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United States Department of the Interior
National Park Service

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National Register of Historic Places Multiple Property Documentation Form

This form is used for documenting multiple property groups relating to one or several contexts. See instructions in *How to Complete the Multiple Property Documentation Form* (National Register Bulletin 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (form 10-900-a). Use a typewriter, word processor, or computer to complete the forms.

__X__ New Submission ________ Amended Submission

A. Name of Multiple Property Listing

Taylor Process Hollow Concrete Wall Construction in Forest Grove, Oregon

B. Associated Historic Contexts

Taylor Process Hollow Concrete Wall Construction in Forest Grove, Oregon

Forest Grove: A Historic Context (1993)

Naylor's, Walker's and West Park Additions Historic Context Statement (1998)

C. Form Prepared by

name/title Michelle L. Dennis, Historic Preservation Consultant

organization ______ date August 2004

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city or town Eugene state OR zip code 97405

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

James Hamrick

Signature and title of certifying official Deputy SHPO

June 21, 2005
Date

Oregon State Historic Preservation Office
State or Federal agency and bureau

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties in the National Register.

Edson H. Beall

Signature of the Keeper

for

Aug 10, 2005
Date of Action

Table of Contents for Written Narrative

Provide the following information on continuation sheets. Cite the letter and the title before each section of the narrative. Assign page numbers according to the instructions for continuation sheets in How to Complete the Multiple Property Documentation Form (National Register Bulletin 16B). Fill in page numbers for each section in the space below.

STATEMENT OF HISTORIC CONTEXTS

This statement of historic contexts section provides a historic overview of the Taylor Process Hollow Concrete Wall Construction method used in Forest Grove, Oregon from around 1919 to the 1930s. It provides a context for understanding and evaluating the physical resources that were built using this method of construction during this time period and an understanding of the larger context of the history of concrete construction.

THE SETTING

Forest Grove is located in western Washington County in Oregon, at the western edge of the fertile farmland of the Tualatin Valley near the eastern slopes of the Oregon Coast Range. Situated approximately 25 miles west of Portland and 42 miles east of the Pacific Ocean, the city is located at the junction of four townships and range quadrants and includes portions of the NW ¼ Section of Township 1 South, Range 3 West; the NE ¼ Section of Township 1 South, Range 4 West; the SW ¼ Section of Township 1 North, Range 3 West; and the SE ¼ Section of Township 1 North, Range 4 West. The latitude is 45.520 degrees and the longitude is 123.109 degrees.

The population of the city is about 19,000. Residents live in old and new neighborhoods with tree-lined streets that radiate out from a historic downtown and the campus of Pacific University. The Clark Historic District, an early residential neighborhood listed on the National Register in 2002, lies directly south of the downtown area.

OVERVIEW OF FOREST GROVE'S HISTORY

Forest Grove is located on land once inhabited by the Tualatin Indians. Among the earliest settlers in the Forest Grove area were Alvin T. and Abigail Smith. They came to Oregon as missionaries in 1841 and settled a land claim just south of the current city limits in September of that year.[1] When they arrived, they found other would-be missionaries settled in the area, including Rev. Elkanah Walker, who arrived in the Oregon Territory in 1838, and Rev. John Griffin, who had arrived earlier in 1841. The Buxtons (Henry, Sr., and Henry, Jr.) arrived in October 1841. Orus Brown joined the tiny settlement in 1843. His land claim was sold to Harvey Clark, who settled in the area in 1845.[2]

Clark, along with Tabitha Brown (Orus's mother), founded the Tualatin Academy in 1849. Clark also developed the original town plat in 1849 and in 1851, it was decided that it would be called the Town of Forest

[1] Pinyerd, David et al. *Naylor's, Walker's and West Park Additions Historic Context Statement.* (City of Forest Grove, 1998), 7.

[2] Clark Historic District National Register nomination (2002), 8/2.

Grove. In 1850, a post office was established, with A.T. Smith as postmaster (originally under the name of West Tualatin Plains) in the little town that included a store, a grist mill, a sawmill, a tannery, a shoemaker, and a blacksmith. In 1854, Tualatin Academy became known as Tualatin Academy and Pacific University. By the time Oregon was granted statehood in 1859, Forest Grove had become an established community.[3]

In 1860, Forest Grove's population was approximately 430 people. The town continued to grow slowly throughout the decade. Regular stage coach services between Portland and Yamhill (south of Forest Grove) began in 1866 and river transport on the Tualatin River between Portland and Cornelius (east of Forest Grove) helped to bring settlers to the area.[4]

The railroad reached Cornelius in 1871, making daily access to Portland by train possible. The town of Forest Grove was officially incorporated in 1872. By that time, the community had ten stores, three hotels, three schools, three doctors, one drug store, and a weekly newspaper. The train extended through Forest Grove to Dilley by 1874 and the town continued to grow.[5]

By 1880 the population had reached 547. The city was realizing various civic improvements, including the installation of street lighting, boardwalks, and public health care measures. Electric power was made available in 1887, although not widely used until a few years later.[6]

By 1890 there were 668 people living in Forest Grove. The 1890s was a decade of growth and prosperity for the community. A new city charter in 1891 officially changed the name of the town to the City of Forest Grove. By 1892, electric power was widely available and in 1894, telephone service had arrived. A volunteer fire department was established in 1895, the same year the city authorized a city waterworks and power plant.[7]

By 1900, the population had grown to 1,096. There were forty businesses, four churches, fifteen miles of boardwalks and four fraternal organizations. Construction of residential, commercial, and industrial buildings was brisk. In 1902, there were 56 new houses built; in 1904, 75 new houses; and in 1909, 150 new houses. New schools were established, and in 1904, the first movie theater was built. A local streetcar line was started in 1906 and the Oregon Electric Company built an electric interurban commuter rail service between Portland and Forest Grove in 1908. Southern Pacific Railway Company followed suit in 1912 when they began to

[3] Ibid., 8/3.

[4] Ibid., 8/4.

[5] Ibid., 8/4.

[6] Ibid., 8/4.

[7] Ibid., 8/4-8/5.

electrify their line between Forest Grove and Portland. The growth during that period is evidenced by the platting of nine new additions and subdivisions during that decade.[8]

Forest Grove was a thriving community in the 1910s. The population had grown to 1,772 by 1910 and building construction continued at a strong pace. An additional five additions and subdivisions were platted between 1910 and 1913, with more to follow. Fifty new homes were built in 1910 alone. The name Tualatin Academy and Pacific University was formally changed to Pacific University after the academy graduated its last class in 1915 and that portion of the institution closed.[9]

In 1920, the population was 1,915. Although growth slowed during the decade of the 1920s, life in Forest Grove became more sophisticated and diverse. For the first time, the job of "logger" appears in the local census (although there were several sawmills in the area prior to this) and by 1927, the nursery industry had become a vital part of the community with daffodil bulbs and prunes leading the way. The automobile and related services became commonplace and a new theater opened in 1929 with the introduction of "talkies."[10]

By 1930, the population had dropped to 1,859, the first decline in over 90 years. The community, however, continued to see new development during the Great Depression, including two new schools (one in 1931, the second in 1937). Due to a large forest fire (the first Tillamook Burn) in 1933, major timber salvage and lumber companies opened near Forest Grove, including the Stimson Lumber Company in 1935, which provided numerous jobs for local residents. In 1938, the city government was reorganized from a mayor/city council model to a city manager system. In 1939, buses replaced train service.[11]

By 1940, the population had grown to 2,449. Like most western Oregon towns, Forest Grove experienced a strong period of growth during World War II and the years soon after. As part of the war effort, many local residents worked in the Portland shipyards during the war. In 1945, Pacific University opened its first professional school, the College of Optometry. Civic improvements continued; a new water reservoir was installed, a water filtration plant was constructed, a municipal swimming pool was built, and city parks were created. By 1950, the population had swelled to 4,343.[12]

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[8] Ibid., 8/5.

