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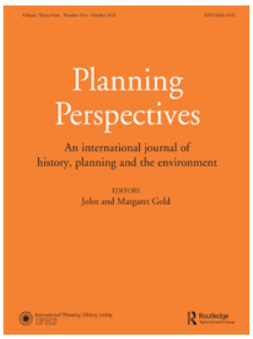

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Wooden Käpylä - the birth of a garden city
The architecture of Martti Välikangas and construction of the district

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ABSTRACT

The Finnish Housing Reform Association was set up in 1910 to promote public housing with new social ideas in housing design. After World War I, the association took the initiative to design affordable housing for the district of Käpylä in Helsinki. Construction was postponed by the years of instability that followed the Civil War of spring 1918. In early 1920, the City of Helsinki organised the subscription of shares in the People's Housing Company Ltd. Four– or two–family houses and even dwellings consisting of a room and a kitchen were a huge improvement to rental barracks. The quality of housing further enhanced by garden plots and communal saunas. Construction of the district resulted in notable stylistic variety. The scale of the area and the new efficient timber construction system that aimed at affordability and short construction times made Wooden Käpylä exceptional. In 1960, a design competition was organised that, had it gone ahead, would have meant the destruction of the Käpylä. The competition drew sharp criticism, and in 1971 Wooden Käpylä became protected in the master plan. Today, the street plan offers surprising views and a sense of freedom relative to previous as well as concurrent enclosed blocks.

KEYWORDS

Garden suburb; Finland; 1920s classicism; standardization; wooden architecture; living environment; renewal; affordable social housing; People's Housing Company of Helsinki

Wooden Käpylä (*Puu-Käpylä* in Finnish) is a leafy garden city, where colourful timber houses stand around large green yards. In summer, the greenery is so abundant that one struggles to see the houses in their entirety. The purpose of this article is to go beyond the shrubbery to have a look at what the buildings are really like and what makes Wooden Käpylä, built with very scarce resources, such a unique and attractive area even today. The design of the wooden houses were a successful blend of standardization and architectural variation. The dwellings were remarkably spacious for the era. Garden plots allowed residents to grow their own food.

The subject of this study is the *magnum opus* of the architect Martti Välikangas (1893–1973), both in its original form and its subsequent alterations and renovations, as well as the significance of the area. However, we will begin by shedding some light on the background of the development of Käpylä and its town plan, as well as its architectural influences. What made Käpylä so special was the range of different experts involved in its design and construction. We will then discuss the unique construction method employed in the area – could it serve as a model for solving contemporary problems as well? The study is based primarily on first-hand accounts and on-site

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Figure 1. Passage marked by pilasters to the courtyard of the three houses. Pellervontie 19, 17 and 15 [Photo by Jussi Tiainen].

observations. As most of the literature on Wooden Käpylä is in Finnish only, this housing intervention has been restricted mostly to a tiny audience of scholars (Figure 1).[1]

Background to the birth of Wooden Käpylä

The squalor of urban housing – a negative spin-off of industrialization – emerged as a social issue in nineteenth century Europe. In Helsinki, escalating industrialization led to the emergence of so-called 'rental barracks' along the fringes of the city from the 1830s onwards. Some groups of enlightened workers in Helsinki founded housing corporations. Universal suffrage was first exercised in the parliamentary elections of 1907, and the new Municipalities Act of 1917 allowed workers to have a say in local government decisions (Figure 2).

The *Asuntoreformiyhdistys* (Finnish Housing Reform Association)[2] was set up in 1910 to promote public housing and to educate the public about housing policy. The association drew its ideals from English garden city ideology, the Central European social reform movement, and philanthropy. Its members included medical doctors, civil servants from the social sector, senators, engineers, bankers, and several notable architects. The association's programme wedded social ideas with the need for reform in urban planning and housing design. As part of its activities, it provided consultation and guidelines for construction companies and cooperatives, model drawings for small houses, it inspected architectural drawings, and issued statements on rental housing legislation.

Housing conferences in Berlin, Vienna and Ghent were followed with a keen eye in Finland throughout the 1910s. In October 1917, the Housing Reform Association organized the first national housing conference in Helsinki, which underlined the necessity for a Housing Act and

[1]Surprisingly, the relevant features of the housing neighbourhood have been noticed by a recent publication (Stewart 2018) insomuch as he included the housing project in his selection of 12 reference projects under the umbrella of 'Nordic Classicism'.

[2]Many well-known architects, notably Alvar Aalto, joined the association in the 1930s, but in the post-war reconstruction period its operations contracted. The association was revived in 1963. Today it is a player in the housing policy discussion that has emerged due to rapid urbanisation, and it studies issues in housing and the structure of society from various perspectives.

Figure 2. A family in temporary single-room lodgings having been evicted because of the termination of rent control [Helsinki City Museum, Eric Sundström, 1924].

urban planning legislation. It called for beauty of architecture and for harmony of townscape, including green yards and front gardens. The garden city of Letchworth had made a deep impression on Birger Brunila (1882–1979),[3] who would become the designer of the Käpylä town plan. He was assisted by Otto I. Meurman (1890–1994),[4] who emphasized the importance of gardens and possibilities for cultivation. Meurman often referred to Port Sunlight, a garden city founded in the nineteenth century by the owner of an English soap factory.

The aspirations of the Housing Reform Association and contemporaneous Finnish town plans reveal the influence of foreign models. The closest examples are found in the other Nordic countries.

Wooden Käpylä was one of the fruits of the Housing Reform Association's labours. The district had been incorporated into the City of Helsinki in 1906, but its design was postponed by the war, which also generated a massive housing shortage in Finland as it did in the other Nordic countries. There as a dispute between the city and housing reform advocates over the type of housing that should be constructed in Käpylä. In spring 1917, the City Council decided that the most expedient way to remedy the worst of the housing shortage would be for an envisioned public housing corporation to focus on the construction of large rental houses. The plan was criticized fiercely in the 1917 *Asuntoreformikongressi* (Housing Reform Conference).

The years of instability that followed the Civil War of spring 1918 further postponed the construction of Käpylä. The constituents meeting of the People's Housing Company (Helsingin Kansanasunnot)[5] took place in June 1919, and the town plan was finalized soon after. The company's owners were the City of Helsinki, the Suomi Insurance Company, and the Housing Reform Association. Most of the houses in Wooden Käpylä were commissioned by the People's Housing

[3]Further details are collected in the conclusive paragraph 'Appendix. Builders of Wooden Käpylä'.
[4]Ibid.
[5]People's Housing Company merged with Helsinki City Apartments Ltd. (Heka) in 2012.

Company.[6] The funds for construction were lent by the State and the City of Helsinki. In the early 1920, the City of Helsinki organized a subscription of shares in the PHC (Figure 3).

For the most part, single-family houses remained an unattainable dream for the working class, especially in the cities. However, some industrial communities did develop residential projects inspired by the ideals of the garden city.[7] One of these was a housing estate of two-family log homes with yards designed by Uno Ullberg in 1907 for the Havi soap and candle factory in Viipuri (in present Russia). These homes garnered significant attention at the 1917 national Housing Reform Conference, and architect Otto Iivari Meurman likened them to the English garden city of Port Sunlight.[8]

Another example was Kotimäki, a park-like workers' housing estate built in the 1920s for the Littoinen broadcloth factory (in the City of Turku). Coherent and compact, the area consisted of detached houses with pitched roof and board cladding, all based on standard designs by architect Bertel Jung.[9] Both of these estates were built by a factory for its workers, whereas Käpylä was the first municipal garden suburb in Finland.[10]

Because ideal working-class dwellings – single-family houses – were difficult to realize, two-storey timber houses were considered the economical alternative. Houses for two or four families comprising dwellings of one room and a kitchen were nevertheless a huge improvement to rental barracks. While not all Käpylä residents were working class, the housing was affordable. Käpylä was not a completely independent, self-reliant unit, however: it was a *garden suburb*. There were a few shops in the area, and a tramline enabled residents to commute to work and travel to the city centre. The church was the only public building, other services included common laundry rooms and sauna buildings shared by houses in the same block.

When Wooden Käpylä was completed, the dwelling occupancy rate was unexpectedly low. In 1925, People's Housing Company reported 1,342 occupants, averaging about four persons per dwelling, suggesting that the 600 dwellings in the area had a total of approximately 2,400 inhabitants. The Käpylä Society estimates that there are currently 1100–1200 residents in the neighbourhood.[11]

Evolution of the town plan for Wooden Käpylä

Three main stages can be distinguished in the evolution of the town plan of Wooden Käpylä. The 1911 proposal was probably drawn up by Bertel Jung (1872–1946), a town planning pioneer and the first to hold the position of town planning architect in Helsinki. The alignment of the streets and the curvature of lines are pure art nouveau. Monumental features are deliberately scattered. Houses stand in the middle of their plots; the street space is not important.

The proposal for the area dating from 1912 was a collaboration between Bertel Jung and Birger Brunila.[12] The approach has changed in their plan. A grand axis runs through the area towards Taivaskallio Hill located at the edge of the district. Public buildings are positioned at the ends of streets and serve as starting points of *patte d'oie* (goose-foot) compositions. Of particular interest is an irregularly shaped square leading to the church, the form of which resembles that of Place Vendôme in Paris. The street system is both artificial and theatrical, reflecting the baroque style of the 1910s.

[6]Hereinafter PHC.
[7]Standertskiöld, *Arkkitehtuurimme vuosikymmenet 1900–1920*, 71.
[8]Putkonen, "Tuotantolaitoksia ja työväenalueita," 186–187.
[9]https://www.rky.fi.
[10]Saarikangas, *Model Houses for Model Families*, 191. Saarikangas describes Käpylä on pages 191–201.
[11]Käpylä-Seura – Käpyläläisten etujärjestö (kaupunginosat.fi).
[12]The plan was published in a more finalized form in Eliel Saarinen's book *Munkkiniemi-Haaga* (1915) and in *Käpylä-lehti*, No. 2 (1971): 4.

