

Quick start guide

From an address to an exported feasibility in seven steps, with every tool explained.

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Getting access

The designer needs an account. Request access with the form on the overview page (name, email, role and what you are working on; an access code if you have one). We email you a sign-in link when your account is ready, usually the same day; with a valid code it arrives at once. The link signs in each device you open it on, and your browser stays signed in for about six months.

Press **Feedback** in the top bar at any time to send a note to the team. It reaches us with your name, the design you were working on and the view you were in, and it shapes what we build next.

Before you start

The designer runs entirely in your browser. There is nothing to install, and the only cookie it sets is your account sign-in. Your designs are saved automatically on the device you are using. To use it like a desktop app (and offline), choose **Install app** in the top bar or your browser's install option.

The screen has three parts: **inputs** on the left (Site, Criteria, Generate, Costs, Finance), the **design view** in the middle (Plan, Floors, 3D, Compare, Report) and the **data panel** on the right with the key figures, unit program, compliance and environment. On a phone, switch between them with the bar at the bottom.

In a hurry? Open the sample site. It loads a 6,000 m² site and generates options straight away, so you can explore every view before setting up your own project.

1. Set up the site

Terrain. Import terrain reads the surveyed contours and spot heights for NSW sites (2 m) and Victorian sites (Vicmap, 1 to 5 m in Melbourne, otherwise 10 to 20 m), samples the Queensland LiDAR elevation model for Queensland sites and Geoscience Australia's national elevation model (5 m LiDAR where flown, 30 m elsewhere) for Western Australia, South Australia, Tasmania, the ACT and the Northern Territory, and uses a global digital elevation model outside Australia. It draws contours with RL labels on the plan and builds the 3D ground. **Services and utilities** records what is at the frontage (water, sewer, stormwater outlet, electricity, gas, NBN) and sizes the electrical demand, substation, water meter, sewer load and on-site detention from the design, with the connection works costed.

1. **Find the location.** In the Site tab, search an address or place and choose a result. The designer imports surrounding buildings (with heights where mapped), roads, trees and land use from OpenStreetMap. The location also sets the sun position for every solar check.
2. **Look up the lot and planning controls** (every state and territory). The state comes from the address you picked. Where the cadastre is open data (NSW, Queensland, Victoria, Tasmania and the ACT) the Site tab finds the cadastral lot at that point (lot and plan, area, nearby lots to choose from) and the named roads around it. Choose **Use lot boundary** to make the lot the site, with the frontage on the edge facing the address's street. **Apply planning controls** copies what the state publishes into Criteria and names the likely water and electricity providers under Services.
 - **New South Wales:** zone, maximum floor space ratio, maximum building height and minimum lot size, plus heritage, flood planning, landslide and acid sulfate soils mapping (NSW Planning Portal). Check them against a section 10.7 planning certificate.
 - **Victoria:** the planning zone with its schedule (for example GRZ1) and every overlay on the lot, sorted into heritage (HO and the Victorian Heritage Register), flooding (LSIO, FO, SBO), bushfire (BMO and bushfire prone areas), erosion (EMO), design and development (DDO) and the rest (Vicplan). Victoria has no statewide height or floor space ratio map: the panel shows the zone's own height control (for example 11 m and 3 storeys in the General Residential Zone) or the DDO that sets it, so check the schedule. Confirm with a Planning Property Report.
 - **Queensland:** the lot is found statewide, but zones and overlays come from council open data, and so far only Brisbane City Plan 2014 is read: zone and precinct (with the storeys a precinct states, such as up to 8 or 15 storeys), flood, heritage, traditional building character, bushfire and landslide overlays. Queensland has no statewide

zoning, height or floor space ratio map; outside Brisbane the panel says so and you set the zone yourself.

