



Food and Agriculture
Organization
of the United Nations

A collage of diamond-shaped images related to wood. The images include: a close-up of tree bark, a lake with mountains in the background, a forest with sunlight filtering through the trees, an owl perched on a branch, a log, a pile of lumber, a wooden structure, and a close-up of wood grain.





Forest Products

Annual Market Review 2014-2015



UNITED NATIONS





11 HOUSING AND CONSTRUCTION

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HIGHLIGHTS

- The new residential and renovation construction markets in the US and the eurozone were valued at \$338.7 billion (€305.5 billion) and \$673.3 billion (€614.4 billion), respectively, in 2014.
- In Europe, 55% of the value of the new residential and renovation construction markets in 2014 was in renovation; in the US, this figure was 30%.
- The housing construction market in Europe is still subdued, in part due to the effects of the global financial crisis and the tepid nature of European economies. Nevertheless, residential housing construction is projected to improve by 2.4% in 2015 and by 4.3% in 2017.
- Housing completions achieved record levels in the Russian Federation in 2014, with nearly 1.1 million new dwellings put in place, an increase of 20.3% from 2013.
- The US housing market continues to stabilize and improve in all its sectors, but it is still hindered by slow economic growth, slow household formation, student debt, underemployment, declining real median incomes, and a constrained housing inventory.
- High-value houses and the multi-family market exhibited above-average construction and sales in the US in 2014, but single-family construction remains substantially below its historical average.
- Canada's economic fundamentals improved in late 2014; they are projected to continue to improve in 2015 but decline slightly (from 2015 levels) in 2016. Forecasts suggest stable housing demand and starts in 2015 and 2016.

11.1 BUILDING IN THE UNECE REGION, 2014-2015

The consumption of wood products is correlated strongly with construction. This chapter presents the current situation in the construction of housing and other structures in the UNECE region. When construction slows or increases, demand for wood products generally follows suit. Such trends occur unevenly across the region (see 11.1.2 for a discussion) and the globe, strongly influencing wood-export markets.

Construction itself is linked to the economic situation. The International Monetary Fund (IMF) and the World Bank project inconsistent economic growth in the US, Canada and the eurozone. The IMF forecasts the gross domestic product (GDP) of the advanced economies at 2.4% in 2015 and 2016, including 3.1% in 2015 and 2016 in the US; 1.2% in 2015 and 1.5% in 2016 in the eurozone; 2.2% in 2015 and 2.0% in 2016 in Canada; and -3.8% in 2015 and -1.1% in 2016 in the Russian Federation. For OECD countries, GDP is forecast at 1.5% in 2015, increasing minimally to 1.6% in 2016 (IMF, 2015). See Chapter 1 provides more information on economic developments with implications for the forest sector.

11.1.1 Green building initiatives

Green building is the craft of fabricating structures and incorporating processes that are environmentally accountable and resource-efficient. It could include structure design, siting, construction, operation, maintenance, renovation, and deconstruction – a building's life cycle (EPA, 2015).

European and North American entities are conducting life-cycle analyses of wood products and substitute construction materials. Such analyses and simple comparison methods may aid builders and consumers in the selection of wood as a preferred "green" construction material (Ritter et al., 2011). Research and development is also being conducted in Europe and North America into the use of wood products in building systems, and on codes and standards.

In the US, the American Woodworks Council (2015) provides free technical support, education and resources on the design of non-residential and multi-family wood buildings with the objective of making it easier to design, engineer and construct wooden buildings at a reduced cost. The National Association of Home Builders (NAHB) (2015) has developed a programme for certifying buildings to the ICC-ASHRAE 700 National Green Building Standard. The International Green Construction Code (2015) is modelled on the standards of the International Code Council and is mostly used in the US. Green Globes, a green building rating and certification tool, is used primarily in Canada and the US (Green Globes, 2015), and Canada also uses EnerGuide 80 (CUKSBN, 2015).

