



Town carpenters and carpenters' groups in Osaka

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ABSTRACT

I survey Osaka's carpenters from the seventeenth to the mid-nineteenth centuries examining what type of organization they formed and the manufacturing activities they developed. In the beginning of the seventeenth century, the Tokugawa family organized carpenters' groups on a regional level and placed those groups under the control of the Nakai family, in order to mobilize these skilled carpenters near Osaka for the shogunate's building projects. In 1642 there were 443 carpenters in Osaka, and we can confirm that within the three districts of Osaka there was one group each in Kitasenba, Minamisenba, Nishisenba, Shimanouchi, and Tenma. By the late seventeenth century, the number of carpenters in Osaka reached approximately 1000 people, the carpenters' groups increased to 21 in Osaka and 3 in Tenma, and in 1737 the carpenters were reformulated into 23 groups in Osaka and 6 in Tenma. At this time the carpenters' groups set up group rules which led to the birth of a guild consciousness, strengthening their characteristic as a guild of people in a like profession. Osakan carpenters' groups had several urban characteristics that set them apart from groups of other areas, such as being divided based on Osaka's neighborhoods and given numbers for group names. Finally, I demonstrate how these carpenters developed efficient production systems to meet the huge demand for construction in Osaka, through which they led Japan's construction world.

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Introduction – The role of carpenters (*daiku*) in early modern Japan

The seventeenth century was an age of construction in Japan – a rare period in history – in which the pounding of the hammer of reconstruction rang throughout the country as it rose from the ruins of the Warring States Period. The carpenters (*daiku*) who lived during these times but-tressed their skills as engineers and builders of castle towns (*jōkamachi*), and by erecting castles with lofty central keeps (*Naitō*, 1981). In the 18th century, Osaka became a center of the Japanese economy; in order to match the economic prowess of Osaka, advances in architecture, specifically technologies that increased the efficiency of construction, were pursued. In this paper, I would like to explore the types of organizations formed by the town carpenters (*machidaiku*) of Osaka, in addition to the types of construction activities that developed in the context of the building demands of an increasingly large metropolis.

The building demands of Osaka Castle and the Osaka Sangō

In the Edo period, Osaka Castle was built on elevated land on the northern end of the Uemachi plateau. Osaka Castle stretched 1 km from east to west, and 1.5 km from north to south. It was surrounded by two moats, and had a central keep (*tenshu*), a palace (*goten*), turrets, a gold storehouse, gunpowder magazines, and gates. This castle was a base for the Tokugawa Shogunate's control in Western Japan.

The castle town of Osaka Sangō (the “Three Districts of Osaka”) was located to the southwest of the castle. It was comprised of three sections: Kita-gumi, Minami-gumi, Tenma-gumi, which had a combined range of 4 km from east to west and 4 km from north to south. In the early 19th century, it included 620 neighborhoods (*chō*), 18,663 houses (7173 in Kita-gumi, 7991 in Minami-gumi, and 3499 in Tenma-gumi), 175 daimyō city storehouses (*kurayashiki*), 349 Buddhist temples, 12 Shinto shrines, and 166 bridges. The population was approximately 380,000. The town-houses (*machiya*) at the time were two stories; however, the second story was used for servants' rooms or storage space, making them more like single-story houses (*hiraya*).

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Table 1
The number of carpenters and carpenters' groups in the Osaka Sangō.

Year	# Of carpenters	# Of carpenters' groups	Population of the Osaka Sangō	Remarks
1637–41	443	4 Groups in Osaka/1 group in Tenma	Approx. 400,000	
1677	831		Approx. 270,000	
1692	Approximately 1000		Approx. 300,000	
1677–97		21 Groups in Osaka/3 groups in Tenma		
1724				The great fire of Myōchiyake
1737		23 Groups in Osaka/6 groups in Tenma	Approx. 400,000	
1748		23 Groups in Osaka with 1222 hearths (used to determine the number of households, so there were around 1222 carpenters' households)		
1765	2330 (including apprentices)	23 Groups in Osaka with 1228 members (not including 574 apprentices) 6 Groups in Tenma with 528 members (including apprentices)	423,452	
1766–1769		1218 Carpenters' households in Osaka 338 Carpenters' households in Tenma		
1842		24 <i>Muyori</i> carpenters' groups in Osaka/6 <i>muyori</i> in Tenma		The Wholesaler Suspension Act
1854		24 Groups in Osaka with 1200 households (according to a count of hearths) 6 Groups in Tenma	Approx. 300,000	Revival of trade guilds