[9] Ibid., 8/5.

[10] Ibid., 8/6.

[11] Ibid., 8/6.

[12] Ibid., 8/6.

CONCRETE: THE BASICS

Concrete is a synthetic building material comprised of four basic ingredients: coarse aggregates, fine aggregates, cement and water. Coarse aggregates are usually gravel or crushed stone; fine aggregates are sand. Cement is essentially quicklime (calcium oxide) that comes in natural and artificial forms.

The process of making concrete is one of a complex chemical reaction between the cement and water; the aggregates are inert. This process transforms a wet plastic substance into a rigid and durable material. During the hardening or "curing" process, considerable heat, known as heat of hydration, is given off. Concrete shrinks slightly during the hardening process.

Recipes for concrete vary from one geographic region to another, depending on which ingredients are most readily available. Aggregates make up roughly three-quarters of the volume of concrete and its structural strength is largely dependent on the quality of the aggregates.

Artificial cement today is generically called portland cement. It can be manufactured from any of a number of raw materials providing they are combined to yield the necessary amounts of lime, silica, alumina, and iron. Lime is commonly found in limestone, marble, marl, or seashells. Silica, alumina, and iron are found in the form of clay or shale.[13]

To produce portland cement, the minerals are crushed, ground, blended and conducted through a rotary kiln to create clinker (a fused mass). This "burning" process is known as calcining.[14] After cooling, the clinker is pulverized to powder and small amounts of gypsum are added to retard the curing process. The powdered cement is then bagged and ready for construction use, where it is mixed in the proper proportions with aggregates and water to make concrete.[15]

Concrete construction entails either pouring wet concrete into forms at the construction site and allowing the concrete to harden in the forms (which are then removed) or building with pre-cast concrete made into blocks or other forms. The earliest examples of poured concrete were unreinforced, but by the time concrete construction became popular in the United States in the early 20th century, poured concrete was usually reinforced with steel. The use of steel for reinforcement adds tensile strength to the inherent strength concrete has under compression. Concrete block is usually defined as blocks containing one or more hollow spaces or blocks of such shape that

[13] Edward Allen, Fundamentals of Building Construction Materials and Methods (NY: John Wiley & Sons, 2nd ed., 1990), 434.

[14] Carl W. Condit, American Building: Materials and Techniques from the First Colonial Settlements to the Present (2nd ed.) (Chicago: University of Chicago Press, 1982), 155.

[15] Allen, 434.

their combination in a wall will produce hollow spaces within. They are cast in a variety of sizes and shapes and are laid in mortar like masonry stone or brick. Prestressing concrete, a method of inducing a controlled stress in the structural member during construction in order to counteract undesirable stresses that result from the imposition of the working load, increases the efficiency of the concrete structural members.

THE HISTORY OF CONCRETE CONSTRUCTION

CONCRETE AND THE ROMAN EMPIRE

Ancient Romans have been credited with the discovery and earliest uses of concrete. Roman concrete (which was significantly different in composition from modern concrete) was a mixture of mortarlike cement with an aggregate. Their earliest forms of cement were composed of lime, sand and water. Around the second century BC, they discovered that pozzolana (a volcanic ash found near the town of Pozzuoli) when mixed with limestone and burned, produced a cement that was harder, stronger and much more adhesive than ordinary lime mortar. In addition, a mortar made with pozzolana rather than sand had the unique hydraulic property of hardening under water as well as in air. When the concrete was mixed with an aggregate, such as small chunks of stones or gravel, it solidified rapidly into a dense mass that, in effect, constituted an artificial stone. This "artificial stone" had great advantages over natural stone. It didn't have to be quarried, shaped or transported. Its use didn't require highly skilled stone masons. It could be cast into virtually any shape in which a form could be built.[16]

It took several centuries of trial and error for the Romans to bring the art of building with concrete to a state of maturity. During this time, concrete was used in the construction of aqueducts and bridges; theaters, circuses, and arenas (including the Colosseum in Rome, 72-80 AD); baths; and temples.[17] The Pantheon in Rome (built by Hadrian between 118-128 AD) represents the culmination of Roman architectural technology and the highest achievement of Roman concrete architecture.[18]

THE REDISCOVERY OF CONCRETE

During the Middle Ages the use of concrete for construction was abandoned and forgotten. In the 16th century, English builders began to import pozzolana from Italy and rediscovered hydraulic lime mortar. It was not until

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[16] Marvin Trachtenberg and Isabelle Hyman, Architecture From Prehistory to Post-Modernism/The Western Tradition. (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1986), 119.

[17] Ibid., 120-135.

[18] Ibid, 137-139.

the mid-18th century that concrete was again used for structural construction, when George Semple mixed hydraulic lime and gravel to make a primitive concrete foundation for the Essex Bridge over the River Liffey in Dublin. Soon thereafter, British engineer John Smeaton used a similar concrete for the cores of the lock walls on the River Calder in 1768.[19]

Before concrete could be used extensively, it was necessary to have a steady supply of reliable hydraulic cement. It was soon discovered that certain clayey materials and shales imparted the hydraulic properties needed. In 1796, James Parker of Northfleet, England invented a commercially useful method of manufacturing hydraulic lime by calcining a shale-bearing limestone found on the Isle of Shippey. His process, however, was dependent on a natural supply of the ingredient.[20]

In 1811, both James Frost of England and Louis J. Vicat of France began producing artificially prepared cements by calcining a carefully proportioned mixture of chalk (a relatively pure calcium carbonate) and clay.[21] In 1824, Joseph Aspdin of Leeds, England obtained a patent for an artificial cement, which also relied on the calcining of chalk and clay, but at a temperature that was high enough to vitrify the mixture which was then ground into powder. His process produced a cement that was superior to and more reliable than those of either Frost or Vicat. Aspdin called it portland cement because of the similarity of its appearance to a limestone found in the region of Portland, England.[22] The first artificial cement in France was produced in 1840, followed by the production of artificial cement in Germany in 1855.[23]

Although the use of reinforced concrete was developed in the 1850s, the combination of concrete and steel was not widely used until the late 1860s. In 1867, a French gardener, Joseph Monier, obtained a patent for reinforced concrete flower pots. He advanced his method of reinforcing concrete and went on to build water tanks and bridges.[24] Monier's primitive system of reinforcing with wire meshing was improved upon in the 1880s and 1890s by Monier and others. A German builder, G.A. Wayss, developed a system of reinforcing concrete with two-way steel bars in the 1890s and in 1894, Viennese engineer Josef Melan obtained a patent for a system of using steel I-beams bent in the shape of an arch and laid in a parallel series then covered with concrete.[25]

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[19] Condit, 155.

[20] Ibid., 155-156.

[21] Ibid., 156.

[22] Allen, 432.

[23] Harry M. Weiss, *Early Concrete Construction in Oregon, 1880-1915* (University of Oregon thesis, 1983), 15.

[24] Allen, 432.

[25] Condit, 174.

Experiments in prestressed concrete began in the late 19th century. It was not until the 1920s, however, that a scientific basis for the design of prestressed concrete structures was developed by Eugene Freyssinet.[26] Its use did not become widespread until the 1950s.