The Building Research Establishment Environmental Assessment Methodology (BREEAM[®]) is the oldest established method for assessing, rating and certifying building sustainability (BREEAM, 2015). The European Commission has adopted

the communication titled "Resource efficiency opportunities in the building sector" with the objectives of reducing the environmental impact of buildings by improving overall resource efficiency and advancing the competitiveness of construction businesses (Joint Research Centre, 2015). Europe is projected to have the greatest level of market activity in green building; Asia is the fastest-growing market for green building; and North America has the largest total market involvement (CUKSBN, 2015).

11.1.2 Wood use in construction policies

Last year's housing chapter reported that, in North America (in 2006), single-family houses use about 25.1 m³ of sawnwood and 14.2 m³ of wood-based panel products (an average multi-family unit uses 4.1 m³ of lumber and 1.5 m³ of wood-based panels) (Adair and McKeever, 2006). This figure is significantly lower in Europe, where less than 1 m³ of wood products per unit is used (UNECE/FAO, 2012). The above figures underscore the importance of residential construction as well as the potential of policies to increase the use of wood in construction, especially in Europe.

Barriers to the use of wood in construction include the following: existing construction codes and standards may not adequately account for the role of wood; builders may have inadequate knowledge of wood products; there are few demonstration projects; and efforts to transfer technology are only getting started. A particularly important obstacle is that many policies do not consider wood as a "green and sustainable" material. In the US, California's CALGreen was the first statewide green building code to be enacted with the aim of adopting Leadership in Energy and Environmental Design (LEED) protocols (Ritter et al., 2011). In Europe, initial efforts were energy-based (i.e. they addressed heating and energy efficiency). Wood use in construction efforts may be considered to be in its infancy (Ciccarese et al., 2014).

A study undertaken by the UNECE/FAO Forestry and Timber Section has reviewed the current policy and regulatory environment regarding sustainable construction materials in the building sector in the UNECE region and the effectiveness



Source: UNECE/FAO, 2014.

of such regimes in driving the adoption of wood products. The study found that many countries in the region (100 survey responses from 33 countries) have policies in place to encourage the use of wood and have moved in this direction through a whole life-cycle approach, emphasising the effects of production and consumption on the environment (Goodland, in press).

See section 2.4.3 for further information on policies affecting the role of wood in construction.

11.2 EUROPEAN CONSTRUCTION MARKET

11.2.1 Review and outlook

Germany, France and the UK dominate Europe's new residential construction market. These are projected to account for 53% of total output in 2017, up from 50% in 2015; if Italy and Spain are included, the share exceeds 66%. France, Germany, Italy, Spain and the UK were estimated to account for more than 78% of renovation expenditure in 2014 (Euroconstruct, 2015).

The Euroconstruct region¹⁵ housing forecast is for moderate growth of 2.4% ("volume of output") in 2015, increasing by 4.3% in 2017. Total residential construction expenditure in the Euroconstruct region was estimated at \$673.3 billion (€614.4 billion) in 2014, of which renovation comprised 60.0% (\$408.5 billion; €368.4 billion) and new residential construction 40.0% (\$269.6 billion; €246.1 billion) (Euroconstruct, 2015). New construction and renovation constituted 50.7% and 49.3% of residential expenditure, respectively, in 2007 (Euroconstruct, 2010). New housing construction contributed an estimated 1.6% to Europe's GDP in 2014 (Euroconstruct, 2015). Total new residential construction and renovation spending are forecast to increase by an average of 11.1% and 2.9%, respectively, from 2014 to 2017 (Euroconstruct, 2015).

The rate of home ownership¹⁶ was lower in Austria, Denmark, France, Germany and the UK than in the US (where it was 65%) in 2013. The rate was 67% in the Netherlands and 90% or more in Hungary, Lithuania, Romania and Slovakia. In seven EU countries the rate was between 80% and 89% and in 11 countries it was between 70% and 79%. High rates of home ownership in the eurozone tend to be in countries "where the majority of home owners do not have outstanding housing debt" (Neal, 2015).

