE 1. BUILDING PERMITS INDICATORS. SEASONALLY ADJUSTED DATA

Q1 2020 – Q4 2021, absolute values, quarter on previous quarter percentage changes (a)

PERIOD	New residential buildings				New non-residential buildings		
	Number of dwellings	Quarter on previous quarter percentage changes	Useful floor area of dwellings (sqm)	Quarter on previous quarter percentage changes	Area (sqm)	Quarter on previous quarter percentage changes	
2020 (b)							
Quarter 1	12,446	-11.4	1,098,252	-11.1	2,215,181	-25.3	
Quarter 2	9,992	-19.7	887,172	-19.2	1,979,047	-10.7	
Quarter 3	13,066	+30.8	1,151,531	+29.8	2,282,165	+15.3	
Quarter 4	13,751	+5.2	1,180,686	+2.5	2,558,117	+12.1	
2021 (b)							
Quarter 1	15,031	+9.3	1,318,807	+11.7	2,622,368	+2.5	
Quarter 2	15,024	0.0	1,309,413	-0.7	2,396,236	-8.6	
Quarter 3	15,551	+3.5	1,367,598	+4.4	2,864,160	+19.5	
Quarter 4	15,690	+0.9	1,389,153	+1.6	2,281,336	-20.3	

 (a) All series of Building permits indicators are available in the database I.stat: <http://dati.istat.it/?lang=en>

(b) Data are provisional and subject to revisions

TABLE 2. BUILDING PERMITS INDICATORS. NON-ADJUSTED DATA

Q1 2020 – Q4 2021, absolute values and quarter on same quarter a year ago percentage changes (a)

PERIOD	New residential buildings				New non-residential buildings		
	Number of dwellings	Quarter on same quarter a year ago percentage changes	Useful floor area of dwellings (sqm)	Quarter on same quarter a year ago percentage changes	Area (sqm)	Quarter on same quarter a year ago percentage changes	
2020							
Quarter 1	11,954	-10.4	1,053,992	-10.1	2,155,346	-33.3	
Quarter 2	10,462	-25.5	934,568	-25.5	2,031,067	-40.1	
Quarter 3	12,509	-6.7	1,107,515	-6.8	2,291,455	-19.4	
Quarter 4	14,175	-2.0	1,205,181	-4.5	2,541,097	-13.8	
2020	49,100	-11.2	4,301,256	-11.8	9,018,965	-27.3	
2021 (b)							
Quarter 1	14,472	+21.1	1,269,106	+20.4	2,553,873	+18.5	
Quarter 2	15,724	+50.3	1,378,302	+47.5	2,450,921	+20.7	
Quarter 3	14,886	+19.0	1,315,532	+18.8	2,889,138	+26.1	
Quarter 4	16,159	+14.0	1,416,749	+17.6	2,260,238	-11.1	
2021	61,241	+24.7	5,379,689	+25.1	10,154,170	+12.6	

 (a) All series of Building permits indicators are available in the database I.stat: <http://dati.istat.it/?lang=en>

(b) Data are provisional and subject to revisions

The table below shows routine revisions, calculated as differences (in percentage points) between first release and the latest estimates concerning growth rates of the same reference period. Revisions to “quarter on same quarter a year ago” growth rate refer to not adjusted data, while “quarter on previous quarter” refer to seasonally adjusted data.

TABLE 3. REVISIONS OF GROWTH RATES

I quarter 2021 - III quarter 2021, differences in percentage points

Indicators	Period	Quarter on same quarter a year ago percentage changes	Quarter on previous quarter percentage changes
Number of dwellings	I-quarter 2021	+1.3	+0.3
	II-quarter 2021	+0.7	+0.9
	III-quarter 2021	+1.3	+0.6
Useful floor area of dwellings (sqm)	I-quarter 2021	+1.1	-0.7
	II-quarter 2021	+0.3	+0.1
	III-quarter 2021	+1.3	+0.8
Floor area of non residential buildings (sqm)	I-quarter 2021	+1.6	-9.9
	II-quarter 2021	+1.9	+2.8
	III-quarter 2021	+3.7	+4.0

Building: a building is an enclosed structure, isolated by either streets or empty spaces or where load-bearing walls provide separation from other constructions from foundations till the roof. It has its own street entrance and possibly an entrance via an independent staircase.