The population density was about 200–250 per hectare; some neighborhoods, such as those at the wharf in the center of Osaka, had up to 700 inhabitants per hectare. This is a surprising number when we consider the low-rise housing prevalent at the time, and that a population of more than 300 people per hectare in a single region today, excluding collective housing, is thought to be highly dense.

As we can see, there was an enormous building demand in Osaka during the Edo period, with Osaka Castle on the one hand and the construction of the Osaka Sangō on the other. Furthermore wooden buildings, which endure for only short periods, require continuous, meticulous upkeep to extend the lifespan. Thus, factoring in daily repairs as well as new construction, there was an extremely high demand for carpenters in Osaka (see Table 1).

Town carpenters and carpenters' groups in the Osaka Sangō

Carpenters in Osaka and government-commissioned construction work (Goyō Sakuji) – Early 17th century

The carpenters, woodcutters (*soma*), and sawyers (*kobiki shokunin*) residing in the six provinces surrounding Kyoto and Osaka¹ in the Edo period were uniformly governed under the head of the carpenters (*daiku-gashira*), the Nakai family (later called *Nakai Yakusho*, or the Nakai Office), regardless of domainal jurisdiction. This is because it was necessary to mobilize the skilled craftsmen in the Kyoto–Osaka region to undertake the government-commissioned castle construction work ordered by the shogunate, for example (Nishi, 1983; Yoshida, 1987).

At the outset of the 17th Century, many government-commissioned projects were assigned in succession: Edo Castle, Nagoya Castle, Sunpu Castle in Shizuoka, and Fushimi and Nijō Castles in Kyoto were constructed (or recon-

structed) as Tokugawa family castles, along with temples and shrines associated with the Tokugawa family. Additionally, the Imperial Palace (Kyoto Gosho) was constructed as the residence of the Emperor. Carpenters from the six provinces were mobilized to these construction sites under the orders of the Nakai family. For instance, there were eight new construction projects on the Imperial Palace during the Edo period, to which the carpenters of the six provinces attended. The completion of the Kan'ei-era Imperial Palace, an 18-month project finished in 1641, required the work of 1250 on-site carpenters on average daily (Tani, 1992).

Carpenters' groups were thus organized regionally in the six provinces of the Kyoto–Osaka area, and utilized as agencies for mobilizing craftsmen for such government-commissioned work. The earliest example of Osaka carpenters' involvement can be seen with the participation of foremen (*kumigashira*) from Osaka and Tenma on the construction of Nagoya Castle in 1612 (Kawakami, 1984).

During this time, the greatest government-commissioned work for Osaka carpenters was the reconstruction of Osaka Castle. Osaka Castle was built by Hideyoshi Toyotomi in 1583 as the headquarters from which to control the nation. However, this castle fell during the Siege of Osaka in 1615; after the battle, the Tokugawa family, who had direct control of Osaka, began the reconstruction of Osaka Castle. Construction work was conducted over three periods beginning in 1620 and completed in 1629. This was a grand piece of work that gave rise to an enormous castle on par with Edo Castle: the project required filling in dirt on top of the remains of Toyotomi's Osaka Castle, building a new stone wall, erecting a five-story keep and constructing 12 three-story turrets (Matsuoka, 1988).