- **Tasmania:** the titled parcel (volume and folio, area), the Tasmanian Planning Scheme zone from the council's Local Provisions Schedule (Kingborough's interim scheme too), the codes on the lot (local heritage, flood-prone, bushfire-prone, landslip, coastal erosion and inundation, scenic protection and the rest), Specific Area Plans and the Tasmanian Heritage Register (theLIST). Heights come from the zone's acceptable solutions (8.5 m in General Residential, 9.5 m in Inner Residential) unless a Specific Area Plan says otherwise.
- **ACT:** the block and section, the Territory Plan zone (RZ1 to RZ5 with their current names, commercial and other zones), overlays, the ACT Heritage Register, bushfire prone areas and the 1% AEP flood extent (ACTmap). Residential storeys come from the zone policies (for example 2 storeys in RZ1, up to 6 for multi-unit housing in RZ4); commercial heights are set by district policies, which are not mapped.
- **South Australia:** the cadastre is a restricted licence, so no lot is drawn; the Planning and Design Code zone, State heritage areas and nearby heritage places are read at the searched point (Location SA). Overlays and the technical and numeric variations that set heights and site areas are only on SAPPA, so check them there.
- **Western Australia:** the cadastre and the planning maps (zones, R-Codes, heritage, flood) are licensed for personal or internal non-commercial use only, so the lookup shows only bush fire prone areas and the council. Check the zone and R-Code on PlanWA and pick the matching WA R-Code entry in Criteria for typical heights.
- **Northern Territory:** the cadastre, roads and zones are published without an open licence, so the lookup shows the storm surge areas (primary and secondary, at 2100 sea level) and the council. Check the zone in NT Atlas and pick the NT zone in Criteria.

3. **Import terrain** (optional). This samples a digital elevation model around the site and builds a terrain surface, shown as contours in plan and a surface in 3D. Buildings sit on the lowest ground under their footprint, and basement excavation is measured against the real ground.
4. **Define the boundary.** Choose **Draw site** and click the corners (the grid is in metres), then click the first point, double-click or press Enter to close. Or use **Pick OSM shape** to click a mapped lot or building outline, or **Import DXF** to use a survey: the largest closed polyline (or one on a layer named SITE, BOUNDARY or LOT) becomes the site, and spot heights become terrain.
5. **Edit it.** With **Edit site**, drag vertices, click a red midpoint dot to add a vertex, double-click a vertex to delete it, and click an edge to jump to its setback.

6. **Set setbacks and frontage.** The Edges table lists every edge with its length and setback. The dashed red line is the buildable envelope that results. Mark one edge as the frontage: that is where the basement ramp goes.

2. Set the design criteria

Zone. Pick the land zone: NSW zones (R1 to R5, MU1, E1 and so on), Victorian zones (GRZ, NRZ, RGZ, MUZ, ACZ, C1Z and the rest), Brisbane City Plan zones (LDR, CR, LMR, MDR, HDR, MU and centres), Tasmanian Planning Scheme zones (TAS-GR and so on), ACT Territory Plan zones (ACT-RZ1 to ACT-RZ5, ACT-CZ1 to ACT-CZ6), South Australian Code zones (SA-GN, SA-EN, SA-HDN, SA-URN and the rest), Northern Territory zones (NT-LR, NT-LMR, NT-MR, NT-HR and centres) and WA R-Codes (WA-R20 to WA-R160 and R-AC), or a generic density elsewhere. The lot lookup sets it for you where the zone is open data. The designer then checks that apartments, townhouses, duplexes or houses are permitted there, in each scheme's own terms, and warns where it depends on the scheme. **Apply typical controls** loads the usual coverage, landscaping, parking, setback and lot-size values for the zone, and the zone's own height where it sets one (for example 11 m in the General Residential Zone, 9 m in the Neighbourhood Residential Zone); the council's controls are the final word.

Site constraints. Tick heritage, flood planning (with the flood planning level and freeboard), bushfire (with the BAL), landslide or acid sulfate soils. Each becomes a warning in the compliance list naming the study it triggers, and a flood level with terrain loaded checks the lowest floor.

The Criteria tab groups every rule the generator and the compliance checks use. Defaults follow the NSW Apartment Design Guide. Change anything to suit your planning controls.

- **Planning controls:** maximum height and storeys (the effective storey limit is shown), FSR, site coverage, building separation by height, deep soil and open space targets.
- **Building form and circulation:** minimum and maximum wing depth, floor-to-floor heights, ground floor use (residential or retail), corridor width, core size, units per core, maximum travel to a core, lifts per core, wing length, courtyard width, tower plate size, wall thicknesses and window-to-wall ratio.
- **Unit typologies:** each type has a name, bedrooms, minimum and maximum net area, minimum frontage and target mix. Add your own types (for example a 2-bed plus study) and give them a colour.
- **Dwelling rules:** minimum bedroom dimension, living-room widths and the maximum habitable depth from a window.

