

Lecture 4 – Building and Planning Regulations

Residential Buildings Require

- Planning permit – legal doc giving permission for a land use or development
 - Designed to protect the community
- Building permit – ensures the building is structurally safe, stable and complies with regulations
 - Designed to protect the dwelling occupant
- Regular inspections during the construction phase

Building Control

- To establish and protect minimum levels of community health, safety and amenity in buildings
- Consumer protection
- Emanates from Great Fire of London (1666) therefore major focus on fire safety matters

Legislation Hierarchy

- **ACT** (Building Act 1993)
- **Regulations** (Building Regulations 2006)
- **Technical Provisions** (Building Code of Australia, Aus Standards)

Administrative Provisions

- Building Act 1993 and Building Regulations 2006
 - * (Technical provisions are in BCA and Aus Standards)

BUILDING ACT 1993

The act deals with issues that make up the legislation and control of the building industry

- Building practitioners registration requirements
- Fire safety for existing buildings
- The Building Appeals Board - Disputes & Modifications
- Calling up Building Regulations
- Enforcement Provisions - Building Orders & Notices
- Building Administration – Building Commission (now the VBA)
- Building Inspections
- Protection of adjoining property

BUILDING REGULATIONS 2006

These are the administrative provisions of the building control process in Victoria, dealing with issues such as:

- Permit Exemptions
- Reporting authorities: councils, fire brigades, water authorities, Heritage Victoria.
- Permit administration: applications, information required, time frames for construction, fees, public recording of permits

Technical Provisions

- Building Code of Australia 2016
- Australian Standards

Three Volumes of BCA 2016 (NCC)

- Volume One (Class 2 to 9 buildings)
- Volume Two (Class 1 & 10 buildings – houses, sheds, carports, outbuildings etc.)
- Volume Three (plumbing and drainage associated with all building types)

Building Code of Australia (BCA)

- Performance based Building Code Of Australia 1996 adopted in Victoria July 1997
- BCA now adopted in every State and Territory
- BCA 2016 is the current edition. It is available electronically, and in A5 version hard copy.
- The BCA is amended at least once a year and retitled in accordance with the year of amendment.
- Some State/Territory variations exist due to the climatic conditions and legislative practices of various states.

What are Performance Regulations?

- Regulations that are expressed in terms of an objective to be fulfilled so that the end product relates to use.
- (e.g. a building is to be provided with space and facilities for the preparation and cooking of food).
- There are many ways of achieving this performance requirement a full size kitchen with stove etc. or an alcove with a plug in microwave oven.

BCA Hierarchy



Building Classes

A 3.1 Principles of Classification

To state the basis of any decision regarding the classification of a building or a part of a building

The use of a building determines its classification

Classes of Occupancy

- Class 1 - A detached dwelling
- Class 2 - A building containing two or more dwellings e.g. Villa Units, Flats
- Class 3 - A building used for residential purposes e.g. Boarding House, Motel
- Class 4 - A dwelling attached to a building of another occupancy classification
- Class 5 - Office building
- Class 6 - Shop
- Class 7 - Warehouse
- Class 8 - Factory
- Class 9 - Public building e.g. Hospital, nursing home
- Class 10 - Outbuilding e.g. shed, carport, garage

BCA Volume 2

Contains provisions for Class 1 and Class 10 buildings only

Three Sections:

- Section 1 General Requirements

1.2 Suitability of Materials

- Every part of a building must be constructed in an appropriate manner to achieve the Housing Provisions, using materials that are fit for the purpose for which they are intended.

- Evidence of Suitability e.g. a certificate of accreditation, or a certificate by a professional engineer or other.

- Section 2 Performance Provisions

2.0 Application

2.1 Structure

2.2 Damp and Weatherproofing

Etc.

- Section 3 Acceptable Construction

3.1 Site Preparation

3.2 Footings and slabs

3.3 Masonry

Etc.

Lecture 5 – The Residential Building Industry

1. Builders

(a) Commercial Builders

(b) Domestic Builders

Classes of Domestic Builder:

- Domestic Builder (unlimited) – DBU
- Domestic Builder (limited to a class of work) – DBL

29 different categories including:

- Bathroom, kitchen, laundry renovation
- Bricklaying
- Swimming pools and spas
- Fences and gates
- Doors and windows

Domestic Builders - work associated with the construction, renovation, improvement or maintenance of a home.