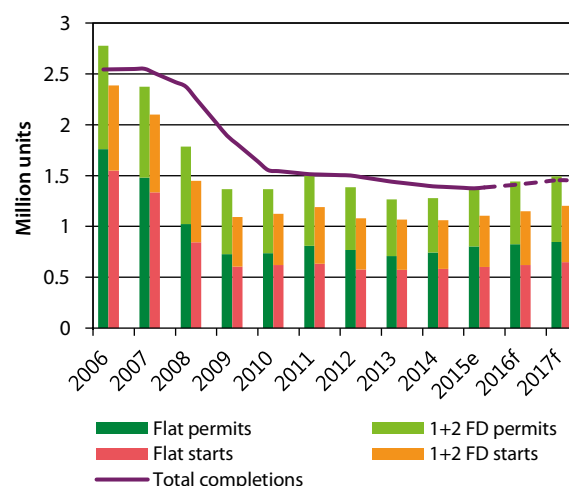
11.2.2 New housing

Total new housing permits and starts were projected at 1.384 million and 1.113 million units, respectively, in the EU in 2015, minimally more than in 2014 (graph 11.2.1). A total of 1.277 million permits were authorized in 2014, which was 54.4%

below the high achieved in 2005. Nearly 480 thousand flats and 582 thousand 1+2-family dwellings starts were estimated in 2014, and about 657 thousand multi-family and 737 thousand flats were completed (Euroconstruct, 2015).

GRAPH 11.2.1

Building permits, housing starts and completions, Euroconstruct region, 2006-2017



Notes: FD = family dwellings; e = estimate; f = forecast.

Source: Euroconstruct, 2015.

11.2.3 Non-residential buildings and civil engineering

Non-residential construction is influenced greatly by overall economic conditions, whereas civil engineering is directly affected by government expenditure. In the private sector, this construction segment includes factories, logistics and office buildings, retail stores and hotels; in the public sector it comprises schools, universities, hospitals, administrative buildings, public-safety buildings, transport stations and airport buildings. Civil engineering includes roads and bridges, railways, telecommunications, water works, energy infrastructure, and other transportation and civil engineering projects. Both the private and public sectors also have new construction and renovation components. Non-residential construction comprised 32.0% of all construction activities in 2014, and housing and civil engineering comprised 45.8% and 22.2%, respectively. Aggregate economic growth is expected to positively affect construction demand to 2017 (Euroconstruct, 2015).

Euroconstruct (2015) stated that, "the recovery in non-residential construction is only expected to proceed at a moderate pace ... and the most buoyant sectors are likely to be the private ones". New non-residential construction expenditure is projected to increase by 1.7% in 2015, 3.7% in 2016, and 2.3% in 2017; non-residential renovation is projected to increase by 2.0% in 2015, 1.6% in 2016 and 1.3% in 2017; and total non-residential construction values are projected to increase by 1.9% in 2015, 2.7% in 2016 and 2.0% in 2017 (table 11.2.1). In descending order, the UK, Germany, France, Italy and Spain are projected to be the largest non-residential construction markets in the Euroconstruct region in 2017 (Euroconstruct, 2015).

¹⁵ The Euroconstruct region comprises 19 countries. The western area consists of Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the UK. The eastern area comprises the Czech Republic, Hungary, Poland and Slovakia.

¹⁶ The ratio of owner-occupied units to total residential units in a specified area.

Spending on civil engineering was affected more than other construction sectors by the global financial crisis and by budget reductions, declining by 11.9% from 2011 to 2014. Euroconstruct (2015) projected “moderate growth in the upcoming years”.

Overall, civil engineering construction values are predicted to increase by 1.7% in 2015, 3.0% in 2016 and 3.8% in 2017 (table 11.2.1). In descending order, Germany, France, the UK, Italy and Spain are projected to be the largest civil engineering markets in 2017 (Euroconstruct, 2015).