- **Environment:** hours of midwinter sun needed, the share of units that must get it, the maximum share with no sun, and the cross-ventilation target.
- **Basement parking:** spaces per unit type, visitor and retail rates, bay, aisle and ramp sizes, level height, maximum levels, basement setback, accessible bays, grid alignment and ramp position.
- **Custom rules and ratios:** write your own checks and KPIs with metric names, for example a rule `efficiency >= 72` or a ratio `cost / nsa`.
- **Presets:** save any combination of criteria, mix, costs and sales as a preset and apply it to future projects.

Prefer words? In the Generate tab, describe the project ("8 storeys, FSR 3:1, mostly 2-beds, retail at ground, one car space per unit") and choose **Set criteria with AI**. Review the values it sets in the Criteria tab.

3. Generate options

In the Generate tab, tick the typologies to try (linear bar, L, U, courtyard, H and tower) and choose what to optimise for: a **balanced** score, **maximum yield**, **solar access and open space**, or **maximum profit**. Press **Generate options**.

The generator searches orientations aligned to the site and at regular angles, three wing depths, and packing strategies for each typology. It keeps the separation your controls require, sets storeys under the height and FSR caps, plans every floor and the basement, runs the solar analysis and ranks the results. Each option card shows units, net sellable area, FSR, storeys, midwinter sun and profit, with a badge for compliance failures or warnings.

With **Live** on, options regenerate whenever you change the site or criteria. Live pauses automatically when you start editing buildings by hand, so your edits are never overwritten.

Townhouses, duplexes, houses and granny flats

For low and medium density, set **Project type** to **Houses** at the top of the Criteria tab, or open the houses sample (a 6,300 m² site in Blacktown). Changing the project type clears the current scheme and generates new options.

- **Single house:** one house on the whole lot, sized from the detached-house bedrooms, garage and floor area, placed at the front setback with variants for storeys, proportions and position on the lot.

- **Granny flat:** a secondary dwelling at the rear of the lot, behind the existing house (drawn at the size you give and left out of the costs) or behind a new house. The flat is checked against the NSW complying-development limits: lot at least 450 m² and 12 m wide, floor area up to 60 m², height up to 8.5 m, 3 m rear and 0.9 m side setbacks, separation from the house, private open space and no extra parking. Costs use the granny flat rate, the feasibility counts the value it adds and the weekly rent (yield on cost), and the land is treated as already owned when the house exists. Note: a secondary dwelling cannot be subdivided from the house.
- **Townhouses:** rows of attached dwellings facing the street and a shared rear lane, with a driveway linking the lane to the street. Set the dwelling width and depth, front yard, rear garden, driveway width, the most dwellings in a row, bedrooms, garage spaces and a floor area cap.
- **Duplex lots:** two attached dwellings on each lot, with a minimum lot frontage and size.
- **Detached house lots:** a house-and-land subdivision with a minimum lot frontage, size and maximum depth. The generator tries lots along the existing street and, where the site is deep enough, a new road through the site with lots on both sides.
- **Dwelling envelope:** storeys, floor-to-floor height, pitched or flat roof, front, side and rear setbacks inside each lot, maximum house depth, lot coverage, landscaped area, private open space and parking per dwelling.

Each lot is checked for size, frontage, coverage, landscaping and private open space, and each dwelling gets a garage and a room layout over one or two storeys (click it in Floors to see the rooms). In Finance, enter a sale price per dwelling for each type, or tick **Sell house and duplex lots as vacant land** to test a land-only subdivision at a price per m² of lot. The Excel export adds a lot schedule, and the DXF adds lot, road, driveway and garage layers.

4. Refine by hand

- In **Plan**, click a building to select it. Drag it to move, drag the red handle to rotate (hold **Shift** to snap to 45°), and drag the white squares to change its length and width.
- The **Selected building** panel sets the typology, dimensions, wing depth, storeys, rotation and orientation exactly, and can duplicate or delete the building.
- **Add building** places any typology in the middle of the envelope. **Fill to max storeys** and **Fit storeys to FSR** set heights for every building in one step.
- In **Floors**, click an apartment to see its rooms and checks, and change its typology. That run of units is re-planned on every typical floor.