It is not difficult to imagine that a great many carpenters from Osaka were brought in for this work; however, unfortunately no documents related to carpenters remain. The only known fact is that Yamamura Yosuke, who would later become a designated carpenter serving Osaka Castle, was involved in the reconstruction: Yamamura transplanted Fushimi Castle's main enclosure (*honmaru*) to be the tem-

¹ The Kyoto–Osaka area is known as *kamigata*. The *Gokinai*, or five surrounding provinces, included Yamato, Yamashiro, Settsu, Kawachi and Izumi provinces; the "six provinces" listed here includes the nearby Omi Province.

porary palace of Osaka Castle and accepted the nails and clamps from Fushimi Castle's main and secondary enclosures (*ninomaru*) alongside the master builders (*tōryō*) of the Nakai family (Takahashi, 1983). The head of the Yamamura family was appointed to be the designated carpenter for Osaka Castle after its completion as well, and was responsible for its minor repairs. According to the *Naniwamaru komoku* published in 1748, he had two assistant master builders (*tedai tōryō*), seven assistant associate builders (*tedai shō-tōryō*), and a total of 170 carpenters under his control.

In addition to the reconstruction of Osaka Castle, there was also the demand for townhouse construction in Osaka's castle town, Sangō. In 1642, following the reconstruction of Osaka Castle, there were 443 carpenters in the Osaka Sangō, with four carpenters' groups in Osaka and one in Tenma that were each commanded by a manager carpenter (*daiku kimoiri*) (Kawakami, 1984). Judging from the areas of residence of the managers, these organizations were based in Kita Senba (Sukeemon-gumi), Minami Senba (Yohei-gumi), Nishi Senba (Kuzaeon-gumi), Shimanouchi (Hyōemon-gumi), and Tenma (Kihei-gumi). This suggests that the carpenters' groups were organized according to residential districts corresponding to the town divisions in Osaka Sangō.

Osaka's population is thought to have been 404,929 in 1634. The large population is due to the large number of carpenters and day laborers that assembled and resided in Osaka for the reconstruction of Osaka Castle and the building of the Osaka Sangō. This population, however, dramatically decreased in 1665 to 268,760, most likely due to the decrease in demand for labor with the end of the reconstruction work and the subsequent outflow of the population into developing areas such as Edo. In 1663, the Osaka City Magistrate (*machi bugyōsho*) issued an order that all carpenters living within the city, regardless of whether they were homeowners or tenants, obey the commands of the Nakai family; those who did not obey this were forced to conduct their work outside of regions controlled by the Nakai family. This order was likely to have been made in response to the decrease in construction work, in order to guarantee the business rights of the existing carpenters' parties.

Transformation into a carpenters' guild (daiku nakama) – Late 17th century

The population of the Osaka Sangō, after ebbing in 1665, began to gradually increase and again reached 300,000 by 1689. The number of carpenters in the Osaka Sangō increased in response to this, numbering 831 in 1677 and reaching around 1000 in 1692. The carpenters' groups were also reorganized: by 1697 there were 21 groups in Osaka and 3 groups in Tenma for a total of 24. Later this further increased to 23 groups in Osaka and 4 in Tenma (Watanabe, 1978; Kawakami, 1997).

At this time, the shogunate periodically issued various prohibitions in order to ensure the continuance of the feudal status system. Prohibitions related to construction were also included. For example, the shogunate banned the use of gold, silver, and metal foils for ornaments in buildings; high-rise buildings of three stories; and other extravagant

ornamentation exceeding one's status in Osaka in 1647, which was earlier than other cities. In 1668, a famous ordinance for construction (*kasaku kinrei*) was issued. This limited the length of crossbeams of temples and shrines in Edo to 3 *ken* (approximately 4.5 m). Limiting the crossbeam span of the main building (*omoya*) to 3 *ken* also greatly limited the size of the roof. In the Kyoto–Osaka area, this ordinance was carried out thoroughly, being transmitted from the Magistrate of Temples and Shrines (*jisha bugyō*) to the Nakai family, and finally to the carpenters' groups. To ensure the strict observance of the 3 *ken*-crossbeam ordinance, a notification was issued in 1686 that required the submission of an Application for Construction to the Nakai family for approval before the start of any construction; this was essentially the equivalent to today's building certification application.

