

## ***ABSTRACT***

*Connection is something that must be considered in the steel structure, because the steel structure is not monolith. Connection is purposed to distribute force working on components which are connected due to gravity and seismic load. In the design of connection, there have been standard specifies for connection that are prequalified for seismic applications with special and intermediate steel moment frames. One kind of connection in accordance with the standard is bolted flange plate connection. The stiffness of this connection is very high, so in design of the connection can be considered as fully restrained. There are two systems in these connection which is moment and shear system of connection. Moment connection is influenced by parameter such as flange plate thickness, bolt diameter and specified strength of bolt in the flange plate. Shear connection is influenced by parameter such as web plate thickness, bolt diameter and specified strength of bolt in the web plate, size of the weld and length of weld. On this thesis, the configuration of connections are made use of existing materials in Indonesia. Analyses were performed with some simulations of various parameters, include some restrictions of bolted flange plate prequalified connection. Based on simulations of parameters, the result showed that not all profile and grade in Indonesia can be used in the connection because it doesn't meet the prequalification requirements. Moreover, strength of material and width of section affects the maximum bolt diameter, thus limiting variation connection configuration.*

*Keywords: connection configuration, bolted flange plate, prequalified connection, simulation parameters*