1. Introduction
1-1 Background
Mongolians are nomads, lived in movable houses called "Ger" even now. Rather than traditional housing "Ger" there is log housing. It was appeared by early 20th century right after the People’s Revolution won with the help of the former Soviet Union. Russia was ideal country to follow and got a lot of influences by social, political, and culture. Also, the People’s Revolution was started and had first won from Altanbulag. For this reason, this city is important as political and as historical. There are many log houses left and half of them are being used by someone. But some of the historically and politically important buildings are demolished. For many reasons, architecture in Mongolia is dismissed and forgotten. Lack of documentation and conservation works led this area’s buildings to a bad condition.

1-2 Research purpose
The main purpose of this research is to find the origin of the Mongolian log housing and documentation of the log buildings in the Altanbulag area. Evaluating the historical value of them.

2. Previous researches
Previous researches suggested that historical architecture buildings in capital city and how to preserve these. Some research included log housing in capital city, rather the most buildings were palaces, temples and built during great construction work period in 1940-1960.

3. Research questions and methodology
1) How did these log housings come into Mongolia?
2) What kind of technique was used to build log houses?
3) What is the value of these buildings?
4) What is the reason to preserve all these buildings?
The research is conducted in Altanbulag, Mongolia. 5 buildings are selected which located in a northern province’s small town (border town of Russia and Mongolia). In this area, many of the historical log housings are still existing comparing to the capital city. To find out origin and development of log housing this research goes through deep historical understanding. Secondly, this research has conducted interview with researchers and local authorities, direct visit and observation in a site.

4. Findings and Result
4-1 Origin and development
Trading was developed between Russia–Mongolia–China in Khuree since the end of the 17th century. Since the 17th century, beginning of the Russia and Chinese relation and found a new way through Mongolia. Due to Khuree city’s development, many markets and Russian stores are opened in the 19th century. Even the first Russian council established in 1860. Mongolian residential construction got deep influence from Russian peasant housings; Izba and Dacha. White Russia and Russian soldiers who lived in Mongolia during 1900–1920 habited in this kind of timber houses. Old Russian peasant house Izba, these are still used by Mongolians even today. Izba – the roof is covered by tied straws, logs are stacked by horizontally as a square shape, put wooden dowel or nail in the corner to connect each log together.

Figure 1. Corners in Russian traditional log housing.
Izba: The central, shared, multipurpose, heated room of the traditional Russian peasant house, the izba, a best expressed that cohesion architecturally. The izba itself may not represent and evidential breakthrough, but its
evolution does provide another way to gauge rural transformation. By 1900, peasant house izba attached additional features. It added the vestibule into izba. Vestibule help to block outside cold air and keep warm inside. Izba itself is around 16-20m2, ceiling height is 2-3m. The most important place of izba is a stove (made clay or brick, 2m2 and 1.5m high). It is cold in wintertime vestibule and stove are compulsory in izba for comfort. Izba is developed “Five-wall”, which included winter room, summer room and vestibule. Ventilation in izba is bad, so peasants created one more room for summer use.

Figure 2. Interior of izba.

Figure 3. Exterior of izba.

Dacha: It appeared in 17th century first time, but started popular in the late 19th century, families of upper and middle classes of Russian society stayed during summertime in the dacha for relaxing and organized small events, masquerade balls and fireworks displays. Simply, dacha is a fancier izba with cottage.

Figure 4. Dacha.

Recently fancy dacha is coming back. Even, the state-owned vacation houses permitted for government officials, academicians, military personnel, and other VIPs are called gosdachas (state-dacha). Russians kept tradition in a dacha while they lived a modern life in a city. People live in an apartment in a city, also they have another summer house outside of the city to escape polluted city and spent time with their family.

4–2 Case studies in Altanbulag

A lot of events happened in this city related to the people’s revolution. So, many log housings are related to political events. When building a log housing, in Mongolia usually used robs and sawdust sometimes felt as insulation. The window also has covered outside to protect from wind. Most parts are adapted as it was in Russia.

Since Russia and Mongolia’s weather is similar especially the Siberian part and Khyakhta is just next to the Mongolia that is why similar heating solutions are seen. It is difficult to maintain wooden buildings for a longtime, also purpose of each building has changed in several times. Official “Architecture and Culture heritage preservation and conservation organization” established in 1973, did around 40 repair work in historical buildings, including buildings are relevant with revolution in Altanbulag. In national archives material until 1990 repairing works have
done. After this time mostly repaired by private or local government. 4 of the buildings are repaired a few times, case 5 has not done any restore work. Buildings have stove, vestibule, colors, decorations on a window frame and door, window cover. Same repair method was used in each building. Insulation materials are same. Size of the buildings and current conditions are different.