TABLE 11.2.1

Total non-residential construction spending, Euroconstruct region, 2014-2017

(€ billion)		
	Non-residential	Civil engineering
2014	429.2	297.1
2015e	437.2	304.3
2016f	449.1	313.4
2017f	457.9	325.3

Notes: e = estimate; f = forecast.

Source: Euroconstruct, 2015.

11.2.4 Residential construction and renovation

Total new construction spending in the Euroconstruct region was \$673.3 billion (€614.4 billion) in 2014 (table 11.2.2), 73.2% of which was in Germany, France, UK, Italy, Spain and the UK (table 11.2.3). The value of new residential construction was projected to grow by 2.4% in 2015 compared with 2014, and gains were also projected for 2016 (6.5% above the 2014 value) and 2017 (11.1% above the 2014 value). Estimates for residential renovation or renovation are also optimistic: renovation – one of the more important construction sectors – is projected to grow by 2.9% in 2017 compared with 2014 (Euroconstruct, 2015).

TABLE 11.2.2

New residential construction and residential renovation spending, Euroconstruct region, 2014-2017

(€ billion)		
	New residential construction	Residential remodelling
2014	246.1	368.4
2015e	251.9	372.8
2016f	262.1	375.2
2017f	273.4	379.1

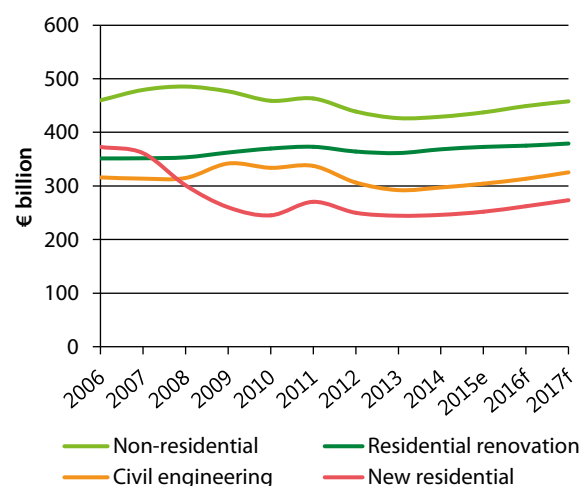
Notes: e = estimate; f = forecast.

Source: Euroconstruct, 2015.

All major sectors (new residential, non-residential building, civil engineering and residential renovation) and subsectors (commercial, educational and health, industrial, offices, agricultural, storage buildings and miscellaneous non-residential buildings) are forecast to increase through 2017 (graph 11.2.2).

GRAPH 11.2.2

Euroconstruct region construction spending, 2006-2017



Notes: e = estimate; F = forecast.

Source: Euroconstruct, 2015.

TABLE 11.2.3

Top five Euroconstruct region countries for new construction and renovation expenditure, 2014-2017

(€ billion)									
New construction					Renovation				
Country	2014	2015e	2016f	2017f	Country	2014	2015e	2016f	2017f
Germany	47.5	49.6	51.1	52.4	Germany	115.1	115.1	114.5	113.9
France	45.1	44.2	47.3	50.4	Italy	65.7	65.9	66.4	67.3
UK	40.5	43.3	44.2	45.7	France	53.1	53.6	54.1	55.0
Italy	15.1	15.8	17.3	19.2	UK	38.2	39.6	40.2	40.5
Spain	16.2	14.8	14.9	15.1	Spain	13.5	13.7	14.1	14.7

Notes: e = estimate. f = forecast.

Source: Euroconstruct, 2015.