CONCRETE IN AMERICA IN THE 19TH AND EARLY 20TH CENTURIES

Systematic applications of concrete to structural needs did not come to the United States until the 19th century, although there were sporadic preparations that occurred during the Colonial period. In 1818, canal engineer Canvass White discovered a source of natural hydraulic cement near Sullivan, New York. The "water lime" which he prepared and patented in 1819 was derived from the local deposits of clayey limestone referred to as cement rock. The concrete was used initially for facework on walls and aqueducts of the Erie Canal; by the middle of the century, its use had been adopted for many kinds of structures.[27]

Between about 1820 and 1850, at least twelve sources of natural cement were found in the mid-Atlantic states, Kentucky and Illinois. The best was a variety called Rosendale cement, found near Rosendale, New York. It proved superior to White's product and became the dominant American product until the establishment of the artificial cement industry in 1871.[28]

The use of concrete for bearing walls in the United States began in the 1830s by Obadiah Parker of New York City. He built, among other things, a Greek Revival style house in 1835 in which the side walls, entablature, and cornice were cast as a unit. The columns were separate concrete members. More commonly, concrete bearing walls were built of pre-cast concrete blocks laid in mortar, like masonry stone or brick. One of the earliest known examples of this use was a house constructed by G.A. Ward in 1837 on Staten Island, New York.[29] In 1844, Joseph Goodrich built a hexagonal concrete house at Milton, Wisconsin. Lecturer and phrenologist Orson Squire Fowler was so impressed with that structure that he built an octagonal concrete house for himself in Fishkill, New York in 1848-1853. He became one of the most outspoken supporters of concrete construction, publishing several editions of *A Home for All: or, The Gravel Wall and Octagon Mode of Building*. Although a number of octagonal houses were built thereafter, few were constructed of concrete since the material was still quite expensive.[30]

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[26] Allen, 433.

[27] Condit, 156.

[28] Ibid., 157.

[29] Ibid., 157.

[30] Leland M. Roth, A Concise History of American Architecture (New York: Harper and Row, Publishers, 1979), 122.

In 1866, Frederick Ransome opened a Baltimore branch of his English concrete industry, where he had experimented with concrete block since the 1840s. In 1844 he received an English patent for his "New Patent Concrete Stone." His son, Ernest Leslie Ransome, initially oversaw the Baltimore operation, but moved to San Francisco and opened the Pacific Stone and Concrete Company in 1868. In 1868, George A. Frear patented "Frear Stone" and initiated the manufacture of precast concrete block on a commercial scale in Chicago (reportedly using portland cement imported from England). Frear Stone was cast under pressure in molds and was "colored" with insoluble pigments. It was used as traditional stone masonry. The earliest example of a building constructed of Frear Stone was the H.H. Horton House in Chicago, built by Frear in 1868. Frear Stone proved popular and by 1873, Frear had 50 employees and over $100,000 in sales. Ernest Ransome opened a Chicago branch called the Ransome Artificial Stone Company in 1872, the same year a San Francisco entrepreneur bought the rights to manufacture Frear Stone in California.[31]

Concrete blocks were made in various sizes and shapes and included solid blocks as well as the hollow-block type that became commonplace among building materials in the late 19th and early 20th century. Hollow type blocks generally had two or three hollow spaces created when traverse webs connected the two rectangular faces of the block. There were several advantages to concrete block. The block unit was easily managed by one person, it saved money over solid concrete construction, and it could be molded or cast with various surface textures. One of the greatest advantages, however, was the creation of vertical air chambers, which offered the same basic advantages as the cavity wall, common in stone masonry and brick construction. The hollow cavities of the concrete block helped insulate the building and helped keep moisture from passing through.[32]

The "great age" of concrete in the U.S. began in 1871 when David O. Saylor patented an American equivalent of portland cement. Saylor's research into concrete led to the beginnings of a scientific understanding of the physical properties and structural behaviors of concrete. He built a mill to manufacture the product in Coplay, Pennsylvania, marking the establishment of the artificial cement industry in the United States. Saylor's success was assured when James B. Eads specified Saylor's cement for the South Pass jetties at the mouth of the Mississippi River, constructed between 1875 and 1879.[33]

By the 1880s, the use of concrete (poured or cast as blocks) was widely used for structural elements such as piers, walls, and footings. Because it was good in compression it was also a logical choice for arch bridges. It also served well for structures of waterway control, and the transformation of dam construction from masonry to concrete was rapid in the 1880s. The San Mateo Dam, near San Francisco, built in 1887-1889, was the first American dam to embody all the essential features of the modern concrete arch-gravity structure.[34]

[31] Weiss, 56-57.

[32] Ibid., 58-59.

[33] Condit, 158.

[34] Ibid, 160-164.

In the 1890s, Chicago engineer E. Lee Heidenreich introduced the Wayss-Monier system of reinforced concrete for the use of storage tanks and grain elevators. This system, as well as the more widely adopted Melan system, became popular in concrete bridge construction in the late 1890s. Continued advancements in reinforced systems were made throughout the 1890s and into the early 1900s.[35]

By the turn of the century, the use of concrete for building construction was becoming popular. The leading engineers and builders included Ernest Ransome of San Francisco, Julius Kahn of Detroit, and various branches of the Ferro-Concrete Construction Company. A number of large commercial buildings were built in the first decade of the 20th century, include the 1902-1903 sixteen-story Ingalls (Transit) Building in Cincinnati. The Ferro-Concrete Construction Company built the column-and-girder frame using the reinforcing system based on Ransome's patents. In 1903-1904, the Terminal Station in Atlanta was designed and built by the Baltimore Ferro-Concrete Company. Kahn's Trussed Steel Concrete Company used Kahn's system for the frame of the fifteen-story Marlborough Hotel in Atlantic City, New Jersey in 1905-1906.[36]

With the increasing size of the buildings and their structural elements, came increasing loads. Technology quickly turned to developing systems that would allow for larger and larger open spaces and wider spans. In 1908, Claude A. P. Turner of Minneapolis patented a system for using flat-slab construction that incorporated a flaring column capital, called a "mushroom" capital. He first used this system in the Johnson-Bovey Building in Minneapolis in 1905-1906. This system was widely used for many years; it was not until the 1950s that progress in reinforcing techniques and the chemistry of concrete made it possible to eliminate the mushroom capital of the Turner system.[37]

Concrete construction appealed to many, including several well-known architects. Frank Lloyd Wright's Unity Temple in Oak Park, Illinois, built in 1904-1906, is an early 20th century example of concrete building construction. Three sides of the auditorium block are poured concrete in which great care was taken to expose the pebble aggregate to give the building a textured surface. The interior is lit by clerestory windows in those walls, as well as twenty-five skylights that pierce the flat concrete roof slab. His extensive use of poured concrete in this building, as well as the surface treatments, were heralded as significant innovations in concrete construction.[38]

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[35] Ibid., 174-176.

[36] Ibid., 241-242.

[37] Ibid., 243-244.

[38] Roth, 207.