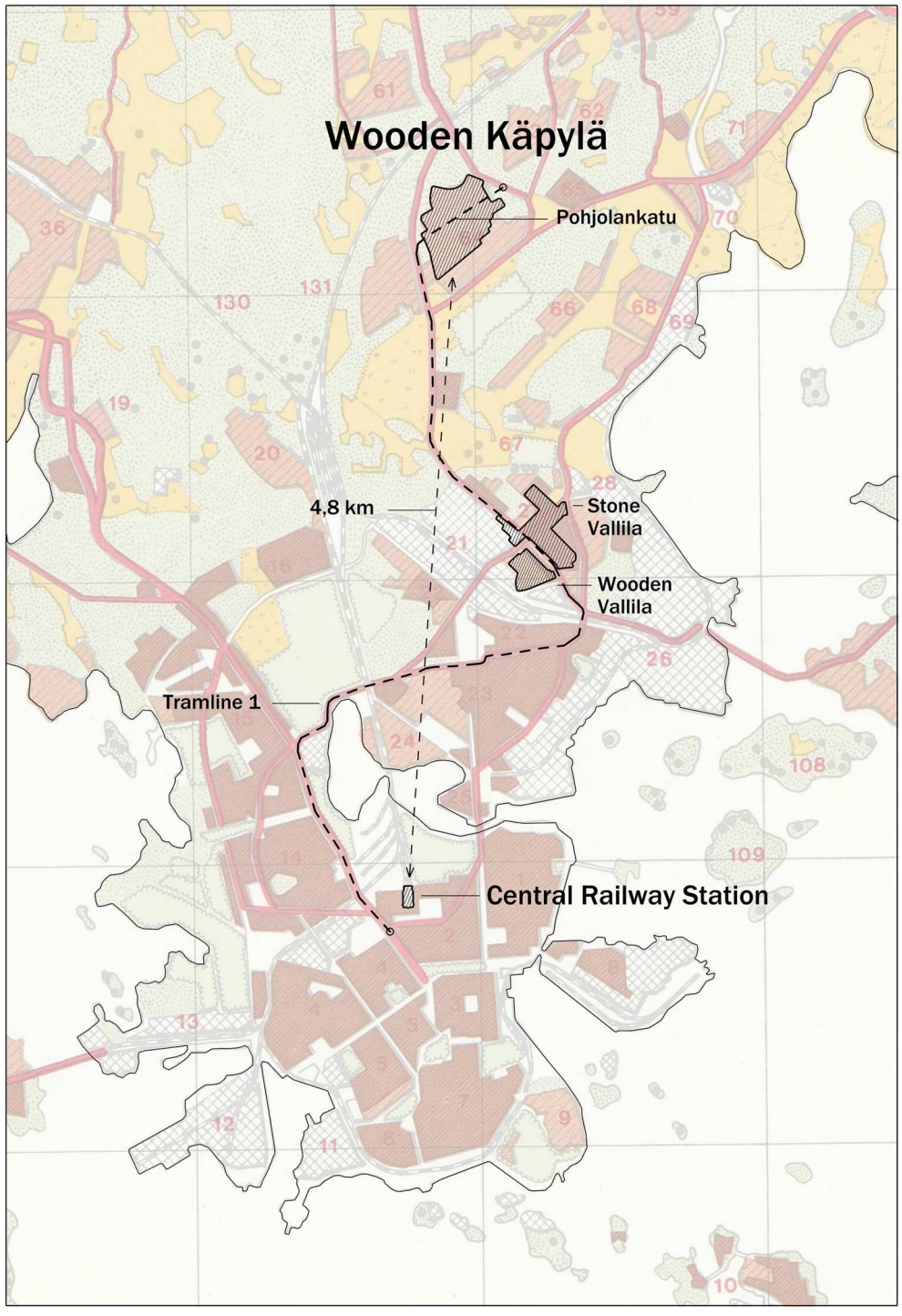

Figure 3. Identification of the Puu Käpylä position (and Vallila estate too) with respect to central railways station on the 1930s Helsinki map [Graphic elaboration by Nikolai Fabricius and Pekka Heikkinen, 2023].

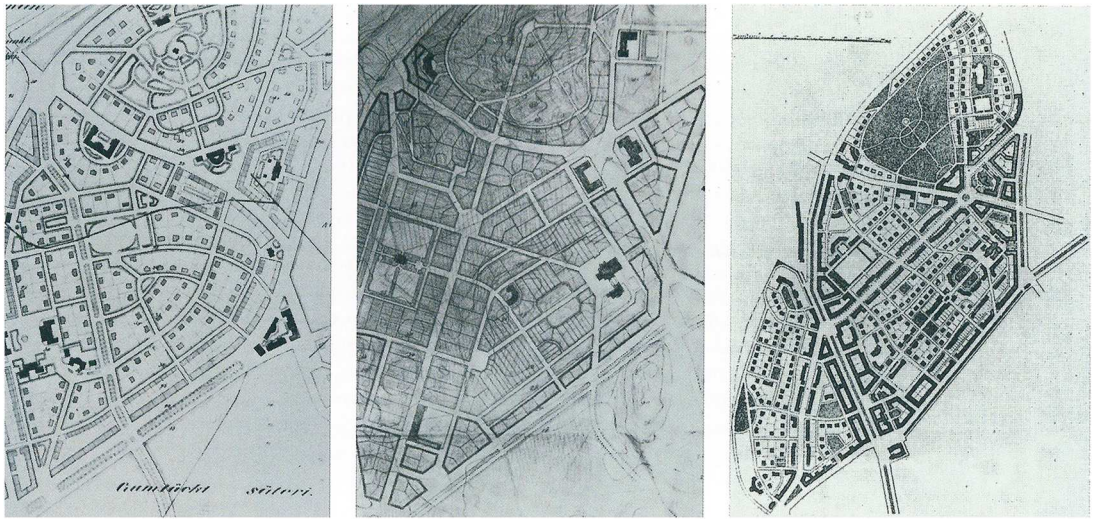

Figure 4. (a) The winding streets in Bertel Jung's 1911 town plan proposal show the influence of Camillo Sitte's ideas of a painterly townscape [*Arkkitehtli-lehti*, No. 1 (1981): 27] (b) The 1912 plan by Bertel Jung and Birger Brunila contains baroque elements [*Arkkitehtli-lehti*, No. 1 (1981): 27] (c) The proposal by Brunila and Meurman from 1917 is quite close to the implemented plan. Pohjolankatu is prominent and the blocks have been straightened [*Käpylä-lehti*, No. 4 (1960)].

The final layout of the district broadly follows a plan drawn up by Birger Brunila and Otto-Iivari Meurman in 1918. Dramatic axes were abandoned. The main street, Pohjolankatu, is set peacefully in a valley cutting across the area. The goose-feet were omitted, and Joukolantie curves gently as it crosses the square reserved for the church. In this plan, the square at the end of Väinölänkatu remains a park, because the church was sited less monumentally in block no. 824 along Metsolantie. The plan represents a return to the grid, although many alignments deviate from it casually as if in a throwback to art nouveau. Houses are sited along the streets, and the area has achieved the balance of classicism (Figure 4(a–c)).

Architectural influences

Wooden Käpylä is a highlight of 1920s classicism in Finland, representing one of the most extensive and diverse realisations of its ideas. Classicism is a recurring theme in Western culture. Again and again, artists and architects have turned to the ideas and familiar forms of antiquity. The classicism of the 1920s was part of this continuum. Its architecture was born out of the ideas of a new generation, as a reaction to national romanticism and the red-brick neo-Romanesque architecture of 1910s in Germany. Classicism was also better suited to an increasingly industrialized and middle-class society.

The era also marked a strong shift towards standardization and type-planning, for which classicism with its minimal forms fitted neatly.[13] A new element was interest in modest dwellings and simple solutions. 'Longing for less complex-bound attitudes' was a catchphrase in Martti

[13]On standardized housing in Finland in the 1910s and 1920s, see Saarikangas, *Model Houses for Model Families*, 113–139.

Välikangas's circle.[14] After Finland's independence in 1917, architects looked increasingly to the Nordic countries for inspiration.[15]

The Nordic movement originated in Denmark, but in Finland its influences came mostly from Sweden. In Finnish architectures, the focus shifted from the Middle Ages and the Finnish national epic, *Kalevala*, to more recent cultural layers – red-painted peasant houses and their classicistic proportions, traditional ironworks and small-town architecture.[16]

The blueprint for the modest home was borrowed from Germany. Heinrich Tessenow's book (*Hausbau und dergleichen*, 1916) was an early inspiration for designers,[17] drawing attention to unromanticized everyday life and its beauty. Although the English garden city ideal was still alive at the time, the new generation drew its ideas for architecture and urban planning from Italy, from its small towns and their anonymous houses, 'architettura minore' (minor architecture).[18]

Heinrich Tessenow's *Hausbau und dergleichen* made an impression on Välikangas's circle.[19] The book emphasized the simple dwelling, its healthiness and beauty. Instead of past symbols of middle-class respectability, the illustration of a bedroom in the book featured wash basins, soap bars, toothbrushes, and slippers.[20] Fresh air flowed in from an open window, making the light curtains flutter. The only decoration on the façades were simple doors and windows.

According to Välikangas, his architectural ideas originated in Italy, which had left a lasting impression on him during a trip in 1921. He had spent his childhood and youth in the eastern Finnish town of Savonlinna, famous for its medieval castle. The town proper, however, like all Finnish towns, consisted mainly of single-storey wooden houses, grouped into blocks by plank fences. For Välikangas, the Finnish wooden town was so familiar that it was difficult to recognize it as an influence.

Construction phases

Zoning and building inspection in suburban areas like Käpylä was entrusted in 1924 to the city's Building Inspection Office.[21] The blocks of Wooden Käpylä were constructed and administered by the PHC and two housing cooperatives (Käpy and Käpylä). The blocks of the PHC were located in the middle of the district, while those of the Käpy cooperative bordered the area to the west and north. The Käpylä cooperative managed the eastern side. In addition to these, there are single-family houses and semi-detached houses on their own plots in block no. 823 on the north-western edge of the area.

The decision to establish the PHC was taken on 17 April 1917 – before Finland's independence and the Civil War that followed. Because of general social unrest and the Civil War of 1918, the constituent meeting of PHC did not take place until 1919. Construction of Käpylä began in

[14]Hilding Ekelund, interview by Simo Paavilainen 1977. This was later on published on *Abacus: Museum of Finnish Architecture yearbook. 1979*, 100–101.

[15]On the conception of classicism as expressed in 'Nordic classicism", see *Nordic classicism: 1910–1930* (ed. Simo Paavilainen), Finlands arkitekturmuseum 1982. Finnish classicism is discussed in numerous monographs on the work of such architects as Erik Bryggman (1997), Hilding Ekelund (1991), J.S. Sirén (1989) Oiva Kallio (1998), and Uno Ullberg (2020). For a discussion of the subject in Italian, see *Aalto e il Classismo Nordico* by Paolo Angelotti and Gaia Remiddi, Roma: Croma Quaderni no 8 1998, and *Erik Bryggman 1891–1955. Architettura moderna in Finlandia* by Silvia Micheli, Roma Ganghemi Editore, 2009.

[16]Martti Välikangas, interview by Merja Kuosmanen and Asko Salokorpi, October 12, 1971. This was later published in *Rakennustaiteen seuran haastatteluja*, 151–172.

[17]Hilding Ekelund, interview by Simo Paavilainen 1977. See *Abacus. 1979*, 100.

[18]Ibid.

[19]Ibid., 101.

[20]Tessenow, *Hausbau und dergleichen*, 73.

[21]Heikkilä- Kauppinen, *Saanko luvan. 200 vuotta pääkaupungin rakennusvalvontaa – satavuotias rakennusvalvontavirasto*, 70–71.

Figure 5. View of Pohjolankatu towards the southwest from the corner of Peltolantie. Pohjolankatu 36 in the foreground [Photo by Jussi Tiainen].

1920 with great haste and little money, proceeding from north to south. The houses of both the PHC and the two cooperatives consisted of dwelling types developed by Martti Välikangas. Each of the single-family houses, built later, were designed by him.

When Martti Välikangas designed Käpylä, he was not yet the chief architect of the National Board of Public Building,[22] but a young man with no recognized professional skill or rank. He started planning Käpylä at the age of 26. By the time he turned 32, in 1925, nearly everything had been completed. In the first year, 77 residential houses were built. Although the pace slowed down in the following years, by the time the area was built-up, it comprised a total of 165 buildings.

