

Revival of Old Shimbashi Station

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History

Tokyo lost many important historic buildings as a result of the massive damage inflicted by the 1923 Great Kanto Earthquake, bombing during WWII, and sometimes overenthusiastic redevelopment in the postwar high-growth period. The old Shimbashi Station building, Japan's first railway terminus, was destroyed by the earthquake. The site was formerly used as a huge railway complex accommodating Shimbashi Station and later Shiodome Freight Terminal. The entire district is now being re-born as a new business, commercial and residential complex nicknamed 'Sio-site.' Old Shimbashi Station has been rebuilt as part of this redevelopment to commemorate its role as the birthplace of Japan's railways. This short article describes how the reproduction of the Old Shimbashi Station was made possible.

The original two-storey timber-frame stone-clad station building was designed by the American architect R. P. Bridgens as the Tokyo terminus for Japan's first 29-km railway line between Tokyo and Yokohama opened in 1872. The passenger-terminal functions were transferred to the new Tokyo Station in 1914 and Shimbashi Station was renamed Shiodome Station, becoming Tokyo's main freight terminal.

The station building was destroyed by fire following the Great Kanto Earthquake on 1 September 1923. Major improvements in Shiodome Freight Terminal from 1934 resulted in demolition of the remaining platforms and original structures that survived the 1923 earthquake and fire.

Following the closure of Shiodome Freight

Terminal in 1986, the abandoned 22-ha site was sold to the private sector as part of the JNR privatization. An archaeological excavation in 1991 by Tokyo Metropolitan Government led to the discovery of the station site and unearthing of the platform and foundations of the station. In 1996, the government designated the remains of the station building and part of the platform as the Old Shimbashi Station Historic Site. In 1998, the Japanese National Railways Settlement Corporation (JNRSC), the land owners, decided to rebuild the station on its original location as a memorial to its important role in Japan's modern history and East Japan Railway Culture Foundation (EJRCF) became responsible for the project. Construction started in December 2001, and was completed in April 2003.

Analysis for Reconstruction

The rebuilt station is based on computerized 3-D analysis of photographs taken just before the opening of the railway (Figs. 1 and 2). Accurate survey data obtained from the rediscovered remains (Fig. 3) were used to determine horizontal measurements, and the dimensions of the dressed stone discovered at the bottom step of the main entrance (Fig. 4) were used to determine vertical measurements. Figures 5a and 5b show the methodology of the 3-D analysis.

The original platform was 150-m long (Fig. 3), but only 35 m behind the station building was designated as part of the historic site. It had a stone retaining wall on each side and each wall originally had six courses of stones (including cap stones)

with the top three courses above ground level. Only the lower courses of the platform retaining wall were found (Fig. 6). Figure 7 shows the projection of the walls on the scale drawing of the remains.

Policy for Exterior and Interior Design

Apart from the photographs taken in 1872 (Figs. 1 and 2), there are many later photographs (Fig. 8 shows a different type of carriage porch roofing from Fig. 1) and *ukiyo*e wood-block prints (Fig. 9). However, none gives accurate information about what kinds of stone were actually used and what colour was really presented. Figures 1 and 2 show stones with irregular spots and the excavations revealed that a spotted tuff called *Izu madaraishi* from the Izu peninsula had been used in the platform (Fig. 10a). Our investigation in Shimoda City at the southern tip of Izu found some remaining madaraishi houses (Fig. 10b), but unfortunately, quarrying had stopped many years ago. As a result, we were forced to use a combination of stones of different origins. One of the most difficult questions was what the central part of the main entrance looked like. The only hint is in Hiroshige's wood-block print (Fig. 9) showing the central opening with an arched top. We adopted the same shape but used a modern design in fair-faced concrete in order to demonstrate that this part is not based on the original design (Figs. 11a and 11b).

There is virtually no reliable information about the interior so we decided to adopt a modern design to prevent confusing visitors by using a non-authentic classical design.



Figure 1



Figure 2

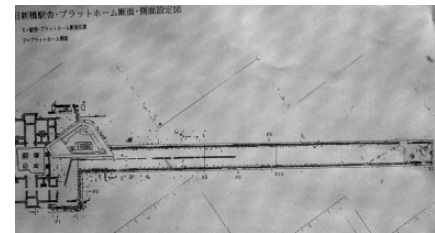


Figure 3

Construction Works

The remains of the Old Shimbashi Station are a government-designated historic site, so every original part must be preserved intact and forever. However, reconstruction of the station must be at exactly the same location as the original without harming the remains. To solve this paradox, the concrete foundations of the new building were built around the remains, and the space was filled with sand to protect them (Figs. 12a and 12b). These foundation works were done by JNRSC. As a consequence, the new building is 75 cm higher than the original level. Figure 13 shows how the new building is supported without putting any load on the remains. This reconstruction of the Old Shimbashi Station was licensed by the city authorities only as a ‘contemporary’ building, meaning that it does not benefit from exclusions to current building codes, unlike restoration works on other heritage buildings. As a consequence it has been built to modern architectural standards meeting today’s requirements while maintaining the original appearance. The main structure is reinforced concrete. The external facing is reproduced by fixing fairly thin (approximately 50 mm) slices of stone to the concrete body with metal fittings. To confirm the external appearance, different mock-ups were made at the site (Figs. 14a and 14b). Figure 14b shows how it looks when the stones are wet. The reproduction of window details depended on hand working (Fig. 15). They are completed thanks to the skilled stonemasons and sculptors still in Japan (Figs. 16a and 16b).