It is looked like some reinforcing work in the base logs. Usually in Mongolia when they repair or restore the log housing, generally they demolish the building but not damaging the logs and change if there is any rotten log then rebuild it again. During World War II between Mongolia and Japan did the war on Mongolian side which Mongolia won with Russian support. Around 12000 Japanese soldiers caught and stayed in Mongolia in 1945-1948. The main purpose was great construction work in Mongolia.

Japanese joint: Based on all these materials Japanese soldiers might repair 1st kindergarten at that time. In the lowest part of logs, it is shown a similar joint method to Japanese “okkake daisentsugi” (追掛け大栓縫ぎ).

Figure 5. The lowest log in the kindergarten building.

4-3 Historical Value

The law on protection of historical and cultural monuments is classified as a state, local or legal protection of immovable monuments of history and culture located in the territory of Mongolia. Accordingly, Government of Mongolia approved Resolution 233 of 1994, “List of historical and cultural monuments to be protected by state, province and capital city”. The law on the protection of cultural heritage is revised in 2014. It helps to identify buildings which include in cultural immovable heritage. The purpose of this law is to search for, inscribe and possess, use, to regulate relations concerning advertising. According these, there are several proof of the how much valuable are these buildings.

- Protected by state and province (local administration)
- Cultural heritage law in Mongolia

- Historically used by important political event

This research’s studied cases are applied three conditions as mentioned in the above.

5. Conclusion

Log housing is not traditional dwelling in Mongolia, but it is deep down in life. Even now in a city in the countryside people are living and using it by various uses. 1921’s People’s Revolution affected the Mongolian culture and society, it is a big reason why these buildings are common and popular. Researcher tried to find our origin of these log housing how it came into Mongolia and how it is developed.

Through the research not only log housings itself also decorations and features are adopted, such as vestibule, stove, summer room, winter room, and window cover door. Mongolia and Russia have similar condition of weather. It is found that these heating features are similar. Decorations on a roof and on a window’s frame are similar shapes such curves, circle and triangle but simpler. Russian case they put these shapes more than three, in Mongolian case it limited by three. Most of the log housings in Mongolia are covered corner with planks. Early Russian log houses are not covered these corners later they started to cover it and put plasters. In five case in Altanbulag the smallest building (1” elementary school) did not cover corner except this, others are covered. It is cold outside stove is compulsory. The stove is built same method as Russian they put stove into one side of the wall and used for cooking and heating in main. Vestibule is another important area in log housings most of the log housings have vestibule attached in the door. Efficient solution for ventilation is summer room and winter room. When log housing first built as izba it was only one room with small window, difficult to ventilate. They build another room next to it for more space and ventilation. The original idea of this adopted into Mongolia as it was. Even it is continuing today. Later in Russia this idea separated into two individual houses as apartment and dacha in outside of the city. Most capital city citizens adopted this idea into their life and doing same, spending wintertime in a city and summertime in a dacha (outside of city they built small houses for staying in summertime).
When repair work has done in Mongolia, first, they tear down the whole logs and repair foundation and change if there any rotten logs and rebuild all old logs. During this repairment some building has reinforced by Japanese traditional joint.

Very few buildings aged up to 100 years in Mongolia already these buildings are protected by state and province such as local government. During the 1920s most of these Russian styles log housing used by the public for politic events and half-used by the school and rest was for the merchants’ private house. Mongolian university’s Architecture department does not teach Mongolian architecture history, they do not have any classes related to the Mongolian architecture history. Even though there is no research did in the countryside its great improvement. Under three reasons these log housings needed to be preserved well in the future. As a result of the researchers and a few architects who do preservation in Mongolia, people are getting interested in historical architecture and they started to understand about preservation and conservation. But still, log housings which built in the early 20th century need to be recognized by the public and the government.

Notes
a) Altanbulag locates in north border of Mongolia. Naimaa city is established in 1727 next to the Khvakhta, Russia. Its name was changed to Altanbulag in 1959.12.31.
b) Old capital city of Mongolia c) Russian border city next to the Altanbulag.

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