- The industry is overwhelmingly comprised of small businesses with fewer than 20 employees (98.6% of construction businesses).
- 60% of construction businesses are sole operators with no employees. The majority (82.2%) of these small businesses operate in the trade services sector of the building industry that includes plumbers, electricians, plasterers and a myriad of other specialist building trades.
- Medium sized businesses (employing between 20 and 200 employees) made up 1.3% of the total number of businesses while medium to large businesses (employing 200 or more persons) accounted for just 0.1% of the total.

Volume Home Builders

HIA Top 100 Home Builders

2014/15

- Detached Houses 48,000

- Semi-Detached 6000

- Multi-unit – 14,000

(c) Demolishers

You must be registered with the Victorian Building Authority (VBA) in Victoria to:

- Perform domestic building work that costs more than \$10,000 (including labour and materials);
- Carry out re-blocking, restumping or demolishing work, remove a home, or carry out any building work that requires a permit, regardless of cost;

- Provide more than one type of building work (such as plastering and painting) that costs more than \$10,000 (including labour and materials).

2. Clients

Two common ways to choose a builder are:

- Choose a preferred builder and invite them to prepare a quotation or “tender”
- Call open or selective tenders from a range of builders and choose on the basis of price

3. Designers

Designers fit into one of two main categories: architect or building designer

Architect

- In Australia, architects are state-registered and regulated
- A person must hold a recognised degree in architecture or demonstrate equivalent qualifications, undertake a period of experimental training and pass a practise examination to gain registration under the Architects Accreditation Council of Australia

Building Designer

- Registered or accredited building designers in all states are required to carry professional indemnity and undertake and report continuing professional development to remain accredited.
- The range of services offered by building designers varies significantly. Many hold architecture or other specialist design degrees; others are qualified drafting professionals who establish their own practices after many years of experiential learning.

4. Product Manufacturers

Material Suppliers

- Concrete, Timber, Bricks, Pipes, Roof Tiles etc.

Finished Product Suppliers

- Sinks, Taps, Hot Water Systems, Showers, Doors, Windows etc.

Tools and Equipment

- Nail-guns, Drills, Hoists, Backhoes etc.

5. Local and State Government – Planning and Inspection

Residential Buildings Require

- Planning permit (usually) - legal document giving permission for a land use or development.

- Building permit - ensures the building is structurally safe, stable and complies with regulations.
- Regular inspections during the construction process

6. Federal Government – NCC

Building Code of Australia:

- The Building Code of Australia (BCA) is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia.
- The BCA is produced and maintained by the Australian Building Codes Board (ABCB) and given legal effect through the Building Act 1975.

Developers

Often State based but now increasingly across multiple States

- Most often involved in land development and sales but some also do construction e.g. Stockland, Frasers Property, and others

Separation of Developers and Builders

For Commercial residential construction the joining of land development and house building has several advantages:

- High Entrance costs and barriers
- Risk Control
- Higher levels of skill involved

Greenfield Developers

Land Focussed:

- Large land area is purchased
- Land generally subdivided into packages
- Land package 'released' usually with some proposed infrastructure – shops, lakes, schools etc.
- Display village set up with houses built by different builders
- Customers buy a land sub-division and contract a builder chosen from the display village

Relationships between the players

Clients and Designers

- The designer works for the client
- Designers (architects) may contract manage to building process for the client

Clients and Builders

- Building contract is between the builder and client
- The builder is likely to work with the client only once

Builders and Manufacturers/Suppliers

- Manufacturers need builders to use their products
- Builders can choose between similar products from different manufacturers
- Generally, there is strong feedback between builders and manufacturers over product performance