We may well ask how the planning of an entire district could be entrusted to someone so young and inexperienced. One possible reason is that older architects may have been uninterested in designing modest houses in such a remote location, as Käpylä was at the time situated quite far from the built-up city.[23] Another reason was that Välikangas had one exceptional merit: after graduating in 1917, he had worked for six months in the southern Russian town of Yuzovka (formerly Stalino, now Donetsk in eastern Ukraine), designing standardized housing for an industrial facility (Figure 5).[24]

[22]He served as senior architect at the National Board of Public Building from 1937 to 1940.
[23]Martti Välikangas, interview by Merja Kuosmanen and Asko Salokorpi, October 12, 1971. See *Rakennustaiteen seuran haastatteluja*, 151–172.
[24]Keinänen and Paatero, eds., *Martti Välikangas 1893–1973 Arkkitehti*, 13 and 99. On Välikangas's life, see Stewart, *Nordic Classicism Scandinavian Architecture 1910–1930*, 141–145.

Figure 6. Map of the Käpylä estate featured by streets' names and number of the housing groups [Drawn based on original site plan: Sonja Äärilä, Pekka Heikkinen /Aalto University].

Pohjolankatu, main street of the district

Plot and building boundaries were not defined in the Käpylä town plan, nor was it necessary to follow other building regulations.[25] This meant that credit for the varied grouping of the buildings goes to their designer, Martti Välikangas. He nuanced the sides of the housing blocks by introducing slight variations. A prime example is Pohjolankatu, which can be considered the most monotonous street in the area. Driving at speed through Käpylä along the thoroughfare, one can draw a hasty conclusion that the area has a repetitive grid. There are in fact only three houses on the north side of the street that are built right up to the street frontage. In two blocks, all buildings are set back about three metres from the street.

Roof shapes vary as well: in block no. 810 (see Figure 6), all buildings have pitched roofs, in the next block the first building has a pitched roof, while the next two have hipped roofs. The building at number 20 features a roof that is hipped at the west end but gabled at the east end. The corner house in block no. 812 has a pitched roof, but the next three buildings have hipped roofs, and no. 30

[25]Martti Välikangas, interview by Merja Kuosmanen and Asko Salokorpi, 12 October 1971. See *Rakennustaiteen seuran haastatteluja*, 151–172.

has a pitched roof again. The street façade of house no. 26 in the middle of the block has a gabled end. Further variety is added by colours and classicistic decorative motifs.

Plank fences

The plank fence is a cohesive force in Finnish wooden towns, gathering loosely scattered buildings into urban blocks. Walking along Pohjolankatu, one easily gets an impression that the plank fence performs the same function here as well. On closer inspection, however, one finds that there are only three blocks on Pohjolankatu featuring a closed plank fence that obstructs the view: two blocks on the north side of the street and one on the south side. The effect is strongest at blocks no. 813 and 816, because the fences there are on opposite sides of the street. Of the total of twelve stretches of plank fence, only two are on the south side of Pohjolankatu.

The most robust plank-fence configuration can be found at block no. 810, where the section of the fence parallel with Sampsantie features the finest arched entrance in the entire district. Fence heights in Wooden Käpylä range from barely two metres to about four metres, and each section includes either an open entrance or a plank door. There are also plenty of low lattice fences in the area that do not obstruct the view and are mainly obstacles to access.

Squares and yards

Välikangas was interested in the art of town planning. Using the spatial arrangement of buildings, he designed yards, squares, and visual endpoints to streets. Välikangas's entry into the planning process in April 1920 seems to have also led to changes in the plans for zoning and subdivision. Mielikintie road, which cut through blocks number 823 and 824, was removed and was replaced by Osmonkuja with its open squares and false perspective. The finest example of these vista terminations is the gable front with pilasters at Pellervontie 10. For Välikangas, a shortcoming in the town plan for Käpylä was its lack of a small central square with shops.[26] He appears to have tried to rectify the situation by using buildings to define squares. He also had a penchant for false perspective at urban and architectural scale, as shown by his design for the lobby of cinema Bio Athena (now Orion) in Helsinki (1927) and in his entry competition for the Temppeliaukio Church (1936). In Käpylä, a fine example of false perspective is at block no. 824 along Sampsantie, where five buildings are positioned to create the appearance of a garden square, or rather a yard, at the end of which is a residential building with a baroque roof. A particularly successful instance of a pseudo-square is the complex of three houses in block no. 824 along Pellervontie that are connected by two colonnades. A more modest solution is the rectangular yard bordered by six houses in blocks no. 817 and 825, bisected by Pellervontie (Figure 7).

The best embodiment of Välikangas's idea of a square is the widening of Pellervontie at blocks no. 819 and 823. One of its corners is closed, and there are three business premises at Pellervontie 11. A small pseudo-square of the same shape was also created in the middle of Osmonkuja. The purpose of these square or yard compositions was apparently to alleviate the monotony that would result from siting buildings only along the street. It should also be noted that Välikangas was able to affect these deviations from the plan even though he designed houses for two different developers, such as the group of six houses on both sides of Pellervontie mentioned above. The northern half of the square belonged to the PHC, and the southern half to the Käpylä housing

[26]Ibid.

Figure 7. False perspective, Sampsantie 13 A-D [Photo by Jussi Tiainen].

cooperative. Similarly, the east side of Joukolantie, bordered by house ends, belonged to the Käpylä cooperative, and the west side, to the PHC (Figure 8(a,b)).

Dwelling types

The simple building and dwelling types in Käpylä have earned Martti Välikangas a reputation as an early rationalist and standard-setter. Credit for these features, and especially for the new system of element construction of the houses, wherein a frame of vertical posts was stacked up with horizontal logs, was attributed by Välikangas to architect Akseli Toivonen.[27] Toivonen subsequently became a long-term manager of the PHC.

The mission of the PHC was to alleviate the housing shortage for the poor. Consequently, the first rules drawn up for the company's buildings allowed only dwellings with no more than two rooms and a kitchen.[28] The most common building types had four dwellings, each with one room and a kitchen, two on the lower floor and two on the upper floor. In May 1923, however, the rules were altered to allow also dwellings with three rooms and a kitchen.[29] All buildings of the Käpy cooperative were of the type with only two dwellings. Each dwelling had a room and kitchen on the lower floor and one room on the upper floor, regardless of whether the building had a pitched or a mansard roof. Each flat had its own staircase and front door. The rooms

[27]Ibid.
[28]*Osakeyhtiö Helsingin Kansanasunnot*.
[29]Ibid.

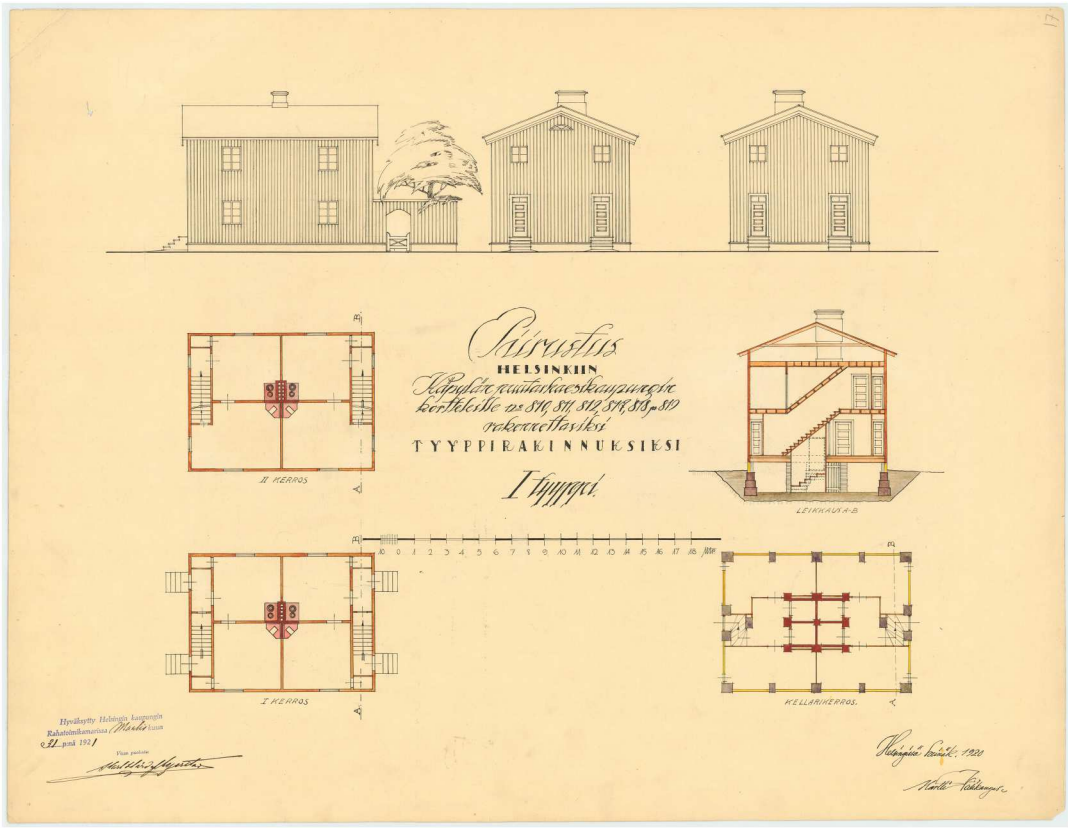

Figure 8. (a) Type-planned apartment building I. Four-single-room apartments on two floors. The only amenity is direct access to the yard. The first houses also lacked porches [Martti Välikangas, PHC. People's Housing Company Ltd. Archives].

were grouped around the chimney, to which ovens and stoves were attached. The last blocks completed featured a broader range of dwelling types and effectively changed Wooden Käpylä from a mere working-class residential area to a more middle-class one. The new flats even had their own indoor toilets (Figure 9(a,b)).

Porches

Almost every dwelling has a covered outdoor space of its own, a porch or veranda in front of the entrance. Although the space can be recessed into the building frame, it is usually attached to the side of the house. Projecting porches are either hexagonal or rectangular. Some are clad in the same ribbed weatherboarding as the house itself, but with vertical openings cut into the boarding, usually ending in round openings. Another basic solution is a canopy supported by slender wooden columns, with the supporting section of the wall cut into gently curving arcs connecting the columns, as if in imitation of a vault. The columns are usually slightly tapered in *entasis*,[30] and are often painted blue or turquoise, giving the yards a light and playful feel. Porches are located at the end of a building and on the side facing the yard, almost never on that facing the street. They

[30]For a definition, see Britannica: https://www.britannica.com/technology/entasis (accessed 15 October 2023).