Concrete not only found its acceptance in early commercial and industrial structures, it was also used for residential architecture in the early 20th century. The Lewis Courts in Sierra Madre, California, built in 1910, were constructed of pre-assembled wall units of reinforced concrete, designed by Irving Gill. Concerned about practical housing, Gill favored the prefabrication techniques developed by the U.S. Army and used this system of concrete construction in the house he built for Walter L. Dodge in Los Angeles in 1914-1916.[39]

In 1912, the Association of American Portland Cement Manufacturers published a book entitled *The Concrete House and Its Construction*. The book touted the use of concrete for residential construction, citing numerous advantages including fireproof and vermin-proof qualities, durability, insulating qualities, sound-proof qualities and the low cost of upkeep. The book illustrates several examples of architectural styles and describes the methods of using reinforced poured concrete and concrete block. It also makes brief mention of the use of "hollow concrete walls" in residential construction, pointing out that air space in a wall is "most excellent on account of the insulation it provides in case of either heat or cold, as well as sound, and also because a drier interior wall surface is obtained," but goes on to caution the would-be user of hollow concrete walls that "concrete is such an excellent non-conductor, and solid concrete walls are so much superior to brick and stone walls with regard to their ability to prevent radiation, that the additional expense required to build hollow walls of concrete is hardly warranted."[40]

The notion of hollow concrete walls, tied together with metal ties, was largely based on the stone and brick practices of the cavity wall and not unlike the idea of the hollow spaces created by using concrete block. By the time this book was published in 1912, there were a number of patented hollow-wall forms on the market, although this method of construction seemingly was less popular, perhaps due to the additional cost required to use the special patented forms to create the walls.[41]

Wright also used concrete for residential construction. In 1923, he designed "La Miniatura" for Mrs. George M. Millard in Pasadena. Concrete blocks were dry-laid in several patterns with strands of steel running horizontally and vertically through the concave joints. Grout then was forced into the hollow joints around the steel. Wright called this "textile construction."[42]

Although concrete construction was popular during the first half of the 20th century, it didn't realize its full economic potential until the development of prestressing was refined and adopted. Prestressing was first

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[39] Ibid., 212-213.

[40] The Association of American Portland Cement Manufacturers, The Concrete House and Its Construction (Philadelphia, 1912), 80-81, 105.

[41] Ibid., 105-106.

[42] Roth., 254.

experimented with in the late 1890s in Europe. In the U.S., its first practical application was in 1938 in the concrete dome on a water tank in St. Paul, Minnesota. Its use remained isolated, however, until the 1950s.[43]

EARLY CONCRETE CONSTRUCTION IN OREGON, 1880-1915

The earliest documented example of concrete construction in Oregon dates to 1879, when construction began on the Cascade Canal on the Columbia River. This project by the Corps of Engineers represents the first large scale use of concrete in Oregon. The project, which took seventeen years to complete, officially opened in November 1896 and provided an improved shipping route for grain produced in eastern Oregon. It has since been flooded by the construction of a dam downstream.[44]

The J. T. Fyfer Store [demolished] in Huntington (Baker County), built in 1887, is the first example of a building in which concrete was used (other than as a foundation). The first story of the building was constructed of stone and the second story was concrete. Fyfer also built a concrete house and warehouse (exact dates unknown); all three structures appear on the 1894 Sanborn maps. In 1888, a one story concrete general store was built in Milton (Umatilla County).[45]

Cities and towns began using concrete to build municipal water systems and industrial complexes along rivers in the later 1880s and 1890s. In 1888, Corvallis constructed a concrete cistern; a concrete reservoir was constructed in La Grande in c.1893; and two concrete/stone/brick reservoirs were built in Astoria prior to 1896.[46] In 1893-1895, the Portland Railway, Light & Power Company electric generating station (known today as the T.W. Sullivan Power Station) in Oregon City was constructed of poured concrete without reinforcement.[47] Reservoir #1 at Mount Tabor Park in Portland was constructed in 1894.[48] The Wilhelm Dam was built in Monroe on the Long Tom River in 1896 to supply power to the mill. By 1900, the Portland General Electric Company had constructed two concrete dams in Oregon City.[49]

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[43] Condit, 248-249.

[44] Weiss, 25-27.

[45] Ibid., 39.

[46] Ibid., 34.

[47] Ibid., 41-42.

[48] Mt. Tabor Reservoir District National Register nomination, 2004.

[49] Ibid., 34.

Most concrete buildings in Oregon built before 1907 were small, modest ones. Examples include a general store and lodge hall in Bandon (1898), a small industrial building in Ontario (1900), a one story commercial building in Heppner (1905), and two small commercial buildings in Wasco (1905). Following the San Francisco earthquake and fire in 1906, concrete construction gained in popularity in Oregon as a fireproof method of building construction[50].

In 1907, the Trussed Concrete Steel Company of Detroit opened a Portland office, offering the Kahn system of reinforced concrete. Reinforced concrete was readily adopted in the Portland area where buildings were larger and more substantial than those in smaller communities. The four-story, concrete Masonic Temple in Oregon City was constructed in 1907 using reinforced concrete. The height potential of reinforced concrete was demonstrated in 1908 with the construction of the Board of Trade Building in Portland, which rose eleven stories to a height of 131 feet. Reinforced concrete was also used for two office buildings, a hotel and an industrial facility in Portland that year.[51]

Concrete block construction became popular in Oregon during the first decades of the 20th century, although examples of earlier uses exist. It was used most often for perimeter structural walls of commercial and residential buildings, but rarely for industrial buildings in Oregon. The size of the blocks varied to some degree, but an 8x24 inch block appears to have been favored. Two types of block predominated in Oregon: a plain surface and a rock-faced surface (commonly set with beaded mortar joints). Early Sanborn maps sometimes refer to concrete block as "artificial stone."[52] Although concrete block was the predominate form of concrete used in residential construction, there is at least one example of a reinforced concrete house from the 1910s. In 1912, a concrete house was constructed in Portland for Rev. A. Cestilli.[53]

Cement for the concrete construction was likely imported from neighboring states, as Oregon had only one small manufacturing facility in the 1880s and none again until about 1916. In 1884, a Mr. Middleton is reported to have established a portland cement manufacturing facility in Oregon City. It apparently operated until about 1890.[54] In 1914, a survey conducted by the Oregon Bureau of Mines and Geology, which identified limestone deposits in Oregon, had a dual purpose: first for supply and manufacture of portland cement, and second for agricultural needs to treat acidic soils in the state. The survey covered the entire state, but focused on four major deposits found in southwestern Oregon. By 1916 there were two facilities in Oregon producing Portland

[50] Ibid., 43-44.

[51] Ibid., 44-45.

[52] Ibid., 68.

[53] Ibid., 47.

[54] Ibid., 23.

cement, using lime from Oregon deposits. The Beaver Portland Cement Company mill was located at Gold Hill and the Oregon Portland Cement Company was located in Oswego.[55]

CONCRETE CONSTRUCTION IN FOREST GROVE IN THE LATE 19TH AND EARLY 20TH CENTURIES

The use of concrete in Forest Grove was not unlike its use throughout Oregon and the U.S. during that time period. Its predominant use in the 19th century was for foundations of buildings. The Sanborn maps of the 1890s for Forest Grove do not show any concrete buildings and structures within the areas that were mapped. The 1912 Sanborn map shows three: the Roman Catholic Church, which was located on the northwest corner of Third Avenue and Third Street (demolished); a commercial building that housed a printing shop in the basement and a drug store on the first floor, which is located on the southeast corner of Pacific Avenue and Council Street (intact); and a crude oil tank at the Pacific Coast Condensed Milk Company near the railroad at Fifth Street. A fourth building shows just one wall of concrete in a primarily brick structure. That building (demolished) was located on the south side of Pacific between Main and Council; it housed several businesses including a bakery, barber, electrical supply, grocery, and meat market.

After the turn of the century, there are references in the local newspaper to several new buildings being constructed in Forest Grove. Unfortunately they rarely mention the builder/contractor or the construction materials used. There were, however, in the 1920s increasing references to new concrete buildings being constructed including a new recreation building for the Methodist Church on Second Street, which was to be a 50x90-foot concrete building (January 1924) and the new Paterson commercial building on Main Street, which was to be a two-story concrete building faced with brick (March 1925).[56] There was no information about who the builder/contractors of these buildings were, nor were there any details about the method of construction (poured concrete vs. concrete block).