Builders and Sub-Contractors

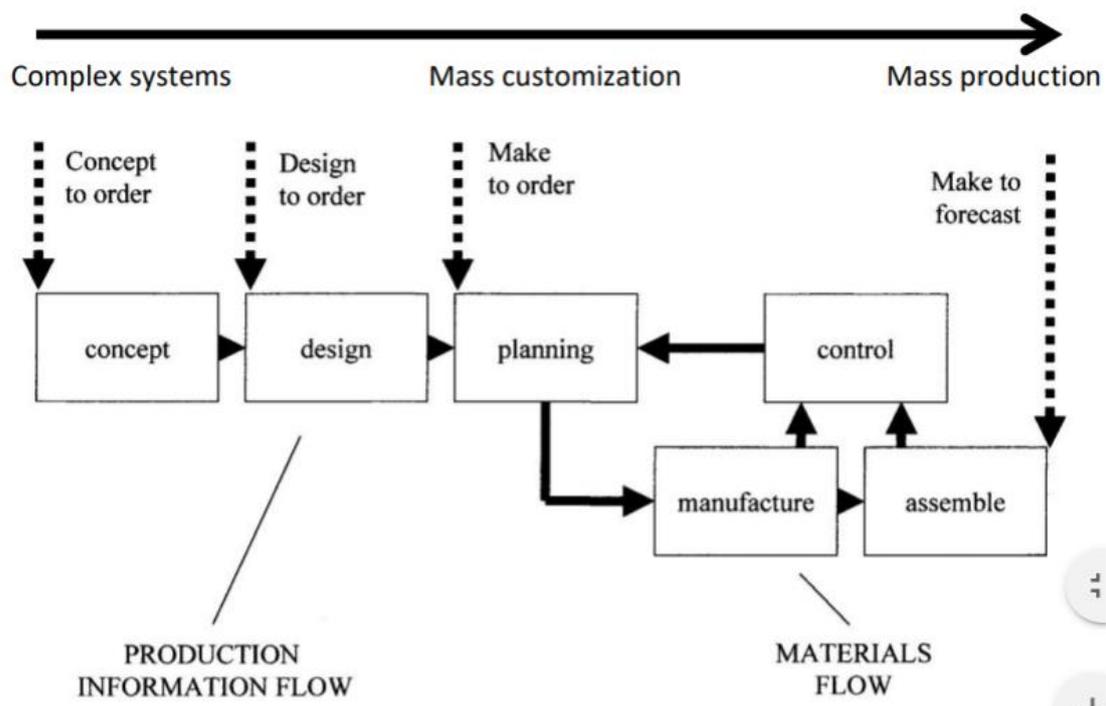
- Sub-contracting is very competitive – there are often multiple firms offering the same service
- Therefore, sub-contractors are often locally based
- But builders need to be 'nice' to sub-contractors so they will bid for work

Contract Types Between Builders and Suppliers

3 Main forms of Contract

- Supplier Contract
- Supply and Install Contracts
- Sub-Contracts

Houses as a Manufactured Product



Technological Innovation

Types of Innovation in Construction

- Incremental
- Modular
- Architectural
- Systems
- Radical

Innovation activity takes place within a 'system of innovation'

- Technological Push
- Market pull
- Systems – Firm centred networks, Production systems, Complex product systems

Main sources or drivers of innovation:

- Manufacturing Industry
- Trade, Professional, and Peak Bodies
- Regulation

What things hold back innovation:

- Uncertainty
- Contract types
- Variation in house design
- Risk in competitive industry

Innovation benefits the firm – almost always, cost, time, safety, organisation

Types of Innovation:

Product Innovation

- Most common

Site Preparation - Stainless steel mesh (termites), Geo-fabrics in silt fencing

Building Envelope - Waffle slabs, Steel reinforced aerated concrete wall cladding, Manufactured roof trusses, Steel web and timber flange beams

Service Systems - Plastic plumbing, PV and Solar hot water, Smart wiring for IT

Fixtures and Fittings - Water efficient taps, shower heads, Energy efficient lighting, Modular kitchens

Finishes – Low emission paint, Smart blinds

- Also Process Innovation (Changes in techniques, equipment and software) and Marketing Innovation (New Marketing Methods, Display Homes)

Examples of Recent Innovation

- Nail guns, glue nails, nail plates

- EPS Wall Systems
- Mobile Phone
- Waffle Slabs