The platform roof was not reconstructed for several reasons and we decided to adopt a modern design. Figure 17 is a period photograph showing the platform roof structure. Figure 18 shows the reproduced platform with modern pillars designed along the lines of the original structure. There are three observation pits outside the building, enabling visitors to look directly at the in-ground remains (Figs. 19a and 19b).

To protect the remains, the under-floor space cannot be used for distributing utilities such as electricity, gas, air conditioning, sewage, etc. Two boxes outside the building accommodate these utilities and a modern design was adopted to show clearly that they are not based on the original design (Fig. 20a). The interior of the entrance hall is also modern (Fig. 20b).

Railway History Exhibition Hall

A greater part of the building is leased to a restaurant and the rest is used as the Railway History Exhibition Hall (RHEH) run by EJRCF. Figure 21 shows the RHEH ground floor from the top of the staircase. Visitors can see part of the original foundation through a large floor window. The ground floor also exhibits excavated relics including foreign products used by British engineers who built the first railway in Japan. The upper floor is used for short-term exhibitions on various changing themes. Outside the building next to the platform, 7 m of track is reproduced using authentic double-headed rails forged in England in 1873 (Fig. 22). The reconstructed Old Shimbashi Station is becoming a popular sightseeing spot symbolizing the heart of the redeveloped Shiodome area. ■



Yukio Tahara

Mr Tahara is a graduate of Kyoto University in civil engineering and architecture. He also studied architecture at Leuven Catholic University in Belgium. He has been working for Nihon Sekkei Inc. as a chief architect for heritage building preservation. This short article is a summary of his presentation at the symposium held on 9 April 2003 to celebrate the completion of the Old Shimbashi Station.



Figure 4

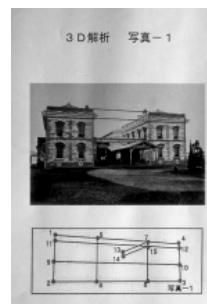


Figure 5a



Figure 5b



Figure 6

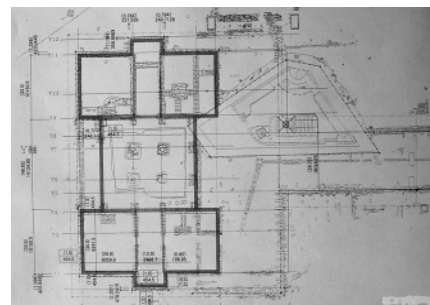


Figure 7



Figure 8

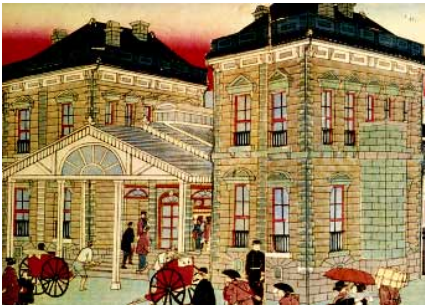


Figure 9



Figure 10a



Figure 10b



Figure 11a

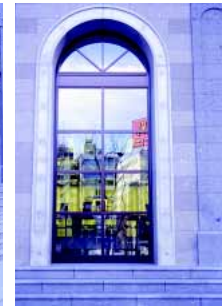


Figure 11b



Figure 12a



Figure 12b

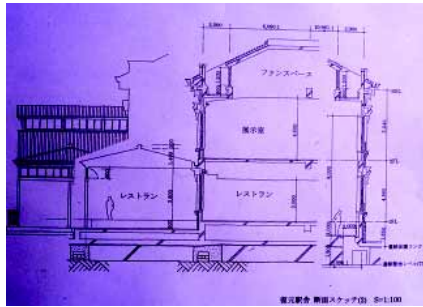


Figure 13



Figure 14a



Figure 14b



Figure 15



Figure 16a



Figure 16b



Figure 17



Figure 18



Figure 19a



Figure 19b



Figure 20a



Figure 20b

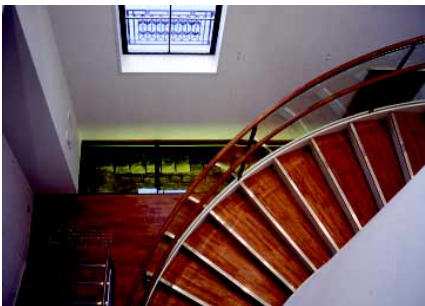


Figure 21



Figure 22



Figure 23