There were also clauses concerning the operation of carpenters' groups in the 1686 notification, such as rules regarding the replacement of foremen and efforts to increase administrative efficiency through the establishment of smaller, five-person groups (*goningumi*) within the larger carpenters' groups. Based on this, carpenters' group regulations (*kumichū sadame*) and guild regulations (*nakama sadame*) were established within the carpenters' groups under the jurisdiction of the Nakai family from 1692 to 1695. The clauses included four points: (1) strict adherence to construction prohibitions; (2) participation in the shogunate's commissioned construction work; (3) regulations regarding construction work; and (4) regulations within the party (Tani, 1992). Since carpenters' parties were initially established with the purpose of recruitment for commissioned construction projects, the hierarchical power relationship of the Nakai family to carpenter foremen and foremen to carpenters' groups was strong. However, with the establishment of regulations within carpenters' groups, a sense of camaraderie was born in the groups, which strengthened the sense of the fellowship among workmen in the same trade.

An administrative reform was enacted in 1693 that transferring the expenses that had, until then, been paid by the Nakai family (for construction work including the creation of plans, specification books, and estimates) to the shogunate so that they could be paid for with public funds; this led to the establishment of the Nakai Office (*Nakai Yakusho*). In 1696, the elder carpenters (*daiku toshiyori*) of Osaka became responsible for handling the approvals of the Applications for Construction for temples and shrines for the provinces of Settsu and Kawachi; previously applications for all of the Osaka–Kyoto area had been singlehandedly undertaken by the Nakai family. This measure was taken because the temple and shrine construction for both provinces was under the jurisdiction of the Osaka Town Magistrate, and as Osaka's status rose, the functions of the Kyoto–Osaka area which had been concentrated in Kyoto came to be shared with Osaka as well.

The development of carpenters' guilds – 18th century

The population of Osaka continued to increase in the 18th century, exceeding 400,000 by 1739; carpenters were also reorganized into 23 groups in Osaka and 6 in Tenma for a total of 29 groups in 1737. Osaka's population reached

its Edo-period peak in 1765 with 423,452 living in its three districts. Carpenters' groups had also developed into sizeable organizations at this time, with about 1230 carpenters (not including 570 apprentice carpenters) within the 23 groups of Osaka and about 340 (not including 190 apprentices) in the 6 groups in Tenma (Watanabe, 1978). The number of hearths (*kamado kazu*) was used to determine the number of households; 1222 hearths were said to exist among the 23 groups in Osaka, which suggests that the number of carpenter households had been fixed.

The demand for a carpenter's work increased not only with the population increase and the expansion of urban areas, but also rose drastically in the event of major reconstruction projects that followed disasters such as fires or earthquakes. In 1724, the Great Fire of Myōchiyake destroyed two thirds of the city of Osaka. The demand for carpenters' skills rose dramatically after this in the process of reconstruction. Although a decree had just been issued that banned the employment of sawyers from other provinces in an attempt to protect the carpenters and sawyers of Osaka, this prohibition was lifted for the five years during the reconstruction, resulting in an influx of carpenters and sawyers from the countryside which was followed by a steady flow of materials such as roof tiles and lumber from other provinces.

However, when reconstruction work slowed in 1733, the Osaka Town Magistrate revoked the licenses of eight carpenters who did not comply with the rules of the Nakai family. At the same time, the Magistrate issued a notification to the Sangō neighborhoods warning them not to employ carpenters without licenses. Prohibition decrees regarding builders were later issued repeatedly: for example, the employment of sawyers from other provinces was banned in 1736, and secondhand tool and lumber dealers were banned from keeping their own carpenters and running carpentry businesses in 1758. These mandates were issued to protect the rights of the carpenters' groups because Osaka's population growth had leveled out and the demand for construction had stagnated.