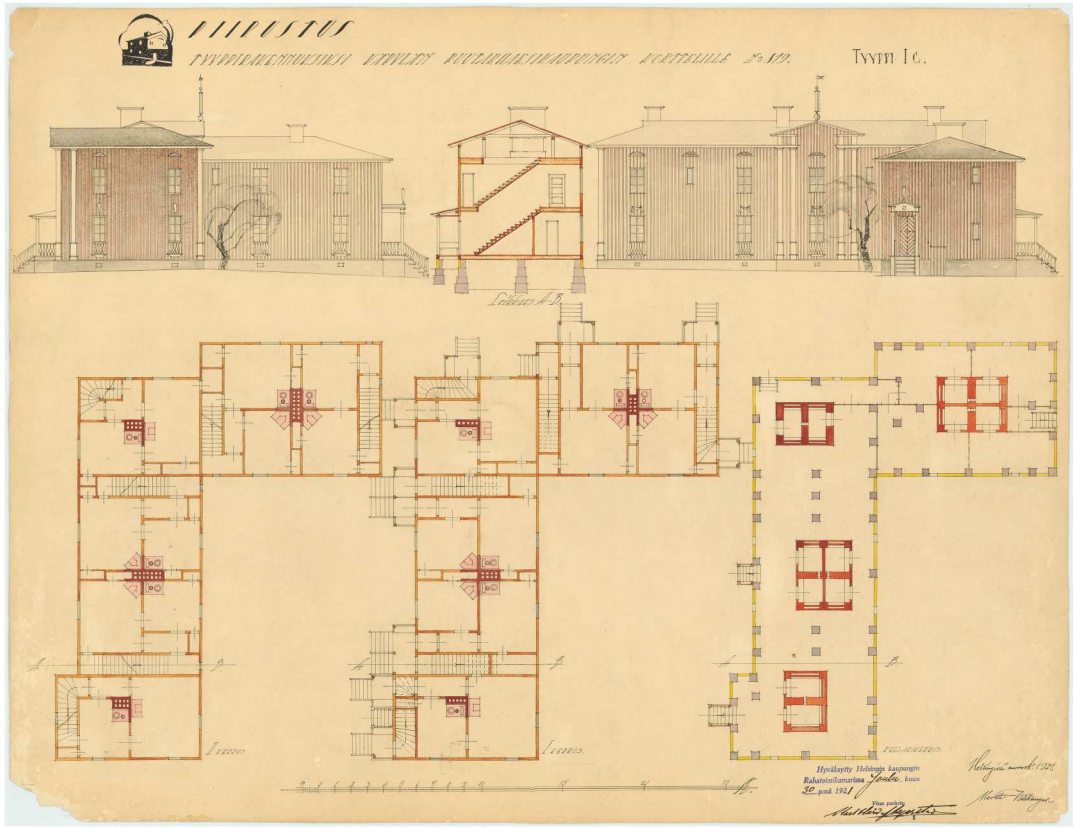

Figure 8. (b) Type 1C is an L-shaped building with apartments comprising a single room and kitchen. Pellervontie 10 [Martti Välikangas, PHC. People's Housing Company Ltd. Archives].

successfully enrich the simple basic volume of buildings. The porch of a single-family house could also be formed into a colonnade or a round gazebo (Figure 10(a,b)).

Cladding

Timber houses in the early nineteenth century were built in the neo-classical Empire style. They had a single storey and generally horizontal cladding, which gave them the desired horizontal feel and gravity. The houses in Wooden Käpylä, on the other hand, have two storeys and vertical cladding, creating a light, ascending impression without unnecessary weight. Verticality was the ideal of 1920s classicism, visible in the endings of the Suomenkielinen Työväenopisto (Helsinki Workers' Academy) or residential buildings on Mäkelänkatu street, both designed by the architect Gunnar Taucher (1886–1941). Whereas Empire-style horizontal cladding was made of wide planks joined together, the façades in Wooden Käpylä consist of narrow vertical boards. The number of vertical lines is further increased by narrow battens nailed on top of each vertical seam. Some houses are clad only with this simple boarding, while adjacent houses have cladding that can be accentuated with plank pilasters at the corners and occasionally also on the long sides. Sometimes the corner is accentuated by no fewer than three pilasters. The most interesting cases are the houses at Pellervontie 17 and 19, which have plank pilasters only on the ends facing the neighbouring

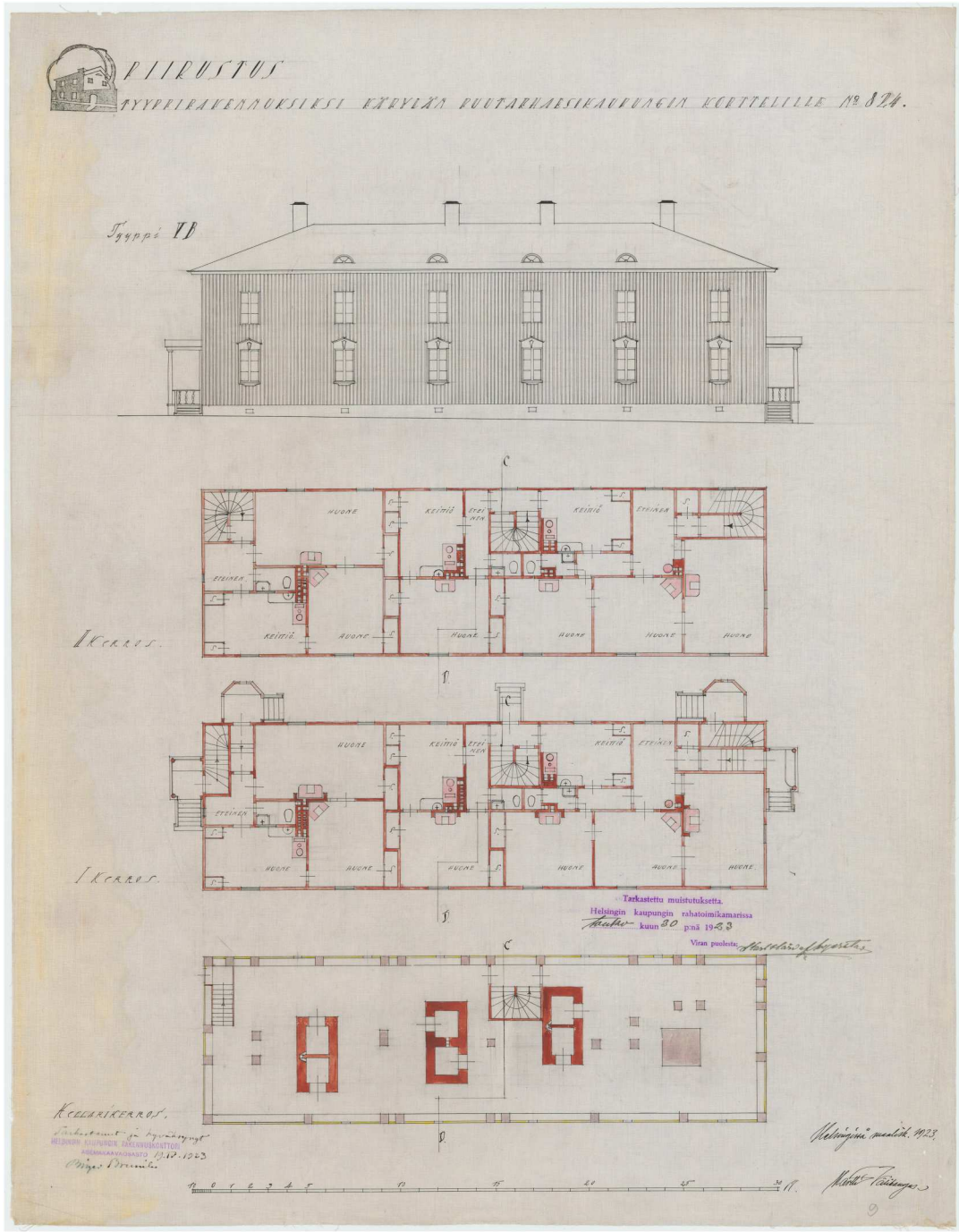

Figure 9. (a) House type 5B in the block 824 in 1923. It comprises apartments of one, two and three rooms and kitchen. All the apartments have indoor toilets. [Martti Välikangas, PHC. People's Housing Company Ltd. Archives].

building. With these markings, the houses form a monumental gateway from the sports field to the yard.

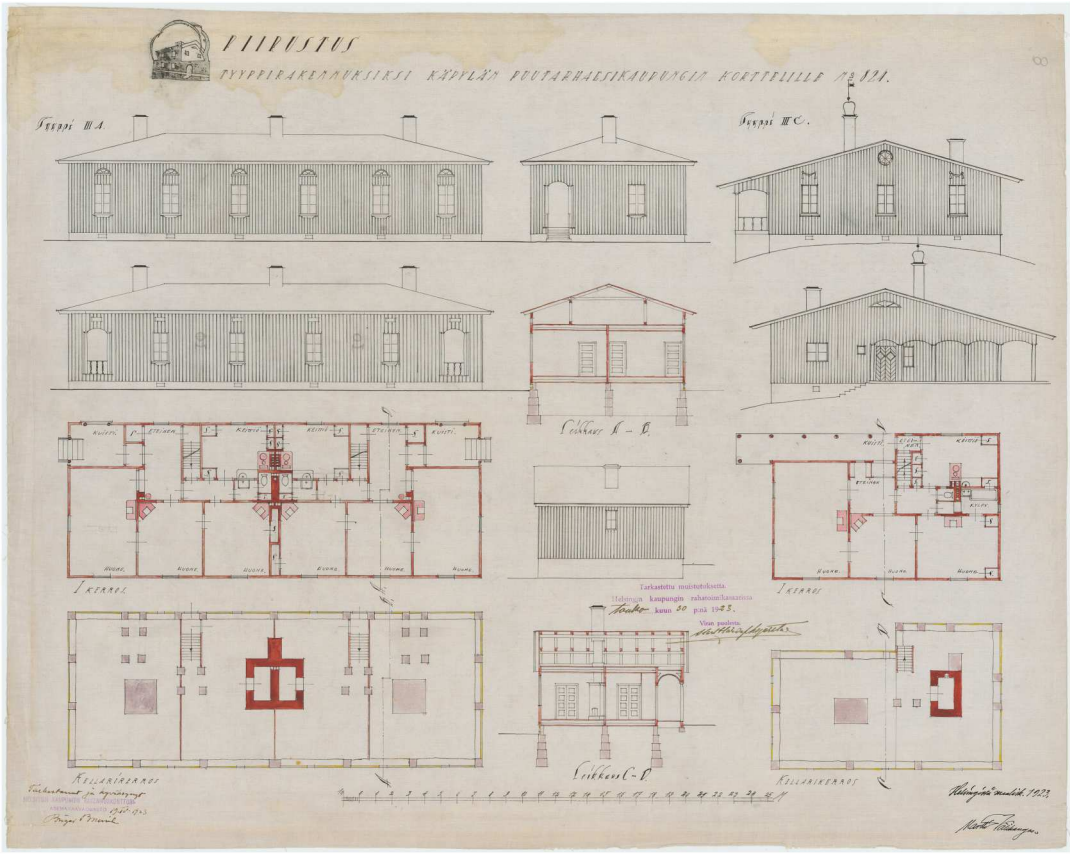

Figure 9. (b) House types 3A and 3C [Martti Välikangas, PHC. People's Housing Company Ltd. Archives].

Roofs

Välikangas was later criticized for using nothing but gently sloping pitched roofs. As an examination of Pohjolankatu shows, however, he knew how to create variation between them as well. The accusation seems particularly unreasonable when one looks at houses at Nyyrikintie 7–21 or Joukolantie 10–16. They all have gambrel roofs that range from the plump and baroque to majestically tall art nouveau shapes. In block no. 822, Välikangas designed tall gambrel roofs for only two houses located highest on the hill, one along Kalervonkatu and the other on Osmontie. The purpose of the tall roofs was to emphasize the surrounding natural landforms.