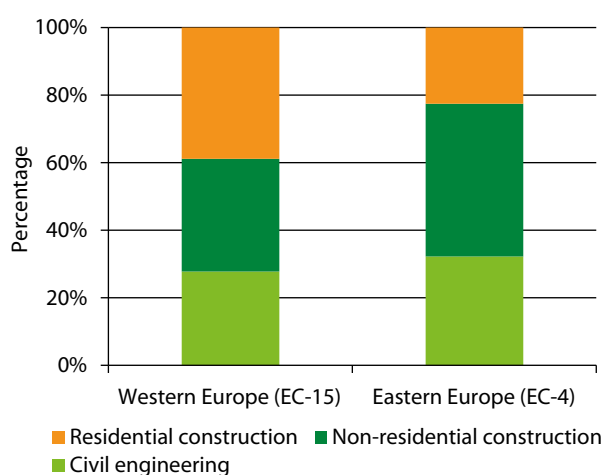
11.2.5 Construction sector share and growth: Contrasting western and eastern Europe

In Euroconstruct's western area, total residential construction is predicted to increase from \$655.2 billion (€607.6 billion) in 2015 to \$694.2 billion (€633.7 billion) in 2017. Residential construction in the Czech Republic, Hungary, Poland and Slovakia (that is, Euroconstruct's eastern area) is forecast to increase from \$18.8 billion (€17.2 billion) in 2015 to \$20.6 billion (€18.8 billion) in 2017 (Euroconstruct, 2015).

In the western area, new residential construction and residential renovation combined accounted for 47.1% of total construction expenditure in 2014, followed by non-residential construction (31.4% of expenditure). In the eastern area, new non-residential construction accounted for 43.6% of total construction expenditure and new civil engineering for 33.4% (graph 11.2.3) (Euroconstruct, 2015).

GRAPH 11.2.3

Euroconstruct sector shares for new construction, 2014



Source: Euroconstruct, 2015.

11.3 CIS CONSTRUCTION MARKET, WITH FOCUS ON THE RUSSIAN FEDERATION

Housing completions in the Russian Federation reached record levels in 2014, with a total of 1,080,300 new residences completed, a year-over-year rise of 20.3%. Residential space built totalled 83.6 million m², an increase of 18.6% over 2013. The number of built and their total floor space were both the highest in Russian history. Residences containing a total area of 28.0 million m² were built from January to May 2015, an increase of 24.8% over the same period in 2014 (Russian Federation Federal State Statistics Service, 2015).

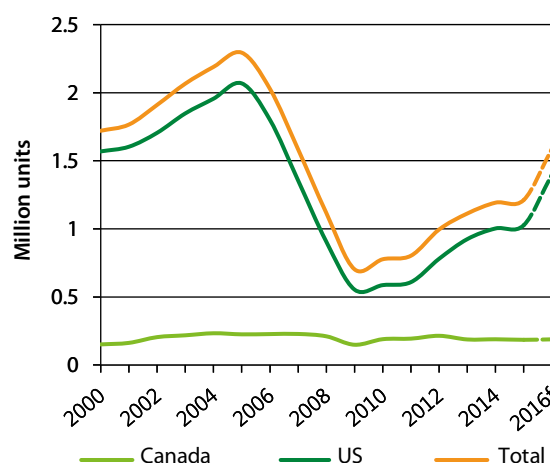
In contrast to the information provided by the Russian Federal State Statistics Service, PMR Research (2015) reported that, "the total Russian construction output (not just residences) contracted by 4.5% year over year ... in 2014, after the 0.1% expansion achieved a year before [2013]", and "construction is projected to resume growth in 2016".

11.4 NORTH AMERICAN CONSTRUCTION MARKET

The housing markets of both Canada and the US (graph 11.4.1) exhibit the after-effects of the housing crash and the global financial crisis. While both markets have improved, US housing starts in particular remain well down from the peak achieved in the mid-2000s.

GRAPH 11.4.1

Housing starts, North America, 2000-2016



Notes: 2015=estimate; 2016=forecast.

Source: US Census Bureau, 2015a; CMHC, 2015; National Association of Realtors®, 2015.