The wholesaler suspension act and the Meiji restoration – Early to mid 19th century

With the Wholesaler Suspension Act (*Ton'ya Teishi-rei*) in 1842, the various trade guilds (*kabu*), wholesalers, guilds, and groups were disbanded. Carpenters' groups were no exception to this, but because the shogunate required an organization to mobilize a workforce for their commissioned construction work, the groups simply changed their names and continued to function: the suffix affixed to groups' names was changed from "kumi" to "muyori," and the carpenters' groups of Osaka were reorganized into 24 *muyori*. It can also be assumed that the groups' divisions were once again determined by the residences of the carpenters.

Trade guilds were revived in 1854, and the suffix "kumi" was also re-approved; thus, the names of carpenters' groups reverted from "muyori" back to "kumi," with 24 groups in Osaka and 6 in Tenma (Watanabe, 1978).

In April 1854, the year that the trade guilds were revived, the Imperial Palace in Kyoto burned down. That year, Commodore Perry had landed in January, the Treaty of

Kanagawa had been signed in March and, as a result, national politics was in a state of unrest. Still, the shogunate immediately began the reconstruction of the Palace: a pre-construction Shinto carpenters' ritual (*chōna-hajime*) and an architectural ritual of putting up ropes around the site (*jibiki*) were conducted in March of the following year; the foundation was set (*sueishi*) and the main pillars were raised (*ryūchū* or *ricchū*) in April; the ridgepole was raised (*muneage*) by August, ground-purification rites (*jichinsai*)² were performed in October; and finally, the whole project was completed by the end of the month. The resulting restoration is the current Kyoto Imperial Palace. The carpenters employed for this project included the Nakai family as the head of the carpenters, a group of master builders from the Nakai Office, and 172 carpenters' groups from the six neighboring provinces. All 24 Osaka groups and 6 Tenma groups participated. Despite the enormity of the project, it was completed in the short period of seven months. The 1855 Imperial Palace project was the last work in which the carpenters' groups functioned as agencies to mobilize a workforce for a government-commissioned construction project.

Following the overthrow of the Tokugawa Shogunate in 1868, the nascent Meiji government transferred jurisdiction over the carpenters' groups in the Kyoto–Osaka area from the Nakai family to the newly established Building and Repairs Office (*Eizen-shi*), but the carpenters' groups continued to exist. However, the disbanding of trade guilds in 1872 led to the breakup of the carpenters' groups as well. New groups were planned in 1874, and the carpentry trade association (*daiku shoku kumiai*) was founded. The association was divided into four groups: the East, South, and West groups covered the same area as the 24 groups in Osaka had, while the North group covered the same area as the 6 groups from Tenma had in the Tokugawa period.

The organization, work, and skill of the carpenters in Osaka

The organization and operation of the carpenters' groups

As previously mentioned, in the early 17th century there were four town carpenters' groups in Osaka and one in Tenma. These corresponded to the division of neighborhoods in the Osaka Sangō: the residential areas of Kita Senba, Minami Senba, Nishi Senba, Shimanouchi, and Tenma were the basis for the formation of these groups.

The location of the 23 groups in Osaka and the 6 groups in Tenma during the 18th century can be reconstructed from historic documents of the Furuhashi family from the Meiwa period (1764–72).³ The 23 groups from Osaka were located south of the Ōkawa River in the so-called Osaka Nanboku Groups (*Osaka Nanboku Gumi*); groups one through eight were in Uemachi, eight [sic.] through 15 in Kita Senba, 16 and 17 in Shimanouchi, and 18–21 were in Nishi Senba (the only exceptions were groups 22 and 23). On the other hand, the 6 groups of Tenma (called the Tenma Groups), to the north of the Ōkawa River, were located in order from

² Editor's note: while most contemporary ground-purification rites are performed before beginning construction, they can also be performed at the end of a construction project. This is perhaps what occurred in this situation.

