Level 1 (Unrestricted) Building Surveyor

It is suggested that universities map out the requirements of the NAF against their building surveying degree.

1. Construction Practices and Principles

- Demonstrate an in-depth knowledge of construction procedures and practices for residential, commercial, and industrial buildings varying from simple structures through to large and complex structures.
- Demonstrate an in-depth knowledge of how building components, systems and services interact with each other.
- Show proficiency in the assessment of construction documentation and details for compliance with codes, standards, acceptable construction practices, etc.
- Show proficiency in the carrying out of on-site inspections on residential, commercial and industrial buildings varying from simple structures through to large and complex structures at various stages of construction.
- Demonstrate a good understanding of the requirements for acoustic insulation and the construction techniques available.
- Demonstrate a good understanding of energy efficiency and sustainability in buildings.
- Demonstrate a good understanding of the principles and procedures for providing protection to the public during construction, temporary support and demolition of structures.
- Demonstrate the ability to identify common building faults & failures and the options available for rectification.
- Demonstrate the ability to select the most appropriate forms of construction for various building sizes & types.
- Demonstrate the ability to read and interpret complex building plans.

2. Law, Statutes, Codes and Standards

- Demonstrate a basic understanding of the law, including:
  - The operation of the common law
  - The operation of statutory law
  - The role of the Parliament, the Executive and the Courts.
- Define and understand the relationship between Federal, State and local governments in the creation and implementation of building and building related law.

- Show proficiency in the interpretation and application of construction and building related law, including:
  - The role of delegated legislation (regulation, codes, standards and other statutory instruments)
  - The identification and distinction between statutory duties, discriminatory powers and professional responsibilities (either under legislation or codes of professional conduct)
  - The role of the common law in assisting with statutory interpretation and the application of this knowledge.

- Demonstrate a detailed understanding of the common law and how it is applied to building issues, including:
  - The difference between statutory and common law (tort) liability
  - The management of risk as it applies to how a building certifier may incur liability
  - The operation of insurance
  - The law of contract

- Demonstrate a detailed understanding of the provisions of legislation associated with building law, including:
  - Building law and related codes and standards
  - Planning
  - Fair trading or consumer protection
  - Environmental management
  - Public health
  - Disability discrimination
  - Occupational health and safety

- Demonstrate a basic knowledge of how law is formed and changed, including:
  - The operation of courts and tribunals
  - The parliamentary process
  - How to keep in touch with changes in law
  - Identifying the effects of changes in the law on the building industry.

3. *Performance-Based Building Regulatory Systems, Risk Assessment, and Risk Management Principles*

- Demonstrate an in-depth knowledge of the principles used for performance based designs.
- Show proficiency in the application of a performance-based building code, including:
  - An in-depth understanding of the various assessment methods contained in the Building Code of Australia and their application
  - An in-depth understanding of the methodologies for determining correct performance requirements to be satisfied
  - A good understanding of the process for involving relevant parties in the decision-making process
  - The differences between public policy and professional judgement
  - The ability to assess documentation for a performance-based solution
  - Thorough knowledge on how to document decisions and prepare an assessment report for performance-based solutions
  - Thorough knowledge on the impact of a performance-based solution on building maintenance and alterations
  - The importance of documentation and record keeping for performance-based solutions; and
- Demonstrate a basic understanding of risk assessment & risk management concepts.

4. *Building Related Science*

- Demonstrate a good understanding of human movement, ergonomics, and issues associated with access for people with a disability and the principles of universal design.
- Demonstrate a basic understanding of the issues involved in sustainable urban development, design for sustainable development, the reuse of buildings and building materials, the durability of materials, and the minimisation and disposal of construction waste.
- Demonstrate a good understanding of the thermal performance of buildings in terms of energy efficiency and human comfort.
- Demonstrate a good understanding of energy efficiency design principles, including:
  - The use of energy budgets for building fabric & services
  - The implications of energy efficient design principles upon architectural & services designs

  - BCA requirements & the application & assessment of performance-based design solutions
  - Use of passive & active design principles
  - Use of computer software to assess energy efficiency
- Demonstrate knowledge in fire tests used to determine building material combustibility and early fire hazard indices.
- Demonstrate knowledge in types of soil and rock and their behaviour and have a basic understanding of testing procedures.
- Demonstrate knowledge characteristics of timber such as strength, durability, pests, fungi, etc.
- Demonstrate a good understanding of the behaviour of materials and the ability to analyse their suitability.
- Demonstrate a good understanding of the properties of building materials (timber, steel, concrete, masonry, etc).
- Show proficiency in identifying the causes of building defects and making recommendations for potential remedies.