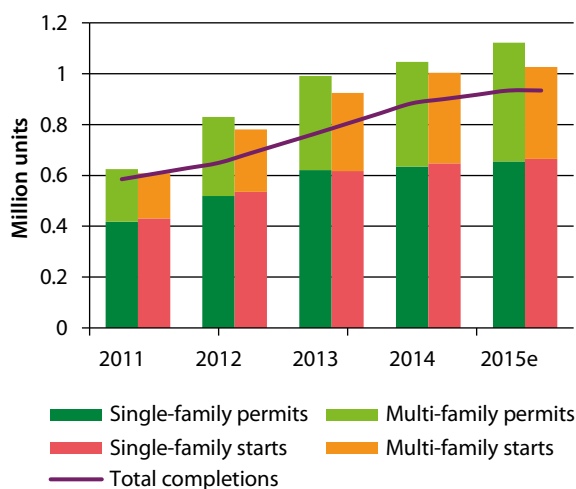
11.4.1 US housing market

The US housing market may be best described as having had incremental growth in 2014, with existing house sales declining and new house sales marginally higher than in 2013. Total housing permits increased by 5.6% over 2013, with single-family housing permits increasing by 2.2% and multi-family permits by 11.3%. Total 2014 housing starts¹⁷ increased by 8.5% compared with 2013, with single-family starts increasing by 4.9% and multi-family starts by 15.6%. Total starts in May 2015 were estimated at a seasonally annualized adjusted rate (SAAR) of 1.036 million (5.1% higher than in May 2014): single-family starts were 680 thousand units (up by 9.1%), and multi-family starts were 356 thousand (down by 2.5%) (graph 11.4.2). Single-family starts in 2014 were substantially below the annual average for 1959-2008, which was about 1.1 million units (US Census Bureau, 2015a).

¹⁷ A start is taken to occur when excavation for the footings or foundation of a building begins.

GRAPH 11.4.2

US housing permits, starts and completions, 2011-2015



Notes: e = estimate (January-May 2015 data); SAAR = seasonally annualized adjusted rate.

Source: US Census Bureau, 2015a.



Source: UNECE/FAO, 2014.

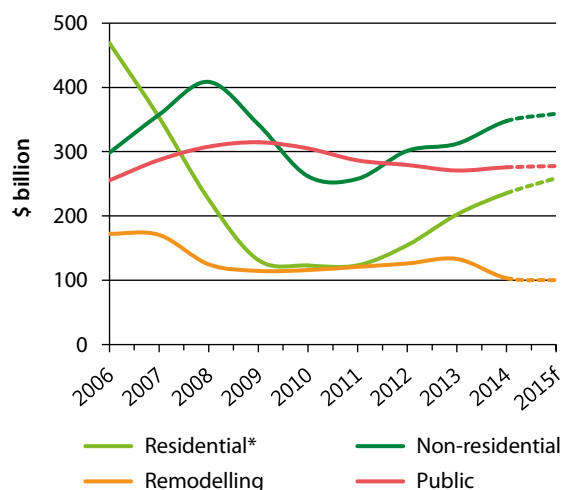
Existing house sales increased by 9.2% year over year in May 2015, when 5.35 million (SAAR) existing houses were sold over the course of the year. The median existing house sales price was \$228,700 (€201,096), up by 7.9% compared with the same period in 2014 (National Association of Realtors, 2015). New home sales averaged 528 thousand units per month from January to May 2015; new house sales increased by 19.5% in May, year over year, with 546 thousand sales reported; and the median new house sales price was \$282,800 (€249,175) in May 2015, down by 1.3% compared with May 2014 (US Census Bureau, 2015b). Nationally, US house prices increased by 4.2% year over year in April 2015, and the 10-city and 20-city composite indices increased by 4.6% and 4.9%, respectively, year over year (Standard & Poor's, 2015).