Decoration

Välikangas's decorations for the houses he designed featured classical elements, including pediments and columns – for the latter of which residents soon found a practical use: hanging up laundry to dry. There are medallions, vases, shields, keystones, festoons, lilies, acroteria and fasces – always with variations. Välikangas seems to have had a lot of fun creating these visual conundrums – does the motif represent the *fasces* of a stern Roman *lictor*, or is it a piece of candy in a wrapper? The façade decorations in Wooden Käpylä are wooden appliqués. They are almost flat, just the thickness of a

Figure 10. (a) The end is longer than the elevation, Sampsantie 11 [Photo by Jussi Tiainen] (b) Detail of the cladding and entry, Osmonkuja 8 [Photo by Jussi Tiainen].

board – like silhouettes of a classical motif. Most of the windows are vertical and with six panes, often with rich mouldings. Some of the windows facing the yard are horizontal with nine panes and no trim. Many vertical windows have a frame that creates the impression of a French balcony, with the field below the window resembling either baluster columns or slender vases. Frequently the handrail of outdoor stairs or terrace is supported by a vase-shaped wooden post.[31]

In addition to the variety of shapes and details, the buildings' individuality is achieved with colour. The finish can be traditional red ochre, manorial yellow ochre, or a mixture of the two,[32] or, free from any tradition, blue or turquoise oil paint. These hints were discovered by one of the building conservator Thorvald Lindquist, who studied the original colour scheme for the renovation of Wooden Käpylä in the early 1970 (Figure 11).

Saunas, laundry rooms, bakery rooms and lavatories

All blocks of the PHC and the two cooperatives had a separate sauna building in the middle of the block. Block no. 817 notably had five laundry rooms and one room with a communal baking oven. Saunas usually consisted of two large steam rooms with a stove and a boiler for heating water. Washing was apparently done in the steam room. Both steam rooms had their own dressing room. Given the minimal amenities in the first blocks that were built, communal saunas were the only places for washing. Blocks had a single water tap, which was situated in the sauna building.

The buildings were simple rectangles with a pitched roof, and their brick walls were plastered. The attic above, used for drying laundry, was made of wood, and the façades were clad with horizontal boarding.

There was more on the blocks than just greenery and well-tended vegetable patches surrounded by wooden houses: there were also many outdoor lavatories. Only houses built after 1923 had an indoor water closet. In the first blocks to be completed, however, each dwelling

[31]The slender vase was apparently favoured by Martti Välikangas, as he also used it as the eaves decoration of his house at Töölönkatu 14, Helsinki (completed in 1924), which is quite exceptional.
[32]Thorvald Lindquist, interview by Simo Paavilainen during the renovation works, 1971.

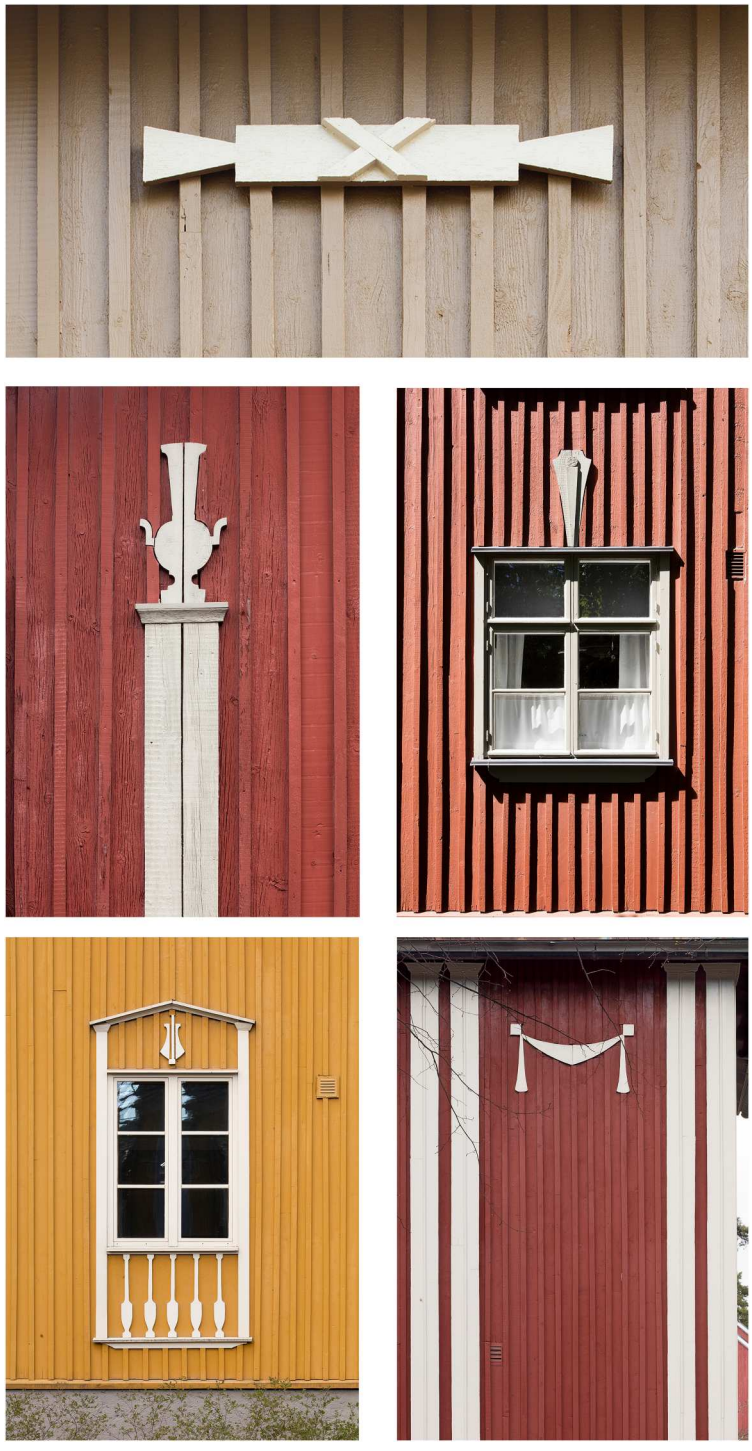

Figure 11. Collage of decorations (clockwise order): lictor's fasces, festoon between pilasters, keystone ornament above window, pilaster with urn on top and French balcony or window with balusters? [Photo by Jussi Tiainen].

seems to have had its own outdoor lavatory. Välikangas designed them as carefully as he did the porches. The lavatories were placed in short or long rows under a canopy supported by wooden poles in front and often with a round aperture at both ends, for light. Each individual lavatory had its own door and apparently a key as well. In block no. 817, for example, nine lavatories were built.

Single-family houses

In the single-family houses Välikangas designed for Wooden Käpylä, he revealed, if not his true self, at least another side of himself as designer. With the exception of two houses (at Nyyrikintie 21 and Sampsantie 11, both built in 1923), all single-family houses were in block no. 823, which was the last to be completed. The houses were all privately owned. As funding became easier and perhaps the construction schedule as well, Välikangas decided to have some architectural fun. He gave up balanced, stable volumes. His compositions, the grouping of volumes, became bold, wild and unconventional – qualities that his colleague Hilding Ekelund said Välikangas had displayed already in his works in architecture school.[33] In these buildings, Välikangas presented his own interpretation of classicistic architecture, giving a very personal twist to its general principles – an attitude familiar from Gunnar Asplund's work, especially his Villa Snellman (1918), whose façade is deliberately naive. A house can have 'eyes', or it may 'close one eye' (Pellervontie 9 and Osmonkuja 7). Välikangas endowed the buildings with human characteristics and appealed to the viewer's emotions beyond merely the sense of beauty.

Välikangas made use of symmetry, asymmetry and combinations of both. He created asymmetrical compositions from symmetrical components (Osmonkuja 5, Sampsantie 20, Pellervontie 7 and 9). He created houses whose gable end is wider than the side (Sampsantie 11, Osmonkuja 1 and Osmontie 21).[34] A house can be weighed down by heavy eaves (Osmonkuja 1) or lightened by a Chinese pagoda roof (Pellervontie 7). Chinese architectural features were a secondary theme in twentieth century classicism, but always in eighteenth century form, such as it appeared in the gazebos of manorial houses, for example (Figure 12).

The houses in block no. 823 are all different in appearance and all but three are asymmetrical. But there are similarities in their interior. Entering from an asymmetrical porch, you reach an anteroom or hall, which may have a wooden barrel vault ceiling. There are doors at either end of the hall, and the staircase is at the opposite end of the entrance. There are usually two rooms upstairs but only on one side of the hallway. One moves from asymmetry to symmetry and ascends from there to asymmetry again. This also gives the house an asymmetrical exterior (Osmonkuja 7 and 8). If the exterior of a house is symmetrical, there is seldom anything symmetrical inside (Osmonkuja 4).

Välikangas made his first trip to Italy in 1921. He was particularly impressed by Gubbio,[35] a medieval town on the slopes of Monte Calvo in Umbria, where the houses often look forbidding because they have windows only on the upper floors. Signs of this proclivity can also be seen in Käpylä (Pellervontie 9). A house can also be gloomy and scary (Pellervontie 35). Buildings are usually composed of just a few simple dwelling types, but that does not prevent the house from having a surprising exterior or varying spatial configuration.

[33]Hilding Ekelund, interview by Simo Paavilainen, September 22, 1980.
[34]It is probable that he modelled it after the Listers Härads Tingshus (Sölvesborg Courthouse) designed by Gunnar Asplund in 1921.
[35]According to Hilding Ekelund, "Gubbio was Martti Välikangas's discovery". See *Arkkitehti-lehti*, No. 1 (1981): 30.

Figure 12. Windows only on the upper elevation of the building. Pellervontie 13 at the corner of Sampsantie and Pellervontie [Photo by Jussi Tiainen].

Critical reception

Despite all the skill, ingenuity, adherence to or subversion of tradition, Välikangas later remarked that 'when the houses in Käpylä began nearing completion, everyone, both the "general public" and the authorities agreed that the buildings were ugly'. And further, 'that the identical boxes and "flat roofs" dictated by the cheapest available roofing material, asphalt, was frowned upon'. These and the 'plank fences connecting the buildings and the vivid earth colours used for finish' were 'too new to be digested'.[36] One of the critics was Karl Hård af Segerstad, the first city architect of Helsinki (1907–1921), whose job was to inspect and approve with his signature the drawings for buildings to be constructed on land leased from the city. These also included the plans for Wooden Käpylä.

Nordic parallels of the Käpylä house types

Architects' interest in the modest dwelling was a new phenomenon of the era. It was spawned by the rise of socialism and the need to improve housing conditions for the working class. In Denmark, an association called Akademisk Architektforenings Tegnehjælp (Architect Association's drawing assistance) had been founded in 1908 under the endeavours of Poul Holsøe (1873–1966).[37] The idea was that citizens planning to build a house for themselves could send their

[36]Martti Välikangas in *Käpylä-lehti*, No. 4 (1960). See also Martti Välikangas, interview by Merja Kuosmanen and Asko Salokorpi, 12 October 1971, in *Rakennustaiteen seuran haastatteluja*: 151–172.
[37]Pallasmaa and Paavilainen, ed., *Poul Holsøe*, 62–63.

drawings to the association, where architects would ensure that the plan was technically and aesthetically sound. Under this system, a certain type of house emerged in Denmark, of which examples abound around Copenhagen, for example.