TAYLOR PROCESS HOLLOW CONCRETE WALL CONSTRUCTION

On March 28, 1922 John Taylor of Forest Grove, Oregon filed an application for a patent for a "mold for constructing concrete building walls." That application was filed with the United State Patent Office on May 12, 1922 and the patent was granted on March 11, 1924. The patent number was 1,486,499 (serial number 560,494).[57] The patented molds provided for a construction method that became known as the Taylor Process Hollow Concrete Wall.

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[55] Ibid., 21-25.

[56] *Washington County News-Times*, 31 January 1924; 26 March 1925.

[57] U.S. Patent records for March 1924.

The Taylor Process Hollow Concrete Wall system consisted of molds (or forms) for poured concrete buildings having double walls and a continuous air space between them, extending around all sides of the building. The walls were set on a concrete foundation (which sometimes included a full basement) and were built up in sections so that reinforcing ties could be added between the double walls as the walls grew higher. This method of building the walls continued until they reached the desired height after which they were closed by means of a suitable cap. The exterior of the walls could be finished with a layer of any adaptable finish; documented examples of this work would indicate that stucco was the preferred finish. The system of molds included specifications for window and door framing. The roofs on the buildings used traditional wood framing systems.

Although the thickness of the wall components was not detailed in the specifications for the molds, the thickness of each of the concrete walls and air space between them apparently was variable, depending on desired construction, controlled by the construction of the forms. The Zula Linklater House in Hillsboro (listed on the National Register in 1984) described the walls as "three and one-half inches thick with a two and one-half inch air cavity between them."[58] An Oregon Inventory of Historic Properties survey form for the Dr. W.R. Taylor House in Forest Grove (1998) describes the walls as "two three-inch thick walls of concrete, separated by a 1½-inch air spaced connected with metal ties."[59]

The system was adaptable to various architectural styles. Examples in Forest Grove include Craftsman bungalows, Colonial Revival, and modest Minimal Traditional houses. The Linklater House in nearby Hillsboro is an example of Mediterranean architecture. The construction method, when used for commercial buildings, also lent itself to simple, vernacular adaptations.

Details of the specifications and drawings which illustrate Taylor's process as described in the U.S. patent can be found in Appendix A.

TAYLOR'S CONCRETE BUILDINGS & THE THORMOST BUILDING CORPORATION

Little information has been found that describes Taylor's early years as a contractor and builder. According to his granddaughter, Lois Zumwalt, he was a builder/contractor in Canada and worked in North Dakota, Ohio and perhaps Florida before settling in Forest Grove in c.1904.[60] There are references to him as a contractor in the Washington County News-Times in the 1910s, although no information was found about buildings that he may

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[58] Linklater, Zula, House National Register nomination (1984).

[59] David Pinyerd, Oregon Inventory of Historic Properties Historic Resource Survey Form (2 January 1998).

[60] Interview with Lois Zumwalt, 6 August 2004.

have constructed prior to about 1919. Likewise, there is no information about whether his early construction work focused on concrete construction systems.

In June 1919, the "Taylor Bros." opened the Palace Garage in downtown Forest Grove. The brothers included Taylor's sons William and Walter; they were joined later by brother Herbert. The following month, a devastating fire ravaged several buildings downtown, including the Palace Garage. An article in the Washington County News-Times on July 31, 1919 states that "the building...occupied by the Taylor Bros. Palace Garage will be rebuilt by the brothers and their father, contractor John Taylor."[61] It is not know for sure if the new building used the Taylor Process Hollow Concrete Wall system, but a subsequent article on August 21 stated that the work was nearing completion and the building was to be "stronger and better and nearly fireproof."[62] It is possible that this building is one of the first constructed in Forest Grove using Taylor's method.

The earliest confirmed building constructed in Forest Grove using the hollow wall process was a house built for J.S. Buxton and his family in 1920 (located at 1924 Pacific Avenue). Buxton was a local undertaker. An article in the News-Times on April 23, 1920 notes that "excavation is under way for the new J.S. Buxton house on the lot west of the Knights of Pythias Building.... Buxton is also converting the Forest Grove Hotel into a modern undertaking business."[63] Although the article does not name Taylor as the contractor, a photo of the house and a quote from Buxton appear on a brochure for the Thormost Building Corporation, the company created in c.1923 to promote Taylor's hollow wall process.

In 1921, at least two houses were built in Forest Grove by Taylor using the hollow concrete wall system. One was the Dr. W.R. Taylor (no relation to John Taylor) house, located at 2212 "A" Street; the second was the house constructed for Assistant Postmaster Fred D. Gardner, which is located at 1545 Main Street. According to newspaper reports, construction on these houses overlapped. Work on the Gardner House began in June or July of that year; work on the Dr. Taylor House began in August. The Gardner House was completed in September; the Dr. Taylor House was completed in December.[64]

At least two more hollow concrete wall houses were built by Taylor in 1922. According to a Washington County Cultural Resource Inventory (1983), the C. L. Wagner House, located at 1318 Birch Street, was built that year.[65] A brief article in the News-Times announced the completion of the new Otto Osborn House, which

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[61] *News-Times*, 31 July 1919.

[62] Ibid., 21 August 1919.

[63] Ibid., 23 April 1920.

[64] Ibid., 4 August 1921, 21 September 1921, 5 January 1922.

[65] Washington County Cultural Resource Inventory, Forest Grove, 1983.

was located "east of Forest Grove on the highway" (at what is now 3837 Pacific Avenue).[66] Although the article does not name Taylor as the builder, photos of both the Osborn House and the Wagner house appear on the Thormost company brochure.

The Thormost Building Corporation was established in January 1923 for the purposes of promoting the Taylor Process Hollow Concrete Wall construction method. The company was incorporated with Charles W. Mertz, a long-time Forest Grove business owner, as president. John Taylor was listed as Vice-President. Taylor's sons were also involved in the business, Herbert as the Secretary of the company and William as the Treasurer. According to Mrs. Zumwalt (William's daughter), brother Walter was also involved in the company, but apparently not as an officer. The company was capitalized at $20,000 with Mertz owning half of the interest and the Taylors owning the other half. According to a newspaper article announcing the formation of the company:

> "the buildings that have been erected in Forest Grove have proven quite satisfactory to the owners who have had them built and the cost over solid concrete and brick is much less. In fact it is claimed that the concrete walls may be built by this method in competition with wood, and it has the advantage of being fireproof and everlasting. These gentlemen feel that with proper advertising and pushing they have a good thing in this patent wall."[67]

Mrs. Zumwalt recalls that each of the Taylor men had a role in the construction undertaken by the company. Herbert apparently was the "architect" who put together the designs and drafted the plans. John was primarily responsible for the concrete construction, with some assistance from Walter, who was a mason, and who also was responsible for the stucco finishes on the exterior walls, the plaster on the interior walls, and any brick or stone work. William was the carpenter who constructed the interior framed walls, windows, doors, floors, and finish carpentry. Mr. Mertz apparently served as the business and marketing manager. Mrs. Zumwalt also recalls that the brothers continued to run the Palace Garage throughout the period when the Thormost company was constructing buildings.[68]

After the formation of the company, 1923 proved to be a busy year. In the newspaper article that announced the formation of the Thormost company, it was also noted that Mr. Taylor and Mr. Mertz were in Astoria where they had an appointment to contract for a number of buildings (no information has been found to verify that any of these buildings were actually constructed). An article in the newspaper a couple months later mentions that

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[66] *News-Times*, 7 September 1922.

[67] Ibid., 16 January 1923.

[68] Zumwalt interview, 6 August 2004.

Walter Taylor, who was "home for a visit," had been in Miami for the past several months.[69] It is likely that he was there promoting the hollow concrete wall construction method as the brochure that was created to market the Thormost company shows a photo of a house and garage being constructed in Florida.

