CHAPTER 3

RESEARCH METHOD AND OBJECT

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3.1 RESEARCH METHOD

The research method in the preparation of this thesis uses qualitative methods. Qualitative method is a method carried out by surveying and direct observation of the object of research, namely the land in the Laboratory Building to be built in the additional building (GT) area of The University of Swadaya Gunung Jati Cirebon.

3.1.1 Research Design

The research design in this thesis begins with collecting data that will be used as data in objects and studying literature related to the planning carried out. The designs used in this study are as follows:

1. Land area, building area and building functions to be planned.
2. Literature study by collecting references and methods needed as a literature review of books, e-books or other media (internet).
3. Processing and analyzing the data obtained.
4. SNI 1727:2020 - Minimum design load and related criteria for buildings and other buildings.
5. SNI 2847:2019 - Structural Concrete Requirements for Buildings.
6. SNI 1726:2019 - Earthquake Resistance Planning Procedures for Building and Non-Building Structures.
7. Make conclusions and suggestions from the results of the study.

3.1.2 Data Types and Sources

A data source is anything that can provide information or data about a study. In this study, two types of data sources were used, namely:

A. Primary Data

Primary data is data that the researcher himself collects directly from the first source through surveys and direct observations to the location or object of study.

1. Research Location
2. Soil Testing Data

B. Secondary Data

Secondary data is data obtained from other sources such as government agencies, private sector, and individuals who have made direct observations in the field that can support the analysis of the structure of this study.

In this study, secondary data was used to design and analyze the laboratory building with consideration of the efficiency of the time for preparing this thesis.

Secondary data used in this study include:

- Literature studies sourced from books, journals and previous research.
- SNI 1726:2019 - Earthquake resistance planning procedures for building and non-building structures.
- SNI 2847:2019 - Structural Concrete Requirements for Buildings and Explanation.
- SNI 1727:2020 - Minimum design load and related criteria for buildings and other buildings.
- PPURG 1987 - Loading Guidelines for Houses and Buildings.

3.1.3 Data Collection Methods

The data collection methods used to design and analyze the structure of the Laboratory Building of The University of Swadaya Gunung Jati Cirebon are:

A. Literature Method

The literature method is a method that is carried out by collecting, identifying, and processing literature derived from books, e-books, journals, newspapers, magazines and other scientific works related to the planning of the construction of high-rise buildings.

B. Observation Methods

The observation method is a method obtained from the results of a direct survey to the location or object of study. By conducting a direct survey of the research object, conditions can be known directly in the field so that data can be obtained that can be used in the design and analysis of the structure of the Laboratory Building.

3.1.4 Data Analysis Methods

The data analysis method is part of the analysis process where primary data or secondary data collected by researchers are processed to produce conclusions in this study. The principle of the data analysis method is the use of appropriate procedures and techniques to interpret the results and planning data collection techniques so that the analysis is easy and provides accurate results.

The data that has been obtained will be analyzed based on the rules in accordance with the latest Indonesian National Standards (SNI). using predetermined theories in the research to facilitate the preparation of the thesis in the form of a methodology to streamline research time and results. This

methodology is based on existing problems in the form of field surveys and literature studies.

The structure calculation is calculated using ETABS software v19.0.0. and manual calculations (simple calculations) based on the latest SNI. After the calculation stage is completed, proceed to the stage of checking the results of the structure analysis. At this stage all calculation results are corrected, if the results of the structural analysis calculations are in accordance with and meet the provisions of the SNI, the results of the design and structural analysis can be used as the final result of the research and implemented into 2D drawings with AutoCAD 2019 software and 3D with ArchiCAD 2019 software. The research methodology consists of several stages, including:

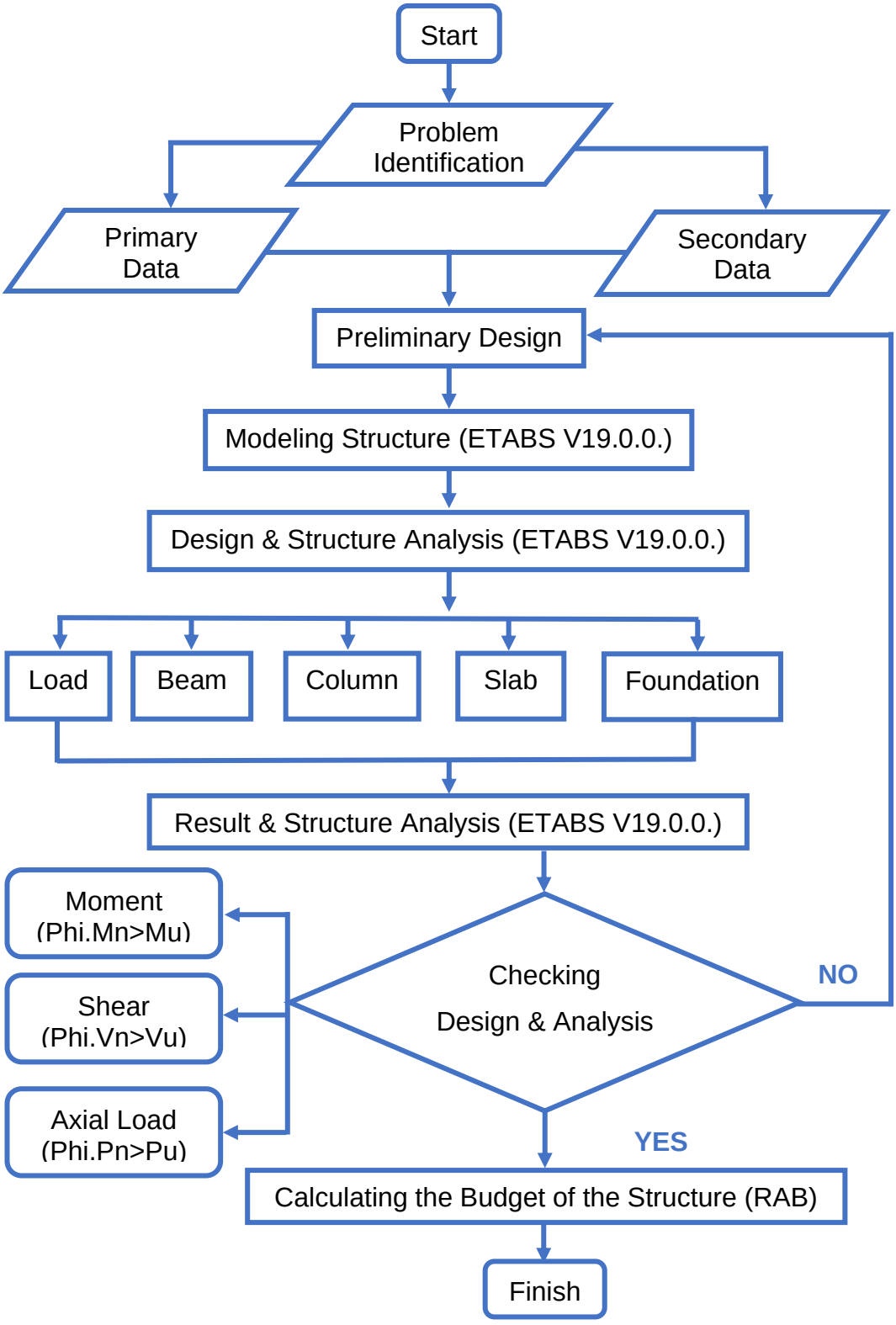

Figure 3.1 Research Flowchart

3.2 RESEARCH OBJECT

The object of research in the preparation of this thesis is the planning of the New Laboratory Building of The University of Swadaya Gunung Jati Cirebon which is located in the area of the Additional Building (GT) Swadaya Gunung Jati Cirebon University, Sunyaragi, Kesambi, Cirebon City, West Java 45132.

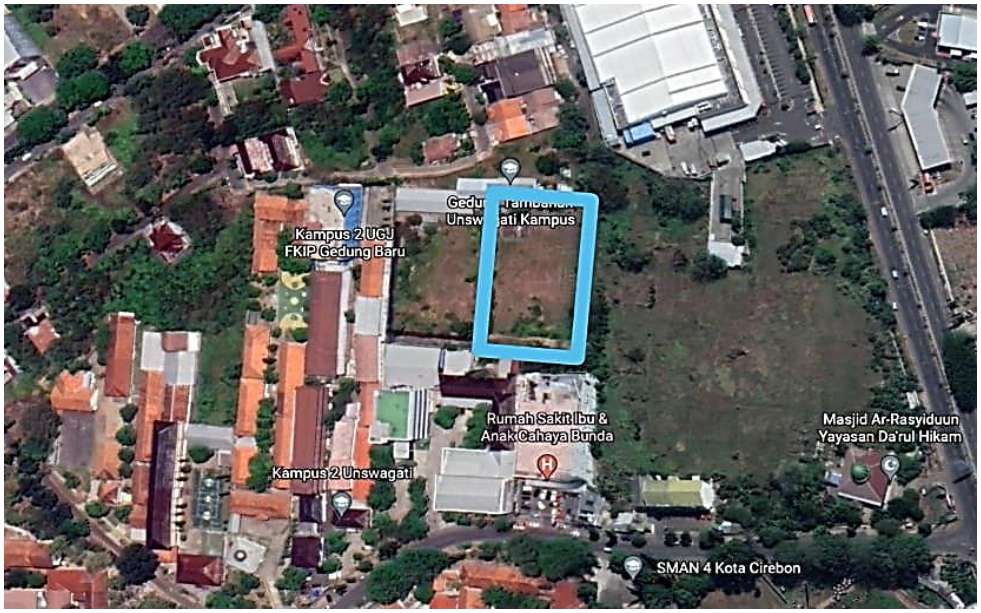

Figure 3.2 Research Object Location