5. Structural Engineering Principles

- Demonstrate a capability to analyse site investigation reports.
- Show proficiently in evaluating foundation and footing design and construction for all types of buildings and a basic understanding of the engineering principles associated with their design.
- Demonstrate a good understanding of the principles of retention and shoring systems and retaining walls and be able to evaluate their design and construction.
- Demonstrate a good understanding of structural design principles and characteristics for various construction forms and materials.
- Show proficiently in analysing structural design documentation and understand the concepts for the assessment of calculations.
- Demonstrate a basic understanding of the scope of statistics, probability and estimation, in analysis.
- Demonstrate an appreciation of computer software applications in structural design and analysis.

6. Performance-Based Building Regulatory Systems

- Demonstrate an in-depth understanding of the various assessment methods contained in the National Construction Code of Australian & their application.

- Demonstrate an in-depth understanding of the methodologies for determining correct performance requirements to be satisfied.
- Demonstrate a good understanding of the process for involving relevant parties in the decision-making process.
- Demonstrate a good understanding of the differences between public policy & professional judgment.
- Demonstrate the ability to assess documentation for a performance-based solution.
- Demonstrate thorough knowledge on how to document, decision, and prepare an assessment report for performance-based solutions.
- Demonstrate thorough knowledge on the impact of a performance-based solution on building maintenance and alterations.
- The importance of documentation and record keeping for performance-based solutions.

7. Building Services and Fire Safety Engineering Principles

- Demonstrate a good understanding of the principles of fire engineering, including:
  - Identification of potential fire hazards and causes of fire
  - Determination of fire loads and fire growth
  - Fire detection, suppression, and extinguishment
  - The effects and toxicity of smoke
  - Human behaviour and movement
  - Fire brigade activities and intervention
  - Use of statistics and probabilistic analysis
  - Use and limitations of computer software applications
  - Use of research material
- Demonstrate a good understanding of principles of mechanical, electrical, fire, lift, and hydraulic services installations in residential, commercial, and industrial buildings varying from simple structures through to large and complex structures.
- Show proficiently to analyse and assess design documentation and details for mechanical, electrical, fire, lift, and hydraulic services in residential, commercial, and industrial buildings varying from simple structures through to large and complex structures for compliance with the various statutes, codes and standards.
- Show proficiently to carry out on-site inspections of services installations in residential, commercial, and industrial buildings varying from simple structures through to large and complex structures.

8. *Professional Ethics, Management and Communication Practices*

- Demonstrate a basic understanding of management practices and principles, including:
  - Human resources practices
  - Industrial relations, including workplace OH&S and EEO principles
  - Establishment of recording procedures and management
  - Corporate strategic planning
  - Basic understanding of financial practices associated with staff and project budgets and accounting
  - Ability to adopt time management principles and to establish work and project programs
- Write detailed and technical reports.
- Demonstrate effective and relevant interpersonal skills, including the ability to communicate effectively within the workplace and with the general public.
- Demonstrate a good understanding of meeting protocols, including the ability to conduct and chair meetings and reporting to a Board/Council.
- Demonstrate a thorough understanding of the professional and ethical responsibilities and practices of a building surveyor/certifier.
- Use IT in communication and information management and demonstrate overall computer literacy.

9. *Problem Solving Skills*

- Demonstrate a basic understanding of the forms of conflict and their resolution.
- Demonstrate good understanding of strategies and models to obtain results from public consultation processes.
- Show proficiency in undertaking problem identification, formulation, and solution.
- Show proficiency in applying cognitive reasoning to make sound and rational decisions.
- Demonstrate sound knowledge of recording, analysing, and reporting on outcomes.
- Demonstrate a good understanding of the importance and application of problem-solving skills in professional building surveying/certification.