Residential construction spending (single-family and multi-family units) is improving (graph 11.4.3): total private residential construction spending increased by nearly 1% in 2014, to \$338.7 billion (€305.5 billion). Single-family construction spending increased by 13.4%, to \$193.6 billion (€174.6 billion), and multi-family expenditure increased by 32.7%, to \$41.8 billion (€37.7

billion). Remodelling (renovation) spending decreased by 22.4% in 2014 compared with 2013, to \$103.3 billion (€93.2 billion) (all SAAR) (US Census Bureau, 2015d). New housing construction added 2.4% to the US GDP in 2014 (Federal Reserve Bank of St. Louis, 2015).

GRAPH 11.4.3

US construction spending, 2006-2015



Notes: *Private residential spending less remodelling expenditure (SAAR); f = forecast (May 2015 data).

Source: US Census Bureau, 2015d.

11.4.2 US construction outlook

Factors affecting the aggregate housing market in the US include a tepid economy; shortages of building lots; strict mortgage credit standards; a low level of housing inventory (existing and new); declining real median incomes; rising housing costs; student debt; and underwater homes.¹⁸ Zillow (2015) reported that, of the 49.8 million mortgaged homes in the US in the fourth quarter of 2014 (US Census Bureau, 2015c), about 9.7 million were under water.

The US housing market continues to stabilize, however, and improvement is indicated in all sectors of it. The following factors may hinder the development of a more robust housing market: a slow-growth economy; adult millennials¹⁹ living longer with their parents; student debt; under-employment; declining real median incomes; and a constrained housing inventory. Bright spots include higher-value home construction and sales; multi-family construction; and an increase in household formation in the fourth quarter of 2014.

¹⁸ An underwater home is a house in which the house owner owes more on the mortgage than the house's current appraised value.

¹⁹ Millennials are generally considered the generation of Americans born between 1980 and 2004. They are the most numerous generation in the US, representing one-third of the total population in 2013.

11.4.3 Canadian housing construction market

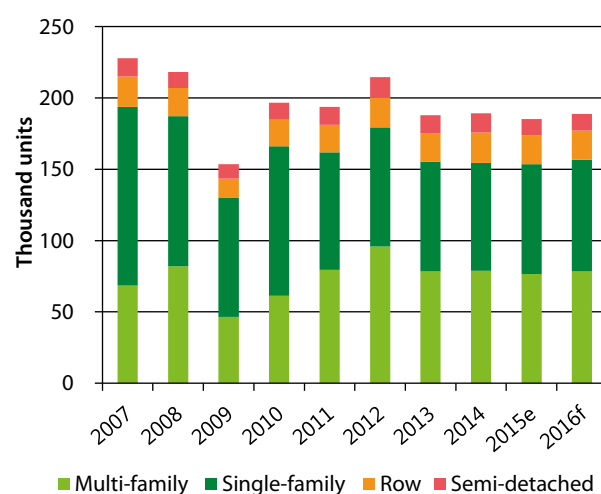
The Canadian housing market is stable, even with the uncertainty caused by a decline in oil prices. Housing starts are projected to moderate by 2016, with total housing starts estimated in the range of 148 thousand to 203 thousand units (graph 11.4.4) (CMHC, 2015). According to Bendiner (2015), “[t]here is an element of overbuilding in major markets across Canada. And, with completion rates rising (most notably in Toronto), we expect construction activity to be held back as [2015] progresses”. The Canadian Mortgage and Housing Corporation (CMHC) (2015) projected moderately increasing home sales through 2016. New housing construction contributed 4.9% to Canada’s GDP in 2014 (Statistics Canada, 2015).

The Canadian economy is forecast to grow modestly through 2016, with GDP forecast at 2.3% in 2015 and 2.2% in 2016. The unemployment rate is expected to decrease to 6.6% in 2015 and 6.5% in 2016; although modest, this decrease may aid the housing market (CMHC, 2015).



Source: UNECE/FAO, 2015.

GRAPH 11.4.4
Housing starts, Canada, 2007-2016



Notes: e=estimate; f = forecast.

Source: CMHC, 2015.

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