³ *Osaka Sangō daikugumi kiroku* (Records of carpenters' groups in the Osaka Sangō), Furuhashi family documents.

group one through group six, from the east to west. Each group had between 11 and 180 members; the average was 59 members (Watanabe, 1978; Kawakami, 1997). In this way, the 23 groups from Osaka and 6 from Tenma corresponded in location to the town divisions of the Osaka Sangō. The numeric naming of carpenters' groups is also something that cannot be seen in carpenters' groups in other areas, and thus suggests that the organization of these groups in Osaka was based on its urban planning. In other words, here we see the urban character of Osaka's carpenters' groups.

The Osaka carpenters and the Tenma carpenters both formed large associations (*ōnaka*, also called *ōnakama*, or great guilds). The association formed amongst the 23 Osaka groups was managed by the elder carpenters and yearly representatives (*nenban*), while the association of the 6 Tenma groups was managed by the elder carpenters and monthly representatives (*tsukiban*). We can confirm the names of Udaya Kōemon, Furuhashi Tarōemon, and Maruya Chūbei as Osaka's elder carpenters from the aforementioned *Naniwamaru Komoku*.

The 1853 set of rules established for the Tenma association consisted of 34 clauses. These included clauses for obligatory participation in commissioned construction work (comprised of three clauses discussing financial contributions for the projects, procedures for temple and shrine construction requests, and procedures for requests for extended beams), clauses concerning carpenters' work (banning unlicensed carpentry, rules regarding the employment of carpenters from other provinces, and so on), rules about the running of the association, and rules concerning financial contributions.

A similar association of carpenters' groups existed in Kyoto as well, but the active role of elder carpenter is only seen in the Osaka association. The elder carpenter led the carpenters' group and mobilized a workforce for commissioned construction work. Additionally, the elder carpenter approved of construction work on temples and shrines (*jisha fushin*) for the Settsu and Kawachi provinces. That such duties did not exist in the Kyoto association, which was under the strong influence of the Nakai Office in Kyoto, highlights the special position of Osaka carpenters.

The work of the carpenter and designated relationships

One facet that shaped carpenters' work in the Edo period was *deiri kankei*, a system in which designated carpenters had relationships with specific householders. These relationships determined which carpenters could work on projects at which homes: only the designated carpenter who had a relationship to that house could be in charge of work done there. However, various problems still arose concerning work acquisition, so a detailed system for determining construction work was described in the rules for carpenters' groups. Examining the guild rules for the carpenters' group from Sakai, located to the south of Osaka, provides an example for construction work on temples or shrines: if a temple's parishioners (*danna*) gave a donation to the temple as a group, the temple's designated carpenter (*deiri-daiku*) was assigned the job. If an individual made the donation, the temple's designated carpenter and the individual's designated carpenter decided between themselves who would do the work. In the case there was a bid for a

job, only the designated carpenters of the temple's parishioners could be selected for the job. If townsfolk needed a carpenter for a job (*machigata fushin*), the carpenter to perform the work was selected from the family's pool of designated carpenters; the designated carpenters of the household's servants could not take part in the bidding. For construction work within a neighborhood on its meeting halls or gateways (*kidomon*), work was decided by bidding amongst the designated carpenters of home-owning townspeople living in the neighborhood. These rules also stated that the designated carpenters of tenants renting a home could not renovate the home without notifying the home-owners, although it is uncertain whether tenants even had designated carpenters.

Osaka's carpenters not only competed with other town carpenters of the Sangō for jobs but also with the Osaka Castle carpenters under the jurisdiction of the Yamamura family. Furthermore, they competed with the carpenters of farming villages nearby, and a great many disputes resulted (Kawakami, 1997). The most important objective of the carpenters' groups was to guarantee workplaces for the carpenters belonging to it.

Here I would like to look at the workplaces of Osaka's carpenters. Udaya Sachiemon, who was one of Osaka's elder carpenters in the early 18th century, was the designated carpenter for the Sumitomo family. The Sumitomo, who were one of the wealthy merchant families of Osaka, ran a copper business. Udaya rebuilt the Sumitomo's main home and copper refinery after they were destroyed in the Great Fire of Myōchiyake. The words "Carpenter Oka Sachiemon" are written on the protective talisman (*kitō fuda*) of the rebuilt home. Udaya also worked on the renovation of the Sumitomo family's temple.