10. Building Management, Development Concepts & Construction Economics

- Demonstrate the recognition of the basic principles of economics related to urban development and building construction and an appreciation of the interrelationship between the construction industry and the economy.
- Demonstrate an appreciation of construction costs and how they are determined.
- Demonstrate the ability to evaluate projections, feasibility studies, cost plans, and budgets for construction projects.
- Explain the role played by economic forces in the growth and structure of urban areas.
- Demonstrate a basic appreciation of the principles of property investment.
- Demonstrate a basic understanding of the principles of life cycle costing as it relates to energy efficiency in buildings.
- Demonstrate a good understanding of the principles of asset management and the importance of building maintenance.
- Show proficiency in evaluating projects in terms of constructability, construction methodology, planning, scheduling techniques, and site organisation.
- Demonstrate an awareness of the various aspects of construction procurement and be able to evaluate these effectively.
- Demonstrate a good understanding of environmental impacts of urban development and building construction.
- Demonstrate a good understanding of the statutory requirements for building maintenance and development and construction concepts applicable to essential safety features.

11. Ability to conduct Research

- Develop and implement a research proposal.
- Undertake a literature search.
- Identify and discuss the related literature.
- Utilise appropriate research methods to collect required data.
- Analyse results, discuss findings and draw conclusions.
- Present a record of the research project in a concise technical report.

12. Experience Learning

- Record project-based experiences and relate the theoretical principles previously taught to the professional practices observed.

- Recognise, analyse and undertake appropriate routing tasks, under supervision, in various construction and building industry linked organisations.
- Have gained self-awareness and maturity in terms of their own capabilities.
- Recognise the value of experiential learning and reflection strategies to the individual's learning environment.

Course Mapping Document

HIGHER EDUCATION BENCHMARKS

Level 2 (Limited) Building Surveyor

It is suggested that universities/RTO or TAFE's map out the requirements of the NAF against their building surveying course.

Competencies marked with "#" are the required competencies for a Building Surveyor Level 2 and Level 3

1. ***Construction Practices & Principles***

- Assess the construction of low-rise buildings.
- Assess construction faults in low rise buildings.
- Evaluate the use of concrete for residential and low-rise commercial buildings.
- Read and interoperate plans for low rise commercial buildings from simple to complex buildings.
- Apply building surveying procedures to low rise commercial buildings.
- # Assess the construction of domestic scale buildings.
- # Assess timber framed designs for one and two storey buildings.
- # Evaluate materials for construction of buildings.
- # Undertake site surveys and set out procedures for building projects.
- # Interpret and read residential plans (working drawings for residential buildings).
- # Apply building surveying procedures to residential buildings.
- **#** Assess construction faults in residential buildings.
- # Assess timber framed designs for buildings.

2. ***Law and Statutes***

- # Demonstrate an understanding of the common law and how it is applied to building issues, including:
  - The difference between statutory and common law (tort) liability
  - The management of risk as it applies to how a building certifier may incur liability
  - The operation of insurance

  - The law of contract
- **#** Apply legal procedures to building surveying.
- # Apply legislation to urban development and building controls.
- # Apply building control legislation to building surveying.
- Demonstrate an understanding of the provisions of legislation associated with building law, including:
  - Building law and related codes and standards
  - Planning
  - Fair trading or consumer protection
  - Environmental management
  - Public health
  - Disability discrimination
  - Occupational health and safety

3. Performance-Based Building Regulatory Systems and Risk Assessment & Risk Management Principles

- Demonstrate an in-depth knowledge of the principles used for performance-based designs.
- Show proficiency in the application of a performance-based building code, including:
  - An in-depth understanding of the various assessment methods contained in the Building Code of Australia and their application
  - An in-depth understanding of the methodologies for determining correct performance requirements to be satisfied
  - A good understanding of the process for involving relevant parties in the decision-making process
  - The differences between public policy and professional judgement
  - The ability to assess documentation for a performance-based solution
  - Thorough knowledge on how to document decisions and prepare an assessment report for performance-based solution.
  - Thorough knowledge on the impact of a performance-based solution on building maintenance and alterations
  - The importance of documentation and record keeping for performance-based solutions; and
- Demonstrate a basic understanding of risk assessment & risk management concepts.