In Sweden, worker housing was explored by many architects in various contexts, such as exhibitions of the Svenska Slöjdföreningen (Swedish Society of Crafts and Design; today Svensk Form). For example, Gunnar Asplund (1885–1940) Uno Åhren (1987–1977) and Carl Malmsten (1888–1972) designed a kitchen for the 1917 *Hemutställningen* (The Home Exhibition.)[38] The same year Asplund drew up a plan for an emergency housing estate in the Stockholm southern district Södermalm for a block named Stativet och Tumstocken.[39] Intended as a temporary solution, the houses were meant to ease the severe housing shortage of the working class. Their only resemblance to Wooden Käpylä was the gently sloping pitched roofs and vertically boarded colourful façades accentuated by light-coloured pilasters. The grouping of the buildings was completely different, however: instead of a meandering line of houses, the Swedish had an orderly row of short lamellar buildings. The grouping was old and new at the same time; the parallel volumes were perhaps an early intimation of functionalism. However, the area was demolished in 1965, just as interest in wooden towns was emerging. Regarding the grouping of houses, more closely related to Wooden Käpylä was Holtet Haveby (1924–1928) designed by Jacob Christian Kielland (1897–1972)[40] in in Oslo, or the housing area of which plan was designed by Sven Markelius for the *Bygge och Bo* housing fair (1925) in Lidingö, where many leading Swedish architects proposed a 1:1 prototype of villa.[41] However, the buildings there are plastered, the dwellings have 3–5 rooms, and the area has a very middle-class feel. As the fair was held the same year that Wooden Käpylä was completed, it could not have served as a model for Välikangas, but rather the opposite.

Käpylä church design competition 1927

Välikangas did not get to design a market square with shops for Käpylä, or to build the church, the dominant building in the area. The design competition for the church[42] was held in 1927, and its key jurors appointed by *Suomen Arkkitehtiliitto* (Union of Finnish Architects) were Oiva Kallio (1884–1964) and Johan Sigfried Sirén (1889–1961), both renowned professionals – Sirén was working on the design of the Helsinki Parliament Building at the time. The first prize was shared between Välikangas and Ilmari Sutinen (1892–1947). The decision was made to implement Sutinen's proposal called *Preludio*, although the jury report states bluntly that its full-wall window behind the altar was 'unfeasible'. But the proposal was new, forward-looking and anticipating of functionalism. Välikangas's proposal, submitted under the alias 'Cubby', would nevertheless have been better, considering the overall environment of Käpylä. The report gave it a brief appraisal: 'Church Hall very beautiful. Impressive façade'.[43] The proposal's narrow, tall and long volume represented 1920s ideals and was typical of Välikangas's work. Välikangas's proposal was reminiscent of an unrealized plan for the Helsingborg crematorium that had been on show in Malmö, presented by Sigurd Lewerentz (1885–1975) and Torsten

[38]Wollin: *Hemmet och den moderna smaken i Sverige*, 56–57.
[39]Svenska Arkitekters Riksförbund, *Gunnar Asplund Arkitekt 1885–1940*, 36; 86.
[40]See Hopstock, "Holtet Haveby – en rød bydel?" 130–141.
[41]Hultin, ed., *Guide till Stockholms arkitektur*, 192.
[42]"Käpylän seurakuntatalokilpailu", 4–12.
[43]*Arkkitehti*, No. 1 (1928): 8.

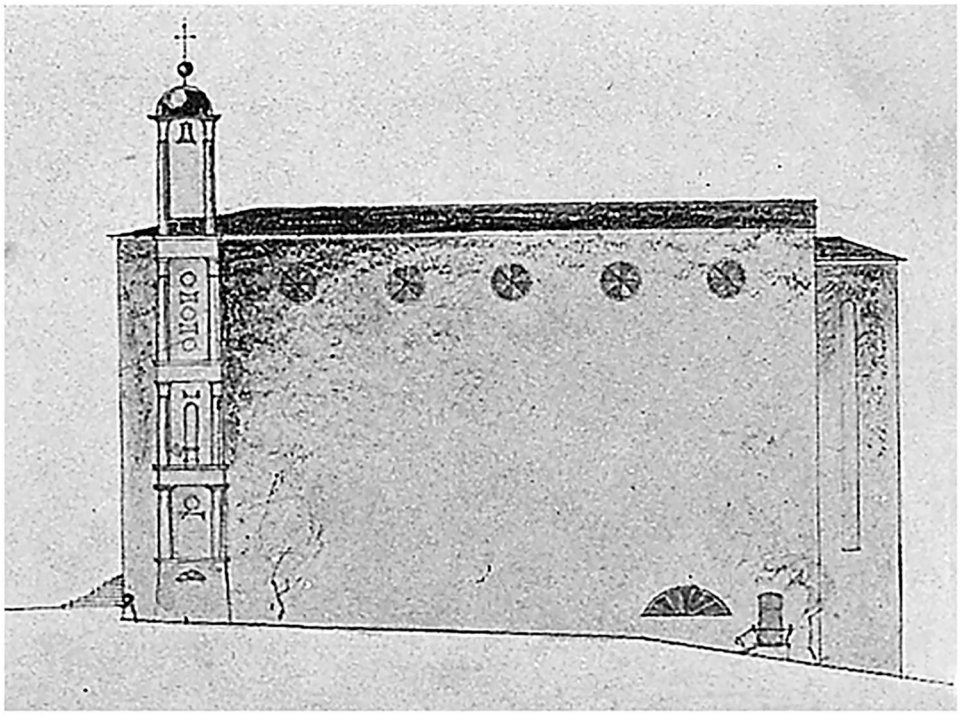

Figure 13. The long façade of Martti Välikangas's competition proposal 'Cubby' for Käpylä Church in 1927 [*Arkkitehti*, No. 1 (1928): 6].

Stubelius (1883–1963) as early as 1914.[44] Välikangas's plan had a similar volume with a hipped roof and plastered walls set on a slope, the same round windows in the upper part of the wall, and even a segmented window on the lower-floor sacristy hinting at the shape of the bridge in the Helsingborg plan (Figure 13).

The architecture of 'Cubby' was already old-fashioned at the time, but it still had the energy of the pioneering days of classicism. The district of Käpylä would have needed that rather than the cool whiteness and edginess of functionalism.

A garden suburb built on forest land

Wooden Käpylä was built on varied terrain on former lands of Kumpula Manor. Back in the 1910s, it was still an unbuilt area outside the city. Prior to development, the landscape was a mosaic of forested, rocky ridges and low-lying arable land, and partly wetland poorly suited to construction. The zoning and housing design resulted in a parklike residential area with low wooden buildings. In keeping with the garden-city ideology, the street blocks featured large yards and individual allotments, which, under the lease agreement, the tenants were required to cultivate.

The design of the yards and the organization of their collective maintenance was entrusted to Elisabeth Koch (1891–1992),[45] a garden consultant of the city. Her role in the Käpylä project

[44]Bergsten, "En projekterad krematorieanläggning för Helsingborg," 111–118.
[45]For further details, see concluding paragraph in "Appendix. Builders of Wooden Käpylä".

may have been the preparation of an overall plan for the plantings, trees and hedges in particular, and consultation of occupants on the management of their allotments. Prior to this, only one allotment area for workers had been founded in Helsinki, in 1918.[46]

At the beginning of the millennium, 40 years had passed since the last renovation of the buildings and yards in the blocks of the PHC. A second round of renovation was launched in the blocks of the PHC, and it also included improvement of the yards.

Following a survey, the principles of renovation were laid down, identifying the original valuable features and characteristics of the yards to be preserved under the new detailed plan. The original features from the 1920s are still identifiable in the yards and their surroundings. An examination of the yards and the streetscape reveals a landscaping composition in which motifs consisting of gate-trees, tree rows and hedges are part of the townscape along with the buildings and picket fences bordering the yards.

The plan aimed to restore certain features of the landscape composition (gate-side tree rows, etc.) and renovate the buildings. The yard restoration met with a challenge when it emerged that the protection objectives necessary to preserve the valuable features clashed with residents' wishes: When the renovations in the 2010s started, the previously open and airy blocks had in many places become overgrown and even shaded. Some of the residents were happy with the lush appearance, while others wanted more sunlight exposure to be able to grow vegetables in their own yard.

Wooden Käpylä is a garden suburb that was built a hundred years ago, yet even today the key characteristic of the blocks that form the heart of the district is their yards with cultivated allotments and their lush vegetation and trees. The large gardens provide the current residents with recreation, beauty and apples, berries, vegetables, potatoes, and other root vegetables, just as they served the people who set up gardens on former wetland (Figure 14).

Building Wooden Käpylä in an era of reform

Wooden Käpylä was designed and built at a time when architecture, timber construction and society were all in turmoil. Functionalism was emerging, the traditional method of construction based on horizontal logs was changing following the development of the sawmill industry, and better solutions were needed for working-class housing. Moreover, timber was available at affordable prices.

In addition to a high-quality residential environment, another goal of the Wooden Käpylä project was affordability. The need to keep costs down could have led to the use of simple and conventional solutions, but that was not enough for Akseli Toivonen, who had come up with the idea of a new kind of residential area, or for Martti Välikangas, who would design the buildings. They both wanted to modernize timber construction and improve the architecture of small dwellings.

The beginning of the 1900s was a propitious time for reform in the construction sector. The identity of architects as artists was expanding, and they were beginning to play a more active role in the renewal and development of construction in Finland. This coincided with a reform in the education of architects, as a part of which the Polytechnic Institute (Polyteknillinen Opisto) became the University of Technology (Teknillinen Korkeakoulu) in 1908. New techniques and

[46]The next one was established in 1927, and several more after that. https://www.helsinginsiirtolapuutarhat.fi.

Figure 14. Four-apartment houses on Pohjolankatu 9, 11 and 13, yard elevation [Photo by Jussi Tiainen].

ideas were adopted from Europe and especially from North America. Construction technology was making great strides, and architects assumed broader responsibility for design.[47]

Along with other developments in construction education and technology, the period saw a surge in new learning materials and textbooks on timber construction. Timber construction was still primarily viewed through the lens of traditional log construction, and the balloon frame, developed in North America, was considered 'cheap building' unsuited to the climate in Finland.[48] Because of the poor availability and high cost of sawn timber, a light frame made with 2×4-inch scantlings, or 'two-by-fours', was not yet competitive compared with traditional log structures.

Akseli Toivonen and Martti Välikangas both participated actively in the debate on and the practical development of the quality of construction. They played a key role in the creation of the new kind of garden city exemplified by Wooden Käpylä.

Innovative and sensitive yet rational and affordable

In his capacity as secretary to the Social Committee of the City of Helsinki, architect Akseli Toivonen worked with determination for the construction of a new kind of garden city. The newly established People's Housing Company[49] was tasked with the construction of a residential area of high architectural and social quality. Architect Martti Välikangas became involved in 1920 when he was elected to design the residential buildings in the area.

[47] Jeskanen, *Kansanomaisuus ja rationalismi. Näkökohtia Suomen puuarkkitehtuuriin 1900–1925*.
[48] Arkkitehtitoimisto Jouni Berg, *Heka Puu-Käpylän korttelin 811 rakennushistoriaselvitys*.
[49] Helsingin kansanasunnot, *Osakeyhtiö Helsingin Kansanasunnot*.

According to Akseli Toivonen, the mission in the design and construction of Wooden Käpylä was 'an almost obsessive quest for frugality'.[50] As Toivonen was the treasurer of the newly founded PHC, meeting the cost target was important for him.