In Forest Grove, the Alpha Zeta fraternity at Pacific University decided to build a new house in June 1923 and they chose to employ the Thormost company to do the construction. The house, located at 1806 Elm Street, is a large, imposing 2½-story building with a full basement and the projected cost was to be $11,000.[70] The house was completed later that year. The fraternity owned the house until the 1930s, when it was forced to sell due to poor economic conditions. Due to its size, its subsequent use by various groups included a veteran's home, a hospital, and a second stint as a fraternity house when the Gamma Sigmas owned it in the 1960s. It was recently converted to apartments. The Thormost company also built a large two-story Mediterranean style house for Zula Linklater in Hillsboro in 1923 at the urging of her daughter to build a "house that would last forever."[71] The Linklater House was listed on the National Register in 1984. Also in 1923, the Chester E. Johnson House was constructed in nearby Aloha, Oregon. Little is known about this house other than it appears (from the photo in the brochure) to be a mirror image of the Dr. Taylor House in Forest Grove.

The date of the promotional brochure for the Thormost Building Corporation is unknown, although it seems likely that it was printed in c.1923. The large oversized brochure was printed on two sides. On one side were six photos of buildings constructed using the hollow concrete wall method and testimonial letters from owners of each of the buildings. Included among these are the aforementioned Gardner House, the Dr. W.R. Taylor House, the Osborn House, the Linklater House, the Wagner House, the Buxton House, the C.E. Johnson House, the house and garage being constructed in Florida, and the commercial building in Ohio. Also included are photos of the John Parsons House (located at 1825 Mountain View Lane in Forest Grove; date of construction c.1920), the R.R. Clark Building (location and date of construction unknown), and the H.A. Krahmer Garage (located in Gaston, Oregon; date of construction unknown). A photo of the W.K. Royal House (location and date of construction unknown) is located on the other side of the brochure.[72]

The brochure claims that the hollow concrete wall method is suitable for "residences, factories, garages, warehouses, churches, barns, silos, root cellars, etc." It also lists several advantages to using this system of construction including "(1) comfort: warmer in winter; cooler in summer; absolutely dry – no dampness; (2) economy: costs less to build; no upkeep cost to maintain; saves one-third of fuel; secures lower insurance rates; and dispenses with lath and furring on the walls; (3) beauty: adaptable to any type or design of building;

[69] *News-Times*, 1 March 1923.

[70] *News-Times*, 28 June 1923.

[71] Linklater NR form.

[72] Thormost Building Corporation brochure, c.1923.

any finish desired – smooth, rough, stucco, pebble dash, brushed, painted, etc.; no cracks; (4) strength: practically monolithic; no deterioration – no settling or scaling off; and (5) safety: fire proof; and vermin proof – no rats or mice."[73]

In addition to the photos, testimonials, and promotional claims, the brochure contained drawings of the concrete mold system and the written specifications describing the system. Interestingly, there is also a statement on the brochure the reads: "Anyone intending to use this process of construction may, by writing this company, receive a blank application. Fill out same properly and we will forward you a permit to use this process to build your building. The cost of royalty to use this process is 5 cents per square surface foot."[74]

It is not known if all the buildings that have been identified as examples of this construction method were indeed constructed by Taylor and his sons, or if other builders/contractors actually paid royalties to use this method for buildings in other parts of the country. It is known that Taylor and his sons traveled to other areas promoting the Taylor Process Hollow Concrete Wall system. As mentioned, Walter spent time working in Miami in 1922 and 1923 and it is probable that he was either directly involved in the construction of buildings there or working with other contractors using the system. No information beyond the one photo and testimonial from Florida has been found identifying other buildings in Florida that used this construction method. In May 1924, an article in the newspaper notes that "contractor John Taylor has returned home from Lodi, California (and various other places) where he's been in interest of his concrete business."[75] To date, there have been no buildings identified in California in which Taylor's system was used. The building in Ohio that is shown on the brochure may have been built by the Taylors, as John's oldest son, John Jr. was a minister in Dover Center for some time and family members visited there occasionally. It is also possible that an Ohio contractor became familiar with the Taylor process through Rev. Taylor and paid royalties to use the system or that contact was made with Ohio contractors through Mertz, who was born in Ohio. Somewhat confusingly, one of the testimonials in the brochure (the one associated with the house and garage in Florida) is actually from a man from Manchester, Iowa. He says, "This house and garage house, was built in Florida for a man who built a house in Iowa. He was so well pleased with the process and the merits of the Thormost Wall, that he built by the Taylor process that he used it in all of his buildings."[76] It isn't clear from this statement who built what and where, but it would seem that perhaps there are other Taylor hollow concrete wall buildings in either Iowa or Florida, although to date none have been identified.

[73] Ibid.

[74] Ibid.

[75] *News-Times*, 22 May 1924.

[76] Thormost brochure.

After the publication of the brochure, there was little effort made to document the Thormost company's buildings and subsequent examples have been difficult to identify. It is known that in November 1925 Mertz began construction on three identical houses on the corner of what is now Main and 16th (one on Main and two on 16th). The Taylors actually did the construction work. The houses, located across the street from the earlier-built Gardner House, were "six rooms each, built of hollow wall concrete, a story and a half high...including basements." The newspaper announced that these houses were "open for inspection" in April 1926 and that a "better home" demonstration was to be held in the "completely modern homes."[77] There are additional references in the late 1920s to concrete buildings being constructed in Forest Grove, but newspaper accounts don't mention if they were of hollow concrete wall construction or if Taylor was involved in any way.

John Taylor died on November 4, 1931 in Seattle. He had been working in Canada and after developing heart trouble, he had gone to stay with his daughter, Belle (Mrs. W.J. McPherson). He died at Martha Washington Hospital while in Seattle, having never made it back to Forest Grove. He was survived by five of his six children (apparently John Jr. preceded him in death). His wife, Sarah Ann, had died in 1924.[78]

What became of the Thormost company after his death is unclear. Mrs. Zumwalt remembers that her father, William, and her uncle Walter went on to continue building houses and other buildings in and around the Forest Grove area – but they did not use hollow wall concrete construction. William, as a carpenter, built wood frame houses and Walter did the brick, stone, and plaster work. She does not remember the company continuing onward.[79] Mertz appears to have lost ownership of his three Thormost houses on Main and 16th in 1934 when the title to them transferred to the Forest Grove National Bank. Perhaps the economy of the Great Depression took its toll on the business as well as his personal property.

The final reference to hollow concrete wall construction in Forest Grove seems to have been in 1935 when the new Forest Grove Memorial Chapel was built. Harley Prickett, who had joined J.S. Buxton in the undertaking business in 1921 and bought the business from Buxton in 1928, announced plans in March 1935 to demolish the old Sloan Hotel building (built in the 1850s) which housed the funeral chapel. By October the building was complete and an open house was held. The newspaper reported that the large two-story building, which cost $20,000, was built by the Kansas Company using hollow concrete wall construction.[80] No information about the Kansas Company has been found and it is not known if this company bought the Thormost company from the Taylor brothers and Mertz, if they purchased the rights to use the Taylor process for the construction of this building (and perhaps others) or if they developed their own version of hollow concrete wall construction.

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[77] *News-Times,* 12 November 1925, 8 April 1926.

[78] Ibid., 5 November 1931.

[79] Zumwalt interview.

[80] *News-Times,* 10 October 1935.

Regardless, it seems that this building was perhaps the last one built in Forest Grove using a hollow concrete wall system.

It is unknown at this time how many additional Taylor Process Hollow Concrete Wall buildings were built and how many have survived. There are several more houses and buildings in Forest Grove that at first glance appear to be candidates. Further research is needed, however, to determine which are indeed hollow concrete wall construction and which are not. Likewise, additional research may determine that examples of this construction exist in various locales in Oregon, as well as other states.