Yamamotoya Tarōbei, who was also one of Osaka's elder carpenters, belonged to Osaka's carpenters' group number ten. Yamamotoya worked for his clients and at various other workplaces for about 170 years⁴ between 1705 and 1872. We have discovered 36 of his workplaces: of these, 24 were in Osaka, and 12 were in areas outside of the Osaka Sangō (none were in Tenma). He carried out his work at designated construction sites (*deiri ba*) which were generally near his residence. He was involved in the construction work on some of the representative temples and shrines of Osaka, including the Namba Midō Temple, the Ikasuri Shrine (also called Zama Shrine), and the Tsumura Midō Temple. Also, with Yamamotoya's status as a master builder, he was further involved in work at such places as Higashi Honganji Temple and Honnōji Temple in Kyoto, Kasuga Taisha Shrine in Nara, and Mt. Kōya. When working in places under the jurisdiction of other carpenters' groups, he called on the local groups and applied for approval (Watanabe, 1978).

Ōmiya Kichibei, a Kyoto carpenter active during the Bunsei era (1818–1831), is an example of a prominent town carpenter. Kichibei was a foreman for the Tanabe-gumi, one of Kyoto's 20 carpenters' groups. He had secured designated workplaces near his residence. He was a multi-talented carpenter: on one hand, he specialized in temples

⁴ Editor's note: many names were hereditary in the Edo period, so when a father retired and passed his job onto his son, that son also took the father's name. Thus, in this 170-year span there were several generations of Yamamotoya Tarōbei working as carpenters in carpenters' group number 10.

and shrines (*dōmiya daiku*) and was commissioned to work on Honkokuji Temple. On the other hand, he worked on houses for townspeople (*machiyadaiku*), and had clients in the residential areas of the city (*machiba*). While the majority of his work was on houses, there were only one or two new construction projects yearly. This was supplemented by building extensions, making renovations to existing houses, and repairing fixtures and joinery (boxes, signboards, and household shrines called *kamidana*) (Hyuga, 1998). Through this example, we can infer Osaka's carpenters worked in a similar fashion, working on new home construction and also sustaining their family businesses through small repairs and maintenance work.

Incidentally, if Osaka carpenters were homeowners, they had to serve as a municipal officer in their neighborhood. However, according to a rule unique to the city, carpenters were required to report to the scene of a fire as a part of municipal fire-prevention duty (*shichū bōkayaku*). In a 1653 fire in the Osaka Sangō, the city magistrate issued a notification that stated that the three elder carpenters send 30 common carpenters equipped with saws to the site of the fire immediately. It was common in fire-fighting practice at the time to tear down buildings – a practice known as fire-fighting through destroying (*hakai shōbō*) – in order to stop the spread of fire, and so carpenters were called to the site of the fire. In exchange for this duty, home-owning carpenters were exempt from “bucket duty” (*teoke yaku*) – using buckets of water to try to extinguish a blaze – that the other neighborhood homeowners were required to perform in case of a fire. This same regulation has been found in the Sakai Nanboku carpenters' group and in the “Laws of the Twenty Carpenters' Groups” (*Yaku daiku nakama nijū-kumi jōhō-shō*) of Kyoto, indicating that the duties of the carpenters' groups were linked to the neighborhoods' communal operating system.

Building technology from Osaka

While an enormous building demand was being met in Osaka, a very efficient building system also developed, one that led architectural practice in Japan. In 1606, when the halls and buildings of the Daigoji Temple in Kyoto were being built, the building components were processed and modified in Osaka before being transported to the site for assembly. This indicates that a kind of prefabrication method was being used in Osaka at this time (Nagai, 1982).