4. Codes and Standards

- Apply building codes and standards to low rise commercial buildings.
- # Apply building codes and standards to residential buildings.

1. Building Related Science

- Demonstrate a good understanding of human movement, ergonomics, and issues associated with access for people with a disability and the principles of universal design.
- Demonstrate a basic understanding of the issues involved in sustainable urban development, design for sustainable development, the reuse of buildings and building materials, the durability of materials, and the minimisation and disposal of construction waste.
- Demonstrate a good understanding of the thermal performance of buildings in terms of energy efficiency and human comfort.
- Demonstrate knowledge in fire tests used to determine building material combustibility and early fire hazard indices.
- Demonstrate knowledge in types of soil and rock and their behaviour and have a basic understanding of testing procedures.
- Demonstrate knowledge characteristics of timber such as strength, durability, pests, fungi, etc.
- Demonstrate a good understanding of the behaviour of materials and the ability to analyse their suitability.
- Show proficiency in identifying the causes of building defects and making recommendations for potential remedies.
- #Apply ecologically sustainable development principles to the built environment.
- # Apply principles of energy efficient design to buildings.

5. Structural Engineering Principles

- Show proficiently in evaluating foundation and footing design and construction for all types of buildings and a basic understanding of the engineering principles associated with their design.
- Demonstrate a basic understanding of the principles of retention and shoring systems and retaining walls and be able to evaluate their design and construction.
- Demonstrate a basic understanding of structural design principles and characteristics for various construction forms and materials.

- Show proficiently in analysing structural design documentation and understand the concepts for the assessment of calculations.
- Demonstrate a basic understanding of the scope of statistics, probability, and estimation, in analysis.
- Demonstrate an appreciation of computer software applications in structural design and analysis.
- # Apply footing and geo-mechanical design principles to domestic scale buildings.
- # Assess structural requirements for domestic scale buildings.

6. *Performance-Based Building Regulatory Systems*

- Demonstrate an in-depth understanding of the various assessment methods contained in the National Construction Code of Australia and their application.
- Demonstrate an in-depth understanding of the methodologies for determining correct performance requirements to be satisfied.
- Demonstrate a good understanding of the process for involving relevant parties in the decision-making process.
- Demonstrate a good understanding of the differences between public policy & professional judgment.
- Demonstrate the ability to assess documentation for a performance-based solution.
- Demonstrate thorough knowledge on how to document decision & prepare an assessment report for performance-based solutions.
- Demonstrate thorough knowledge on the impact of a performance-based solution on building maintenance and alterations.
- The importance of documentation and record keeping for performance-based solutions.

7. *Building Services and Fire Safety Engineering Principles*

- Demonstrate a good understanding of the principles of fire engineering, including:
  - Identification of potential fire hazards and causes of fire
  - Determination of fire loads and fire growth
  - Fire detection, suppression, and extinguishment
  - The effects and toxicity of smoke
  - Human behaviour and movement
  - Fire brigade activities and intervention
  - Use of statistics and probabilistic analysis
  - Use and limitations of computer software applications
  - Use of research material
- # Assess the impact of fire on building materials.

8. *Professional Ethics, Management and Communication Practices*

- # Demonstrate a basic understanding of management practices and principles, including:
  - Human resources practices

  - Industrial relations including workplace OH&S and EEO principles
  - Establishment of recording procedures and management
  - Corporate strategic planning
  - Basic understanding of financial practices associated with staff and project budgets and accounting
  - Ability to adopt time management principles and to establish work and project programs

- # Write detailed and technical reports.
- # Demonstrate effective and relevant interpersonal skills, including the ability to communicate effectively within the workplace and with the general public.
- # Demonstrate a good understanding of meeting protocols, including the ability to conduct and chair meetings and reporting to a Board/Council.
- # Demonstrate a thorough understanding of the professional and ethical responsibilities and practices of a building surveyor/certifier.
- # Use IT in communication and information management and demonstrate overall computer literacy.