In order to achieve the goal, Toivonen developed a new type of construction system based on the standardization and prefabrication of timber components. In addition to low cost, the system also aimed at greater speed of construction. The new system was tested in the construction of 46 houses in the first phase of the building of Wooden Käpylä, in 1920–1921.

Martti Välikangas was given free reins to design the layout and buildings within the framework of the previously drawn-up town plan and the new construction system. It was the first independent design project of the then 26-year-old architect, and because of the severe housing shortage, the project had to be completed on a very tight schedule. Välikangas quickly internalized both the cost objective and the idea of standardized production, developing a simple, two-storey house type with variations.

Martti Välikangas was commissioned to design the buildings in April 1920, and the first occupants moved in already in November of the same year. By today's standards, the tight schedule may seem astonishing; however, the shape, layout and structure of the buildings Välikangas designed were so simple as to make it feasible. The frame of a two-storey building was completed by four men in two weeks, and external cladding and trimming were in the traditional manner left to the following year. There were no amenities, no water pipes or sewers, and finishing components could not have taken much time to install. The blocks constructed in the first phase were completed in May 1921, which corresponds to the normal pace of construction today.

The speed of construction was largely due to the highly developed prefabrication system, but certainly also to the simple four-dwelling building configuration developed by Välikangas. All dwellings initially consisted of one or two rooms and a kitchen, and each one had direct access to the yard via a private porch or indoor stairs. Situated at the end or corner of the rectangular volume, the stairwell served as a semi-warm buffer zone. Later additions to the building, such as projecting or retracted porches, imaginative decorations and varying flat roofs, made the box-like buildings personal and interesting (Figure 15).

Novel system of log construction

The construction method developed by the architect and secretary of the Helsinki Social Welfare Board, Akseli Toivonen (1887–1953),[51] for Wooden Käpylä is a hybrid between the pillar-and-beam structure and a traditional horizontal log wall and bears a resemblance to the corner-post construction rarely found in Finland. The system differed from the traditional horizontal log structure commonly used in Finland. Similar constructions were used hundreds of years ago in stave churches in Norway, but especially in early twentieth-century wooden houses in Sweden. Toivonen's system has in fact been described as a cross between Finnish building tradition and the Swedish plank house.[52]

The system is based on vertical posts mounted on sleepers between which infill logs with a groove at the end are laid horizontally. It is an adaptation of jambs used for window and door openings in traditional log frame buildings which allow the horizontal logs to shrink and settle freely between the vertical posts.

[50] Arkkitehtitoimisto Jouni Berg, *Heka Puu-Käpylän korttelin 811 rakennushistoriaselvitys*.
[51] For further details, see concluding paragraph in "Appendix. Builders of Wooden Käpylä".
[52] Jeskanen, *Kansanomaisuus ja rationalismi. Näkökohtia Suomen puuarkkitehtuuriin 1900–1925.*

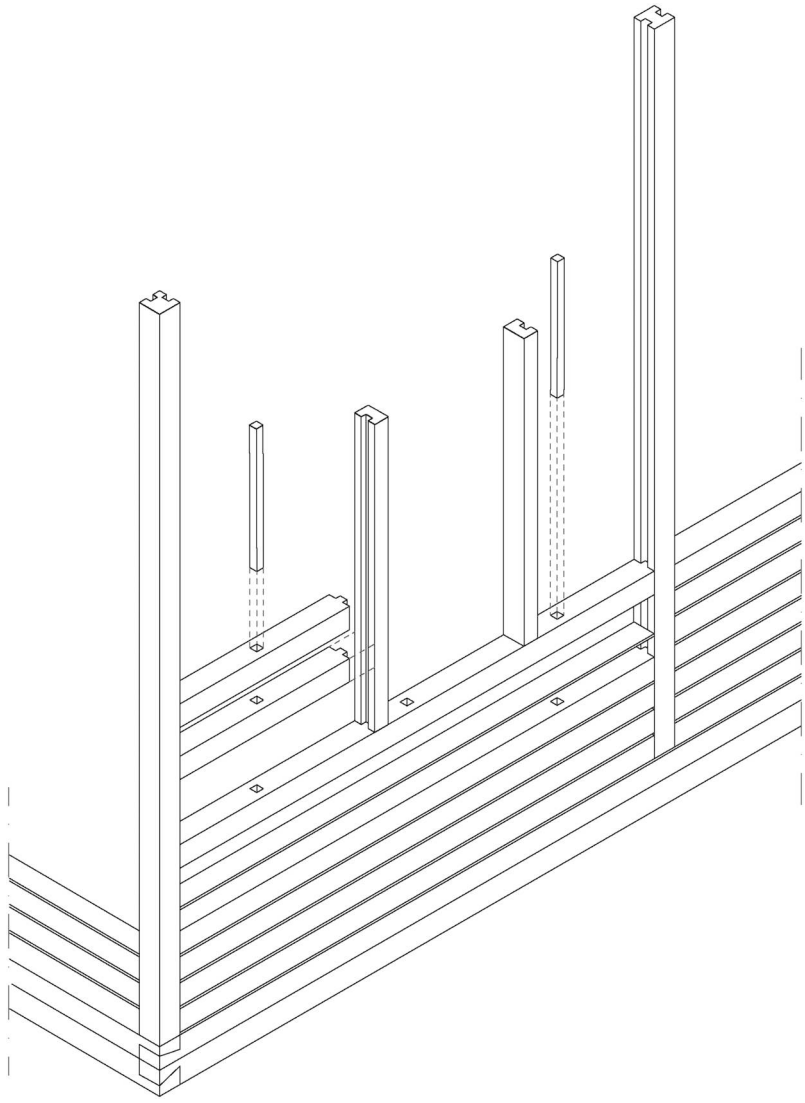

Figure 15. Axonometric scheme of the Toivonen's structure [Drawing by Sonja Äärilä, Anastasiia Pihlman, Philip Tidwell, Pekka Heikkinen /Aalto University].

In the first concept, vertical posts had grooves cut into them that fitted tongues on the end of horizontal logs and guided them into place as they were lowered between the posts. According to Toivonen, the solution circumvented the need to allow for compression resulting from drying and the weight of the structure itself.[53]

The sagging of the traditional horizontal log structure caused by drying was seen as a problem Toivonen had been looking to solve. A construction with vertical posts that allows components to move while drying cannot eliminate shrinkage and consequent structural compression of the wall. But it does highlight the difference between longitudinal and transverse shrinkage; in the longitudinal direction, the change is about one per cent, while in the transverse direction at least three

[53]Berg, "Puu-Käpylä korttelien 817–818 rakennus- ja korjausvaiheselvitys".

centimetres is allowed for shrinkage in a traditional log wall. In theory, this could result in a structurally weak wall, but thermal imaging conducted during a renovation in the 2000s did not reveal any thermal leaks in the walls. Quite surprisingly, the frame designed for inexpensive construction also survived bombings during the Second World War with relatively little damage.

The horizontal members of Toivonen's original wall structure were two inches thinner than the vertical, load-bearing members. This allowed for an enclosed air space on the interior side of the log wall, which was exploited as an additional thermal insulation layer. Horizontal battens divided the space into small fields, which limited the movement of warm air inside the structure and improved the wall's thermal insulation. The joints between the vertical and horizontal components were sealed with filler rope and caulk, and the wall was made airtight with tar paper on the outside and with building paper on the inner panelling.

In one alternative, the structure is a more traditional application of the jamb system. A separate guide piece is attached to the vertical post, and corresponding grooves are cut in the ends of the horizontal infill elements. In this solution, the vertical and horizontal components are the same thickness (four inches) and no air space is left on the inside.

The aim of the alternative was apparently to reduce the number of cutting operations, to better control the shrinkage caused by drying of the vertical posts and the loss of material due to the complex vertical profile of the corner post, and to simplify the structure. In this new solution, the corner post is considerably simpler than the original 6×6-inch vertical post with its 14 cut faces. Both solutions, as well as the third, intermediate form that emerged during construction, were used in the building of the area.

Regarding the improvement of the efficiency of construction, the vertical frame could have been dimensioned to fit fenestration – as was done later in the case of prefabricated houses of the enterprise Puutalo Oy (Timber Houses Ltd.) developed in the 1940s, where a vertical section of the wall is the same width as the window and forms a distinct element in itself. This would have done away with the extra jamb and short infill next to windows.

New ideas, traditional methods

The vertical log frame is an intermediate form in the evolution from a traditional horizontal log structure to the balloon frame developed in North America. Because of the poor supply and high price of lumber, Toivonen's system was founded on traditional log construction on which there were experts in Finland. With the development of industrial timber construction and sawmill industry, the technical means of construction would probably have been different two decades later.

The carpentry workshop Sörnäs Ånghyfleri & Snickeri Fabriks Bolag in Helsinki had begun manufacturing prefabricated villas already at the end of the nineteenth century, but Wooden Käpylä was in a completely different category because of its scale. Toivonen's key innovations included a construction factory set up in the centre of the district, where Akseli Toivonen sports field is today, and the standardization of prefabricated log components. The latter aimed at rapid construction and economical use of logs by minimizing waste. As there was no road to the area at the time, logs had to be transported to the site by building a railroad line from the nearby station to the factory.

The site factory was a well-equipped sawmill facility with a cross-cut saw, a frame saw and a circular saw, two planer machines as well as milling and drilling machines,[54] which allowed logs to be machined into fully assembled components. The concept made use of the traditional method of

[54]Helsingin kansanasunnot, *Osakeyhtiö Helsingin Kansanasunnot*.

Figure 16. Construction workers with a stack of pre-cut horizontal logs. The logs are ready to be mounted, with grooves on the ned and holes for pegs. In the background two of the first houses to be completed [Helsinki City Museum, Otto Wuorio, 1920].

starting work on the logs already in the forest, as well as new international ideas about industrial production of wooden houses. The sawmill was a significant investment, but it paid for itself in shorter construction time and lower costs. In today's money, an entire room was built for the current price of a few square metres (Figure 16).[55]

The building methods evolved in the course of construction, and in addition to Toivonen, others involved in their development included Martti Välikangas and construction foreman Otto Wuorio (1887–1964).[56] This was an unfortunate time for the improvements, however. As the sawmill industry developed, Akseli Toivonen's structural concept was superseded by the balloon frame, as was traditional log construction. Although Toivonen's method failed to attract attention at the time, Wooden Käpylä was nevertheless a significant project both in terms of its size and the fact that it involved the development of industrial construction in wood. No similar extensive districts were built after Wooden Käpylä, however, and the construction method developed for the area never became widespread, although it is undeniably an important, albeit relatively unknown, facet of the development of industrial timber construction in Finland.[57]

The ideas competition of 1960

Half a century after the completion of the area, the buildings in Wooden Käpylä had deteriorated owing to a lack of upkeep and maintenance, and it was suggested that the entire area be demolished, and old log buildings be replaced with new ones adhering to current standards.

[55] *Käpylä-lehti, No. 4* (1960).
[56] For further details, see concluding paragraph in "Appendix. Builders of Wooden Käpylä".
[57] Jeskanen, *Kansanomaisuus ja rationalismi. Näkökohtia Suomen puuarkkitehtuuriin 1900–1925.*

An ideas competition was organized[58] to find a suitable plan for the regeneration of the run-down housing area with new buildings, which would have meant demolishing the entire old stock. New public services or alterations of the street grid were required. The competition area included all other blocks except for number 823, which consists of detached houses on their own plots. A total of 19 entries were received, a relatively small number. In the jury, the People's Housing Company was represented by Birger Brunila, the original planner of the area. The jurors appointed by the Association of Finnish Architects were Erkki Luoma and Reima Pietilä. In the beginning of their report, the jury expressed satisfaction with the results of the competition 'to rebuild in the near future the existing area of Käpylä, a garden city which in many respects has become a model, without losing its key values in terms of town planning and architecture.'[59] One particular problem was the requirement to increase building density and thus also the number of residents in the area.