By the start of the 18th century, Osaka's shrine and temple carpenters made full use of prefabrication construction methods for their flourishing businesses in Western Japan. For example, we can see that in the construction of the main halls of Harima Province's Tenma Shrine (1701), Yamashiro Province's Mori Hachimangu Shrine (1702), and Oki-no-shima's Takuhi Shrine (1732), lumber processed in Osaka was transported to the site and then assembled (Nagai, 1982; Tani, 1989). Using this construction method, it was possible to import the latest designs from the city to the countryside, with the benefit of placing less of a burden on the local carpenters. Herein lay the innovative spirit of Osaka's building system.

This innovation was also demonstrated in the construction of townspeople's houses as well. Engelbert Kaempfer, a German who visited Japan in 1690, stated that “The mats,

doors and skreens [*sic*], are all of the same size, to wit, one fathom [*ken*] long, and half a fathom broad. The houses themselves, and their several rooms, are built proportionably [*sic*] according to a certain number of mats, more, or less” (Kaempfer, 1906). Kaempfer was referring to the technique of “*tatami-wari*,” in which a house was designed using column-spans based on the size of the *tatami* mat. It is a two-dimensional planning technique employed by those from the Kyoto–Osaka region. The *tatami* mat became prevalent in townspeople's houses during the Edo period, instigating the appearance of ready-made products everywhere and further standardizing the sizes of the doors and sliding doors with paper panes.

The *Risshin Daifukuchō*, a ledger discussing the pursuit of profit authored by a Kyoto-ite in 1703, states that the ready-made doors and paper doors from Awaza or Awajichō in Osaka were cheaper and of better quality than those built by a local carpenter. The standardization of building materials and their distribution were certainly a product of Osakans' business acumen.

Conclusion – Early modern society and carpenter craftspeople

Carpenters, who had been protected by organizations with special rights in the Edo period, had to adapt to the harsh waves of change following the Meiji Restoration. The Nakai family who had been the head of the carpenters appealed to the new government, and they were allowed, for a time, “to control the three crafts of carpenter, woodcutter, and sawyer, as well as fire extinguishing in Yamato, Yamashiro, Settsu, Kawachi, Izumi, and Ōmi Provinces” as they had previously. However, in 1870 they were dismissed from this role.

Despite this, carpenters were able to secure work through their existing relationships as designated carpenters. Furthermore, many, especially those of the foreman-class, were able to continue their jobs as building contractors or carpenters for temples and shrines. The heads of the Yamamotoya and Furuhashi families, the group leaders of Osaka's tenth group, held the posts of elder carpenter and director of the carpenters' group even after the Restoration. Additionally, they participated in the reconstruction work on the Goeidō and Amidadō Halls in the Higashi Honganji Temple complex in Kyoto. On the other hand, the foremen of Kyoto's Tanabe group of carpenters, the heads of the Ōmiya and Tanaka families, continued as town carpenters in Kyoto even after the Restoration. However, not one of them grew to become a major building contractor who shouldered the needs of modern society. Perhaps the organizational policy of the carpenters' groups, which punished those members of their own trade who stealthily attempted to acquire more work than others, did not allow for any particular carpenter to succeed. Thus, it can be added that those with an artisan's spirit, even with talent in business management, were limited by their trade.

In recent times, wooden buildings from the Edo period are being reevaluated. This is related to the standstill of the construction world and its “scrap and build” policies, a standstill brought about by stagnation after the period of high economic growth and the bursting of Japan's Bubble economy in the early 1990s. Reflecting on this, the focus

has shifted to the preservation and revitalization of existing buildings. As in the case of Hōryūji Temple⁵, Japanese wooden buildings can have a long life-span – and may even be used for new purposes – if sustained maintenance efforts for minor upkeep and large-scale reconstructions (necessary every few hundred years) are undertaken. The Toyosaki Rowhouse (*nagaya*) Revitalization Project by the Osaka City University Urban Research Plaza has also received attention as a revitalization model of a decrepit wooden rowhouse constructed 90 years ago. The study of the history and technology of traditional Japanese wooden architecture is now highly sought after.

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⁵ Though said to have been built in 670 CE, the current buildings of Hōryūji Temple are believed to have been constructed in 711 CE (after a fire destroyed the original buildings), and have been repaired/reassembled several times.