JOHN TAYLOR AND HIS FAMILY

John Taylor was born in Canada on July 28, 1858. He was of Scottish descent. His wife, Sarah Ann, was born in Canada in 1866. It is not known when they were married. They emigrated from Canada to the U.S. in 1881. They had six children, four boys and two girls, all of who were raised in Forest Grove. When they settled in Forest Grove, Mrs. Taylor's mother (Sarah McKibbon) resided with the family until her death in 1925.

The Taylors' oldest son, John Jr., who graduated from Pacific University (in Forest Grove) and Oberlin College, became a minister in Ohio, where he lived his adult life. In 1918, he served the YMCA in Germany for several months before returning to Ohio. No further information was found about him.

William Bramwell Taylor (born in Joliet, ND in 1893) was a carpenter and was involved in the construction and/or remodel of several buildings in Forest Grove, including several of the Taylor Process Hollow Concrete Wall buildings. In addition to his construction, he was co-owner/operator of the Palace Garage in Forest Grove. He was active in the community and was a member of the Holbrook Lodge No. 30, A.F. & A.M. He served as the Building Inspector for the City of Forest Grove from 1949 until his death in 1952. He married Mabel Staley in 1913; they had two daughters, Corrine and Lois, and one son.

Walter George Taylor (born in Winnipeg, Canada in 1898) was a mason, working in brick, stone, stucco, and plaster. He worked with his father and brothers on a number of the hollow concrete wall buildings. In addition to his construction, he was co-owner/operator of the Palace Garage with his brothers. Following the end of the Thormost company, he worked with his brother, William, on several buildings in Forest Grove. In 1950, he retired from construction and moved to a chicken ranch near Amity. He was married to Pearl, who survived his death in 1959.

Herbert Taylor (place and date of birth unknown) also grew up in Forest Grove. He served in the U.S. Army and was stationed at Camp Lewis in Washington in 1919. Upon his return to Forest Grove later that year, he joined his brothers in the operation of the Palace Garage. He served as the Secretary for the Thormost company and apparently was involved in the design of a number of the buildings. It is not known if he had any training in architecture. By the late 1950s, he had relocated to Portland. No further information about him has been located.

John and Sara's daughters were Belle (who married Walter McPherson and settled in Seattle) and Margaret (who married James Bibbert and settled in central Oregon).

According to Lois Zumwalt, William's daughter, none of the family members ever owned or lived in a Taylor Process Hollow Concrete house. Her grandfather and grandmother, John and Sarah, along with Sarah's mother, lived with William and his family in a wood frame house until their deaths.

CHARLES W. MERTZ

Charles Mertz was born in Damascus, Ohio in 1877. He moved to Forest Grove in c.1902 and lived there for many years before relocating, first to Creswell and then to Hillsboro. He was married to Lenna K. Mertz. They had one son, Daryl, and three daughters, Vesta and twins, Margellen and Marguentz. He was a long time business owner, first in the furniture business and then from 1911 to 1923 as the co-owner/operator of the ice plant and wood yards. He was active in the community, having been a long time member of the Knights of Pythias. He served on the City Council for five years and in 1924 ran (unsuccessfully) for county sheriff. He died in Hillsboro on May 22, 1949.[81]

[81] *Hillsboro Argus*, 26 May 1949.

ASSOCIATED PROPERTY TYPES

Property types associated with this MPS nomination include buildings constructed with the Taylor Process Hollow Concrete Wall system in Forest Grove between about 1919 and 1935. This system of constructing hollow core concrete walls was patented by John Taylor of Forest Grove in 1924.

To date, a total of thirteen buildings using this method have been confirmed in Oregon. All but three are located in Forest Grove. At least one other in Forest Grove is known to be hollow concrete wall construction, but it is not clear if it was built using Taylor's process for building these walls. The buildings in Forest Grove known to be built using this method of construction include:

- the J. S. Buxton House, 1924 Pacific Avenue (1920)
- the John Parsons House, 1825 Mountain View Lane (c.1920)
- the Dr. W. R. Taylor House, 2212 "A" Street (1921)
- the Fred D. Gardner House, 1545 Main Street (1921)
- the C. L. Wagner House, 1318 Birch Street (1922)
- the Otto Osborn House, 3837 Pacific Avenue (1922)
- the Alpha Zeta House, 1806 Elm Street (1923)
- Mertz Rental House #1, 1929 16th Avenue (1925-26)
- Mertz Rental House #2, 1933 16th Avenue (1925-26)
- Mertz Rental House #3, 1604 Main Street (1925-26)

The other building that is known to be hollow concrete wall construction, but has not been confirmed to have used Taylor's method of construction, is the Forest Grove Memorial Chapel on Pacific Avenue.

All of these properties share the common characteristics of having exterior walls constructed using the method of building hollow concrete walls developed by John Taylor and having been constructed by Taylor, with the assistance of his sons, William, Walter and Herbert. Although they share this common characteristic, they are each unique in their design. Most are stylistically classified as Craftsman bungalow. One is a larger building with Craftsman features. One is a Dutch Colonial Revival. The three small houses developed by Mertz are perhaps best classified as Minimal Traditional with undertones of Tudor Revival.

Of the properties that have already been identified, five of them are located within the Clark Historic District (listed on the National Register in 2002). These include the Gardner House, the Alpha Zeta Fraternity House, and the three Mertz houses. All but one are listed as contributing resources.

It is likely that further research into individual properties may yield additional resources that are associated with this context. As this occurs, the information pertaining to the Associated Property Types may need to be modified.

Significance

All eligible resources associated with this context will be significant under Criterion C. They are important for their association with the Taylor Process Hollow Concrete Wall system and embody the distinctive characteristics of this construction method.

Resources may also be eligible under Criterion B in this context. For a property to be considered eligible in association with a person or persons, the property must be associated with the person's productive life and it must be shown that the person gained importance within his or her profession or group. The property must represent the most important property associated with the person, or be the last remaining property associated with that person, to be considered eligible.

Resources may also be eligible under Criterion A in this context if it can be demonstrated that the resource is associated with one or more events that have made a significant contribution to the broad patterns of our history.

Registration Requirements

To be considered eligible for listing on the National Register in association with this context, the following must apply:

1. A property must be demonstrated to have been constructed using the Taylor Process Hollow Concrete Wall system. It is not necessary that the property was built by John Taylor and his sons (although this is most likely the case) if it can be demonstrated that a different builder/contractor used Taylor's process specifically for this construction.

2. Construction should have occurred between 1919 and 1935 and be located in Forest Grove, Oregon.

3. A property should be considered locally significant, unless it is associated with a person significant to the history of the state (and therefore eligible under Criterion B as well as Criterion C). In these cases, the property may be considered significant on a state-wide level.