Building permit: a building permit is an authorisation to start work on a building or remodeling project and it is issued by the local governmental office.

Building permits indicators: indicators measuring the quantity of constructions for which building permits are issued, expressed in terms of number of dwellings and in terms of square meters of floor areas. Residential indicators refer to new buildings while non-residential indicators refer to both new buildings and enlargement of existing buildings, as recorded through the issue of building permits.

Dwelling: a dwelling is a room or suite of rooms, intended for habitation, with a separate access to a street or to a common space within the building such as a landing, a backyard, a terrace, a passage and so on.

Enlargement of an existing building: a building is enlarged when the total volume of the building is increased, either with a lateral or vertical extensions.

New building: new building refers to a construction built from scratch from foundations till the roof. New building also refers to buildings entirely demolished and re-built.

Non-residential building: a non-residential building is a building or a part of it used mainly or exclusively for other than dwelling purposes.

Quarter on previous quarter percentage changes: percentage change compared to the previous quarter.

Quarter on same quarter a year ago percentage changes: percentage change compared to the same quarter of the previous year.

Residential building: a residential building is a building or a part of it used mainly or exclusively for dwelling purposes.

SCIA (Start-of-work certified report): qualified title to build as provided for in the Decree of the President of the Republic n. 380/2001 (art. 22).

SCIA alternativa (Start-of-work certified alternative report): qualified title to build as provided for in the Decree of the President of the Republic n. 380/2001 (art. 23).

Useful floor area: the useful floor area is the floor space of dwellings measured inside the outer walls, excluding pillars, partition walls, splays, windows and doors areas, stairwells, loggias and balconies.

Revised time series

With this publication, the time series released to date are revised, fully incorporating the methodological innovations made to the survey beginning in July 2021.

In particular, with the publication of the annual tables for the year 2020 (June 2021), extensive changes have been reported to the procedure for imputing missing data for that year. To ensure comparability of results over time, the new imputation procedure has also been applied to the tables for the years 2010 to 2019, which will be published by next June. The quarterly series published here are therefore consistent with the forthcoming annual tables.

The revision of the quarterly time series also involved the years 2000 to 2009. In this case, the changes are limited to the fact that, for each quarter, actual data from all municipalities participating in the survey were considered; previously, however, the quarterly series were calculated based on a sample of municipalities, whose results were then reconciled with the annual series.

Information objectives and reference regulatory framework

The survey on building permits (hereinafter “structural survey”) is a census, so data are collected for all units of the target population on a monthly basis regarding new construction projects (even if demolished and completely rebuilt) or enlarging of pre-existing structures, residential and non-residential, authorised by certified building permits (Building permits, SCIA – Start-of-work certified report, or Public construction work). Dividing up, changes of use and renovation of pre-existing buildings, which do not cause an increase in volume of said buildings, are not included in the survey observation field. Results of the survey are disseminated on an annual basis.

From December 2003 until April 2021 Istat has been conducting a survey on a sample of Municipalities (hereinafter “rapid survey”) to be compliant with Council Regulation no. 1165/98 concerning short-term statistics and its subsequent amendments. The survey allowed providing quarterly estimates of the main indicators of building permits.

Starting from June 2021 also the quarterly data will refer to the whole population of Italian municipalities. Moreover, changes in the methodology regarding non-response imputation were introduced. Revision process had two main targets: reducing the differences between the imputation method used in the structural survey and the method used in the rapid survey; aligning the imputation methods regarding provinces or municipalities with a population above 50.000 (large municipalities) with all the others (small municipalities), exploiting the longitudinal information deriving from the municipality itself.

Quarterly estimates of construction permits are published 110 days past the end of the reference quarter and revised in the following period. The estimated variables are a sub-group of those measured by the structural survey, exclusively monitoring two aspects of residential building activity (the number of dwellings and the useful floor area) and one feature of non-residential building activity (the area).

Consequently, with reference to the building permit indicators, Istat releases both estimates concerning a small group of variables on a quarterly basis and annual estimates.

This leads to the release of two time series regarding:

- provisional quarterly data available 110 days past the reference period and then revised;
- final annual estimates available within the year following the reference year.