When the competition ended on 26 September 1960, its first prize went to architects Ahti Korhonen and Erik Kråkström and their assistants. Their proposal sought to solve the problem using just two types of dwelling: flats with two rooms with a kitchen and three rooms with a kitchen. This resulted in two-storey houses of different length, each consisting of four dwellings, with terraces and balconies connecting the buildings. However, the need for efficiency meant that rows of a large number of houses would have to be placed in the yards, which would have altered the characteristic feature of Wooden Käpylä, open yards. Although the concept of siting buildings along the street was followed in many places in the plan, most of the buildings were long garages. The separation of pedestrian and automobile traffic proved to be difficult anyway on account of the terrain. Many proposals included designated parking spaces for the residential blocks, and a few proposed a shared parking facility, an indication of the rapid growth of motoring.

Among the other proposals, the most interesting is *Cube Town* by Martti Välikangas and his assistants, which was awarded the second purchase award. The plan reveals which features of Wooden Käpylä Välikangas considered important to preserve. He solved the efficiency requirement by assembling the flats in long two-storey volumes that reached up to 100 metres in length or more along Pohjolankatu. That particular feature in the proposal was criticized, although it was noted that it would allow preserving the open yards. The long buildings were nevertheless cleverly broken into shorter sections with various recesses. Of particular note in the plan are six buildings on Joukolantie, their ends coming right up to the beautifully bending street.[60]

Välikangas has included the same grouping in his new plan, and the old wooden buildings could have remained in place. Another noteworthy point was the false perspective at Sampsantie, which Välikangas would have liked to preserve, albeit with new buildings. Other groupings preserved in his proposal were at the junction of Tapiolantie and Sampsantie and at Pellervontie Square.

Renovation wins out over new build plans

The threat of demolition made Bengt Lundsten (1928–),[61] then professor at Helsinki University of Technology, assemble a team of architecture students to draw up a renovation plan as an alternative to the demolition of the district. The restrained plan featured water closets with washing facilities in all dwellings as well as refurbished kitchens and cooking technology, while respecting the main characteristics of the old buildings. The new spaces were incorporated into the dwellings cleverly

[58]Käpylän puutaloalueen aatekilpailu, *Arkkitehti 1960*, 33–40.
[59]Ibid.
[60]*Arkkitehti 1960, kilpailuliite,* 3.
[61]For further details, see concluding paragraph in "Appendix. Builders of Wooden Käpylä".

and efficiently. The idea was to interfere as little as possible with the original character of the spaces. In addition to spatial arrangements, other renovation in the plan followed Toivonen's original aim of affordable housing; repairs were made only when necessary.[62]

Lundsten team's plan won out over newbuild plans and an alternative scheme commissioned by the PHC that was more thorough and more expensive. The renovation, which began in the early 1970s, was completed over a period of five years, and it saved the entire area. One significant outcome of this was the creation in 1971 of Helsinki's first master plan focused on conservation, which directed renewal of the existing building stock by means of renovation.[63]

Later, in 1986, a second phase of renovation was carried out according to Lundsten's plans. This focused mainly on the necessary external repairs and additional insulation.[64]

In 2006, a third, still ongoing phase of renovation was launched to refurbish and update the buildings to better meet contemporary requirements. The latest phase is characterized by the use of materials and solutions best suited to wooden structures. No major alterations are necessary, because four decades of neglect have taught residents how to upkeep the buildings, which has allowed the area to be preserved and the buildings to reach the age of a hundred years.

An oasis in the city

Writings about the design and construction of Wooden Käpylä radiate a strong sense of common purpose, commitment and enthusiasm that drove the pursuit of high quality regardless of low cost. Chief supervisor Akseli Toivonen was the driving force of the project, and the comment by Martti Välikangas that Wooden Käpylä was 'great fun as a design commission'[65] is evidence of an enthusiastic attitude. Like Välikangas, master builder Otto Wuorio was a first-timer, and Wooden Käpylä was in fact the first project of Wuorio's then newly founded construction company. The common purpose is also evident in his comment about 'beautifying the area by painting the exteriors, which was done to make it as pleasant as possible'.[66]

The goals in the design of the architecture and construction system of Wooden Käpylä were simplicity, uniformity, variation, high quality housing, community, and technical durability of the buildings. The simplicity was enlivened by the variety of building types, roof shapes, colours, porches and expressive decoration. The architecture incorporated a distinctive interpretation of the rules and motifs of classicism. The structural solution aimed to develop further the traditional, handcrafted log structure.

Martti Välikangas was known as an advocate of good building materials and of high-quality design,[67] which also applied to his own work. Thanks to Toivonen's and Välikangas's determination and strict demand for quality, the project to 'construct barracks-style rental apartment blocks', undertaken at the initiative of a working group set up by the Helsinki City Council, resulted in a sustainable and pleasant residential environment.

An area of inexpensive working-class housing built a hundred years ago, Käpylä has become a gem of wooden architecture. The multifaceted and sometimes playful architecture, the imaginative system of construction and the continued maintenance of the buildings have made the area, built

[62]Arkkitehtuuritoimisto Bengt Lundsten Ky 17.3.1986.
[63]Kivilaakso, "Puu-Käpylä, rakennussuojelun historian virstanpylväs, Wooden Käpylä Landmark in the History of Architectural Conservation," 140.
[64]Ibid.
[65]Sievänen, *Käpylä-lehti*, No. 4 (1956).
[66]*Käpylä-lehti*, No. 4 (1920).
[67]See Keinänen and Paatero, *Martti Välikangas 1893–1973 Arkkitehti*.

with modest means, a classic of Finnish wooden architecture. Despite its initial lukewarm reception, Wooden Käpylä has become a lush oasis in the heart of the city, popular among educated people who appreciate natural surroundings.

Models for future housing areas?

Constructed more than a hundred years ago, Wooden Käpylä (1920–) is an exemplary residential area that might well serve as a housing solution, especially during pandemic and other uncertain times that force people to stay at home and work remotely. Considering its sparing use of resources, creative adaptation of simple dwelling modules, and inventive use of industrial construction methods, the area could provide answers to contemporary problems arising from expensive construction and environmental concerns.

Private vegetable gardens would allow residents to enjoy gardening while producing their own apples, berries, vegetables, or potatoes. Owners of small dwellings would be able to enjoy at a low cost the same benefits as single-family homeowners on their own plots. Moreover, research in the current era of increasingly dense urban development has demonstrated that the presence of greenery in cities has a surprisingly large impact as a carbon sink and a mitigator of environmental change.

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Appendix

Builders of Wooden Käpylä

Due to the very little-know knowledge of the Finnish leading figures outside Nordic circles, the following paragraph collets the principal information of them.

Birger Brunila (1882–1979) graduated as an architect in 1905. In 1909 he made a study trip to England to study garden cities and working-class housing. He worked as town-planning architect of Helsinki for 30 years. In his work, he drew inspiration from the Nordic countries, Central Europe and England.

Embracing the garden city ideal, Brunila's designs included, in addition to the town plan of Wooden Käpylä, plans of other residential areas in Helsinki and in other parts of Finland. He was the chief editor of the *Arkkitehti* magazine between 1912 and 1916. In 1966 he published his memoirs entitled *Arkitekter och annat folk* (Architects and Other Citizens).

Elisabeth Koch (1891–1982) was the first prominent female garden architect in Finland.

The most important period in Elisabeth Koch's career was when she served as garden consultant for the Social Welfare Board of the City of Helsinki from 1924 onwards. Her job initially was to design outdoor areas in the Käpylä garden city and provide consultation for residents. In this role, Koch collaborated closely with town-planning architect Birger Brunila. Brunila was in charge of designing the town plan; Koch, of planning and implementing the landscaping plan.

She created dozens of planting plans for the courtyards of apartment buildings, one-family houses, and allotments, as well as general landscape plans for detached housing areas. She worked as teacher and published numerous books and handbooks on garden design. Koch was a founding member of the Finnish Association of Landscape Architects (Suomen Puutarha-arkkitehdit) in 1946.

Bengt Lundsten (1928–) graduated as an architect in 1954. He worked as professor of construction engineering at Helsinki University of Technology between 1969 and 1994. Lundsten won the town planning competition for the centre of Kortepohja in Jyväskylä in the 1960s, and also designed many houses for the area.

Before Lundsten founded his own architectural office in 1962 he worked as assistant to Viljo Revell in the team who designed the Toronto Town Hall (1965). Although Lundsten was primarily known as a designer of new structures, the projects in his own office included such works as a steel and suspended

harbour pavilion in Långnäs, Åland, as well as restoration of a medieval stone church in Finström (1967–1970). in which he opted for repairs instead of designing new stuff, which was a new attitude in Finland. With the same attitude he drew the preserving plan for the renovation of Wooden Käpylä. In his tenure as professor, he played a key role in saving Wooden Käpylä, and he also drew the plan for the renovation of the area.

Otto-Iivari Meurman (1890–1994) graduated as an architect from the Helsinki University of Technology in 1914 and studied in the Nordic countries, England, France, Italy and Austria. Between 1914 and 1915 he assisted Eliel Saarinen in the design of the Munkkiniemi-Haaga town plan, and in 1919 Birger Brunila in the making of the Käpylä town plan.

Meurman served as town-planning architect in Viipuri and professor of town planning at the Helsinki University of Technology, as well as teacher of town planning at the University of Oulu, thus educating entire generations of town planners in Finland. He created about 60 town plans and building plans. In his honour the Finnish Association of Architects established the Otto-Iivari Meurman Award for town planning.

Akseli Toivonen (1887–1953) graduated as an architect in 1911. He served as secretary of the Helsinki Social Welfare Board and was instrumental in the decision of building Wooden Käpylä. Toivonen had ideas for the standardization of housing production, and he developed a new log-frame system that allowed the houses in Käpylä to be constructed rapidly and with minimum labour. His zeal in the construction of Wooden Käpylä earned him the title of 'the Emperor of Käpylä'.

Otto Wuorio (1887–1964) served as chief master builder in the construction of the Wooden Käpylä district. In 1919 he founded his own construction company, which built residential, commercial and public buildings. The company was among the largest building contractors in Finland. In 1985 Otto Wuorio Oy merged with Finland's largest construction company, YIT-group.

Wuorio served as chairman of the Central Association of Construction Engineers. In 1948 he was awarded the title of Industrial Counsellor.

Martti Välikangas (1893–1973) graduated as an architect in 1917. He had his own practice from 1920. He also served as senior architect at the National Board of Public Building 1937–1940 and supervised the government's reconstruction projects. As chief editor of the *Arkkitehti* magazine between 1928 and 1930, Välikangas played a role in the breakthrough of functionalism in Finland.

Välikangas was interested in the architecture of schools and churches and in the diversity and design of urban structure. He also focused on housing design and the improvement of housing.

The Käpylä garden city is his magnum opus. Välikangas's designs and drawing tools are kept in the archive collections of the Finnish Museum of Architecture.