4. A property must possess sufficient integrity to convey its significance. Generally, a resource will possess several, and usually most, of the following seven aspects of integrity:

a. Location: Because the relationship between a resource and its historic associations is usually destroyed if the resource is moved, the resource should remain in its original location. Buildings moved from their original locations must meet Criteria Consideration B for moved properties as indicated in the National Register guidelines.

b. Design: A resource should retain a combination of elements that conveys its original design. These elements may include the form, plan, organization of space, structural systems, technology, materials, and style. Generally, a resource should retain its overall original form and massing. Subsequent additions to resources should be either set back so as to not obstruct the original form, should be of a compatible scale, and should not be on the primary facade of a building. Window replacement in buildings may be acceptable if fenestration patterns remain intact. Enlargement of window and door openings may render a building ineligible if the alterations significantly change the wall-to-opening ratio. The filling in of openings, if the original openings are still readable, may be considered on secondary facades only. Original plans and organization of space should be evident, even if the use of the space has changed over time. Textures and colors of original surface materials should remain intact. The type, amount and style of ornamentation must reflect the original design. Design elements related to specific resource types are noted, as appropriate, in the property description sections.

c. Setting: The physical environment in which the resource exists should reflect its historic features, including topography, vegetation, simple constructed features (such as paths or fences), and the relationships between the resource and its surroundings. Natural and created landscape features should be evaluated for significance in relation to the resource.

d. Materials: A resource must retain the key materials dating from the period of its historic significance, in this case the exterior concrete walls specifically. If a resource has been rehabilitated, historic materials and significant features must be preserved. A resource whose historic materials have been lost and then reconstructed may be eligible only if it meets Criteria Consideration E for reconstructed properties as indicated in the National Register guidelines.

e. Workmanship: Resources must retain the physical evidence of workmanship. This workmanship should illustrate the aesthetic principles and technological practices associated the Taylor Process Hollow Concrete Wall construction system.

f. Feeling: A resource should retain sufficient original physical features that, when taken together, convey the resource's historic character. This will generally include the combination of original design, materials, workmanship and setting. Because feeling depends on individual perceptions, its retention alone is never sufficient to support eligibility for the National Register.

g. Association: To retain association, the direct link between the resource and its association with an important historic event or person must be sufficiently intact to convey that relationship to an observer. Association, like feeling, requires the presence of original physical features that convey the resource's historic character. Because association depends on individual perceptions, its retention alone is never sufficient to support eligibility for the National Register.

5. A resource need not retain its original function if its historic physical integrity is intact.

6. Associated outbuildings should be included as contributing resources when appropriate.

In addition, if any of the National Register Criteria Considerations apply, the property must be demonstrated to meet the required degree of significance associated with the applicable criteria consideration.

GEOGRAPHICAL DATA

This MPS nomination includes the area within Forest Grove, Oregon's urban growth boundary.

SUMMARY OF IDENTIFICATION AND EVALUATION METHODS

Cultural resource surveys conducted over the past twenty years in Forest Grove form the basis for this multiple property listing. To date a total of thirteen buildings have been identified as those associated with the patented Taylor Process Hollow Concrete Wall construction method. All were built by John Taylor and his sons. A fourteenth building has also been identified as having hollow concrete walls, but it is not confirmed that the system used was the Taylor method. [Another three buildings outside of Forest Grove have been confirmed to have been constructed by Taylor using this method. All are in the nearby communities of Hillsboro, Aloha, and Gaston.]

The historic context for this multiple property listing was developed using primary and secondary sources including books, manuscripts, newspaper articles, and maps. Two previously prepared context statements, the Forest Grove: A Historic Context (1993) and the Naylor's, Walker's and West Park Additions Historic Context Statement (1998), provided information about the history of the community. Two National Register nominations provided information about the Taylor process and the Thormost company. These were the nominations for the Zula Linklater House and the Clark Historic District.

The requirements for listing properties were derived from examination of survey data and knowledge of the general conditions and integrity of the identified resources associated with this context. As additional resources are surveyed and identified as examples of Taylor's hollow concrete wall construction, additional specific qualifications may be added and the list of existing requirements refined.

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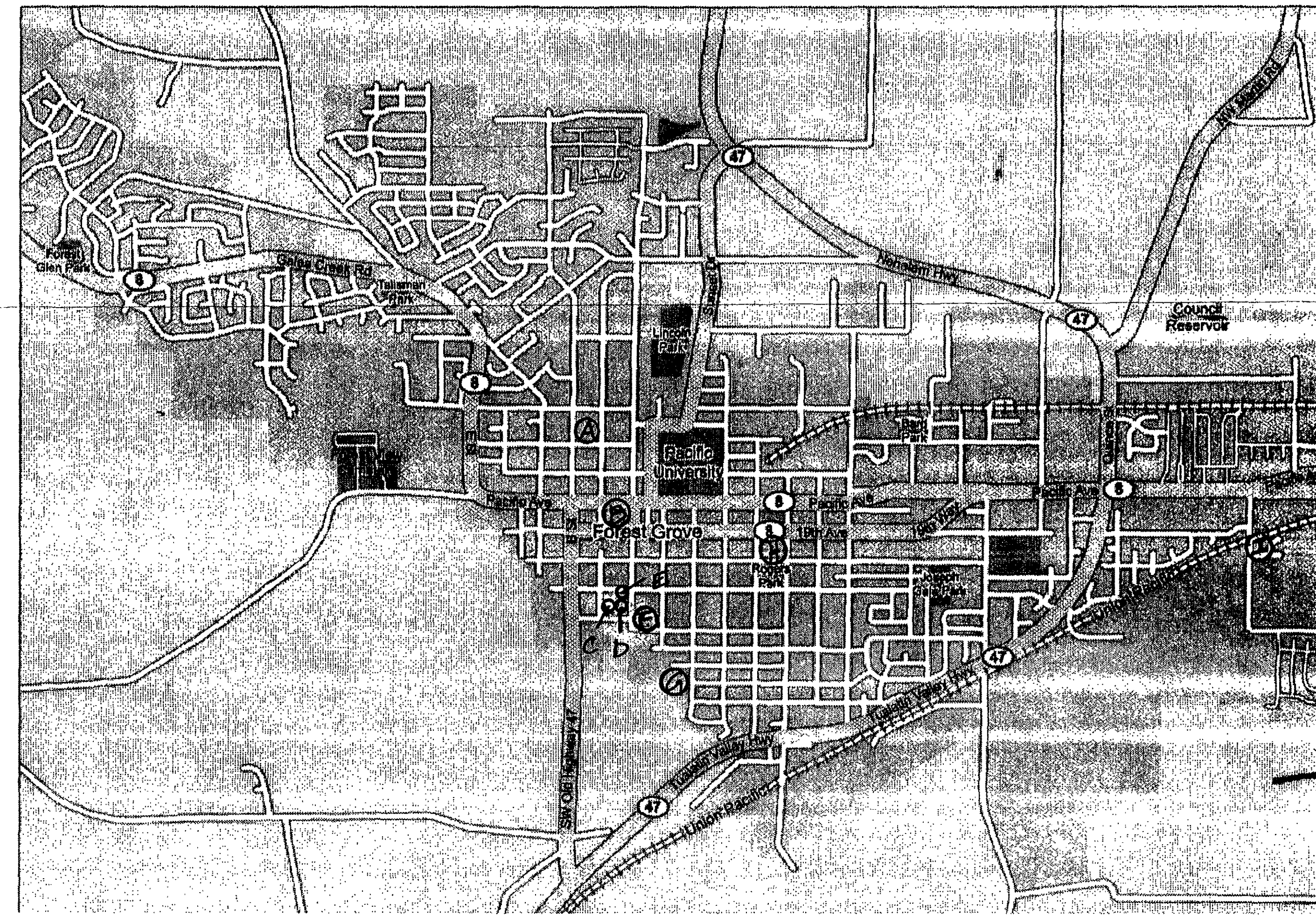

Locations of Taylor Hollow Concrete Wall Buildings in Forest Grove, Oregon

A = Dr. W.R. Taylor House, 2212 “A” Street
B = J.S. Buxton House, 1924 Pacific Avenue
C = Mertz Rental House #1, 1929 16th Avenue
D = Mertz Rental House #2, 1933 16th Avenue
E = Mertz Rental House #3, 1604 Main Street
F = Fred D. Gardner House, 1545 Main Street
G = C.L. Wagner House, 1318 Birch Street
H = Alpha Zeta House, 1806 Elm Street
I = John Parsons House, 1825 Mountain View Lane