9. Problem Solving Skills

- # Demonstrate a basic understanding of the forms of conflict and their resolution.
- # Demonstrate basic understanding of devise strategies and models to obtain results from public consultation processes.
- # Show proficiency in undertaking problem identification, formulation, and solution.
- # Show proficiency in applying cognitive reasoning to make sound and rational decisions.
- # Demonstrate sound knowledge of recording, analysing, and reporting on outcomes.
- # Demonstrate a basic understanding of the importance and application of problem-solving skills in professional building surveying/certification.

10. # Building Management, Development Concepts & Construction Economics

- Co-ordinate asset refurbishment.
- Manage and plan land use.
- Identify and calculate production costs.

11. Ability to Conduct Independent Research

- #Analyse and present building surveying research information.

12. Experiential Learning

- # Maintain business technology.

Cours Mapping Document
HIGHER EDUCATION BENCHMARKS

Building Surveyor Level 3

It is suggested that universities/RTO or TAFEs map out the requirements of the NAF against their building surveying course.

1. Construction Practices & Principles

- Assess the construction of domestic scale buildings.
- Assess timber framed designs for one and two storey buildings.
- Evaluate materials for construction of buildings.
- Undertake site surveys and set out procedures for building projects.
- Interpret and read residential plans (working drawings for residential buildings).
- Apply building surveying procedures to residential buildings**.**
- Assess construction faults in residential buildings.
- Assess timber framed designs for buildings.

2. Law and Statutes

- Demonstrate an understanding of the common law and how it is applied to building issues, including
  - The difference between statutory and common law (tort) liability
  - The management of risk as it applies to how a building certifier may incur liability
  - The operation of insurance
  - The law of contract
- Apply legal procedures to building surveying.
- Apply legislation to urban development and building controls.
- Apply building control legislation to building surveying.

3. Codes and Standards

- Apply building codes and standards to residential buildings.

4. *Building Related Science*

- Apply ecologically sustainable development principles to the built environment.
- Apply principles of energy efficient design to buildings.

5. *Structural Engineering Principles*

- Apply footing and geo-mechanical design principles to domestic scale buildings.
- Assess structural requirements for domestic scale buildings.

6. *Building Services and Fire Safety Engineering Principles*

- Assess the impact of fire on building materials.

7. *Professional Ethics, Management and Communication Practices*

- Demonstrate a basic understanding of management practices and principles, including:
  - Human resources practices
  - Industrial relations including workplace OH&S and EEO principles
  - Establishment of recording procedures and management
  - Corporate strategic planning
  - Basic understanding of financial practices associated with staff and project budgets and accounting
  - Ability to adopt time management principles and to establish work and project programs
- Write detailed and technical reports.
- Demonstrate effective and relevant interpersonal skills, including the ability to communicate effectively within the workplace and with the general public.
- Demonstrate a good understanding of meeting protocols, including the ability to conduct and chair meetings and reporting to a Board/Council.
- Demonstrate a thorough understanding of the professional and ethical responsibilities and practices of a building surveyor/certifier.
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8. *Problem Solving Skills*

- Demonstrate a basic understanding of the forms of conflict and their resolution.
- Demonstrate basic understanding of devise strategies and models to obtain results from public consultation processes.
- Show proficiency in undertaking problem identification, formulation and solution.
- Show proficiency in applying cognitive reasoning to make sound and rational decisions.
- Demonstrate sound knowledge of recording, analysing and reporting on outcomes.
- Demonstrate a basic understanding of the importance and application of problem-solving skills in professional building surveying/certification.

9. *Building Management, Development Concepts & Construction Economics*

- Co-ordinate asset refurbishment.
- Manage and plan land use.
- Identify and calculate production costs.

10. *Ability to Conduct Independent Research*

- Analyse and present building surveying research information.

11. *Experiential Learning*

- Maintain business technology.

Information on courses which have been accredited in accordance with the Benchmarks can be obtained from the AIBS website: www.aibs.com.au