The survey is included in of the National Statistical Programme (current edition: NSP 2017-2019 Updating 2019 approved with Decree of the President of the Republic of 25 November 2020, published in the Ordinary Supplement No. 8 of the Official Journal - general series - No. 35 of 11 February 2021).

Reference population, survey and analysis units

The reference population is based on new constructions and enlarging of pre-existing residential and non-residential buildings authorised by a certified permit.

Municipalities are the survey units.

The unit of analysis targets the single building work, represented either by an entire new building, even if demolished and entirely rebuilt, or by the enlargement of a pre-existing building. Two or more building works, relating to the same construction permit, set two or more units of analysis for which similar forms are compiled.

Data collection

Since 2010, Istat implemented the online survey system through the website <https://indata.istat.it/pdc>. In addition, the data collection process on building permits was completely renewed in January 2010, introducing three new forms: ISTAT/PDC/NEG that the municipality must use to send a report of null construction activity, ISTAT/PDC/RE for data collection on new residential buildings and ISTAT/PDC/NRE for non-residential buildings; the latter two forms substituted the form in use from 2000 to 2009.

Two new questionnaires ISTAT/PDC/RE and ISTAT/PDC/NRE have to be filled in by the building permits applicant or by other qualifying title to build or, failing that, by the municipality.

Every month municipal offices must check the accuracy of the information reported in the questionnaires, therefore they fill in the space of the form reserved for office use and transmit data to Istat on a monthly basis. When no permits or other qualifying title to build are issued in the reference month, the municipality shall send a notice of **no building activity** (ISTAT/PDC/NEG form).

If either data or notice on building activity are not reported, the municipality is considered as a nonrespondent.

Data processing: process, methods and techniques

Nonresponse

From June 2021 nonresponse imputation methods are simplified, using when possible longitudinal information from the same municipality. Furthermore different imputation methods are now used for the residential and non-residential sector. If no longitudinal information are available, missing data are imputed using the mean growth rate of the stratum.

In the formula below, we have y_{it} as the value of the observed variable for the municipality i in the month t , y_{it-12} and y_{it-1} are the values at time $t-12$ and $t-1$, and we have r_{it-12} and r_{it-1} equal to 1 if y_{it-12} and y_{it-1} are observed, otherwise they are equal to 0. If y_{it} is missing and at last four monthly responses are available for the period $[t-12, t-1]$, its value will be imputed based upon the mean of observed values in this period, as follows:

$$\tilde{y}_{it} = \frac{\sum_{k=t-12}^{t-1} r_{ik} y_k}{\sum_{k=t-12}^{t-1} r_{ik}} \quad (1)$$

For non-residential sector, extreme values are removed from the series.

If there is not enough information from a longitudinal perspective, missing data are imputed using the mean of the stratum:

$$\tilde{y}_{it} = \frac{\sum_j r_{jt} y_{jt}}{\sum_{j \in obs} r_{jt}} \quad (2)$$

Where y_{jt} is the observed value of the j th respondent unit at the time t and obs is the total respondents of the stratum. The strata are formed according to the demographic size class of the municipality and to geographical basis, total amount of strata is equal to 30.

Seasonal adjustment

Starting from January 2018, the quarterly data are also released in a seasonally adjusted form.

The seasonally adjusted indices are obtained through the TRAMO-SEATS procedure. TRAMO-SEATS, just like other seasonal adjustment procedures, is founded on the assumption that a monthly or quarterly time series may be represented as a combination (sum or product) of different, not directly observable components: a long term component, called 'trend-cycle', a seasonal component that captures periodic movements of the observed phenomenon, and an irregular component due to erratic factors. TRAMO-SEATS uses a *model-based* approach consisting in identifying a suitable statistical model for the time series to be seasonally adjusted.

Since the addition of new quarterly information allows a better evaluation of the different components of the series, each quarter the previously published data concerning the most recent years are subject to revision.

The statistical models used for the seasonal adjustments are periodically revised to ensure a good fitting to the time series. Moreover, TRAMO-SEATS specifications are available upon request to allow users to replicate the official seasonally adjusted time series.

Output: main measures of analysis

The survey forms adopted since 2010 (ISTAT/PDC/RE and ISTAT/PDC/NRE) have the same first two boxes where respondents must report information on the certified permit, the permit number, the census section, the permit validity date, the cadastral references (cadastral sheet, parcel and subordinate) and the estimated duration of the works. The following boxes of the two forms, residential and non-residential, are different.

The ISTAT/PDC/RE form for residential building includes a box (box 2) gathering information on new buildings, a second box (box 3) for enlargements of pre-existing buildings and a third box (box 4) for the “communities”. Further three boxes (5, 6 and 7) regard the holder of the building permit, energy efficiency of the new building and any connection between the new work and the “Piano Casa” Regulations. In the box regarding new buildings, information about number of floors, volume, area and number of dwellings is requested along with classification of dwellings by number of rooms and useful floor area. The enlargement box asks for information about volume, floor area and when extensions regards new dwellings, data on useful floor area, number of rooms and ancillary spaces are also requested. Box 4 is for buildings where social services are planned and collects information on number of floors, volume and area.

The ISTAT/PDC/NRE survey form for non-residential building has two boxes: box 2 for new constructions and box 3 for enlargement of pre-existing buildings. There are five more in-depth information boxes below that investigate on the economic purpose of the building (agriculture, industry, etc.), on the definition of its use classification (offices, factories, shopping centers, etc...), on the holder of the building permit, on the energy efficiency and on possible connection to the “Piano Casa”. The box relating to the new constructions asks for the number of floors, volume, area and if intended for dwelling purpose, main features of dwellings must be reported too. The box for enlargements includes questions about volume, area and, where new dwellings are planned, includes questions about their useful floor space, number of rooms and ancillary spaces.

Revisions

Quarterly preliminary estimates are issued approximately 110 days past the reference period and revised estimates become definitive when the structural survey data are disseminated.

Quarterly seasonally adjusted series are estimated each quarter to include latest responses and update seasonal factors. Thus, with the release of new data, the seasonally adjusted values for the previous quarters are also revised. Models for seasonal adjustment are periodically revised.

Information on data privacy

The data collected for the building permits survey are protected by statistical confidentiality and subject to the Regulation on the protection of personal data. Data may be used, even in successive processing, exclusively for statistical research by entities of the National Statistical System and may be communicated for scientific research purposes under the conditions and methods provided by art. 7 of the Ethics Code on processing of personal data performed within the National Statistical System and by Community Regulation no. 831/2002. The estimates, issued in aggregate form, will not reveal any personal information or allow identifying subjects individually.

Coverage and territorial detail

The estimates of the press release “Building permits indicators” are available at national level only.

Timeliness

Provisional quarterly estimates are issued at approximately 110 days past the end of the reference quarter; these estimates are revised subsequently.

Issue

Quarterly non-seasonally adjusted and seasonally adjusted data are available on the Istat data warehouse [I.Stat](#) within the section "Industry and construction/building permits". Quarterly series including number of dwellings and useful floor space in new residential buildings and area in non-residential buildings are available on the press release "Building permits indicators" webpage. Main results of the survey on building permits are available on the Istat website at the following address <http://www.istat.it/en/archive/building+permits>.

The management of the health emergency effects on the surveys

Covid-19 health emergency did not impact on the data collection phase carried out for the reference quarter. Overall, the survey met with the effective collaboration both of the technicians and the municipalities involved in the survey.

With reference to the seasonally adjustment procedure used to treat the indicators disseminated, the seasonal adjustment models were reviewed to manage the exceptional decreases recorded taking into consideration the Eurostat guidelines, available at the URL:

https://ec.europa.eu/eurostat/documents/10186/10693286/Time_series_treatment_guidance.pdf.

Therefore, since the first quarter 2020, the unusual size of the changes of the unadjusted time series were taken into account. For this purpose, additional regressors (the so-called additive outliers) were introduced in models for seasonal adjustment when statistically significant. This procedure, which aims at minimizing the revisions of past values of the seasonally adjusted series, was carried out until the fourth quarter 2020. As soon as the available information will allow an overall evaluation of the great volatility phase, models will be revised/modified if necessary. In that case, revisions of seasonally adjusted data may be larger than usual.

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