5. Read the floors, parking and environment

Detailed plans. Zoom in on the Floors view and every dwelling shows its rooms, furniture, windows (blue) and doors with their swings. Lift and stair cores show their lift shafts and flights when you zoom in. **Rooms** and **Furniture** switch the detail on and off, **Dimensions** draws each room's inscribed circle against the minimum rule (green meets it, amber is up to 0.3 m short, red is shorter), **Areas** compares each room with the target areas in Criteria, and **Reference floor** ghosts another level underneath.

Editing a dwelling. Click a dwelling, then on the plan drag the white squares to move room partitions and the wet zone, the yellow diamonds to change the unit's width against its neighbour, and the blue dots to slide windows and doors along their walls. The card on the right lists every opening; select one to set its width, height, sill or type, delete it, or add windows, sliding doors and doors. Change a unit's **Use** to common area or open space. Edits apply to every typical floor and are kept while the layout is unchanged; Reset buttons undo them.

The Floors view steps through every level: the ground floor (retail tenancies if you chose retail), the typical floors and each basement. Units are coloured by type with their net area; cores are hatched; corridors and service spaces are shaded. Switch to **Sun hours** to colour each apartment by its midwinter sunlight.

Basement levels show the ramp, aisles, bays (accessible bays in blue) and storage cages. The designer adds levels until the parking demand from your rates is met, up to the maximum you set. If a level is not needed, none is drawn.

In **3D**, colour the scheme by building, height, unit type or sun hours, show the context, terrain and basements, and drag the time slider or pick a date to see real shadows. **Shadows** in the Plan toolbar draws the same shadows in plan.

6. Set costs and finance

The Costs tab is a bill of quantities measured from the current design, from site preparation and excavation to lifts, fit-out and external works. Every rate is editable, and four markups (preliminaries, builder margin, design and construction contingency) are applied on top. Add custom lines that scale with any metric, such as solar panels per m² of roof.

The Finance tab adds land (a rate per m² or a fixed price), stamp duty, sale prices per m² for each typology and retail, GST, selling costs, professional fees, statutory contributions per unit and finance. It reports gross and net realisation, total development cost, profit, margin on

cost and revenue, residual land value at your target margin, and a sensitivity grid for price and cost changes.

3D tools. **Section** cuts the model horizontally at a chosen level, **Sun path** traces the sun for the chosen date, and **Save PNG** downloads the current view. Lock a building from its card so it cannot be moved by accident.

Realistic render. Switch **Realistic** on for a presentation view: a sky with the sun where it really is for the chosen date and time, rendered or face-brick facades (pick the finish from the list that replaces the colour menu), windows and sliding doors cut into the walls with frames and reflective glass, glass balustrades, concrete slab edges, pitched roofs on houses, grass, roads, driveways, neighbouring buildings and trees, with soft shadows. The **Street** camera gives the best view, the time slider changes the light from morning to a low evening sun, and **Save PNG** renders at double resolution while Realistic is on. Switch it off to get the colour-coded diagram back. **AI render** (shown while Realistic is on) sends a snapshot of the view to an image model and returns a photographic version in about a minute: choose the lighting (daylight, golden hour, overcast, dusk or aerial), press Render, then save the PNG. The massing, storeys, windows and viewpoint are kept; materials, surroundings and light are reinterpreted, so it is a visualisation rather than a drawing.

7. Compare, share and export

- **Compare** lays the generated options (or up to four saved designs ticked in My designs) side by side, with the best value in each row highlighted.
- **Share** creates a private link. Choose view-only, or allow recipients to make their own editable copy. Links expire after 90 days.
- **Export** downloads an Excel report, CAD drawings (DXF), a BIM model (IFC4), a 3D model (OBJ), a plan image (PNG) or the project file (JSON), which you can open again on any device. **Print / PDF report** builds a printable report with drawings and figures.

8. Engineering, versions and training data

- **Engineering tab:** eight groups size the current option for each discipline. **Architecture** (NCC class and type of construction, adaptable and livable units, storage, bins, bicycles), **Structural** (system by storeys, column grid against the car bays, slab thickness, column size, loads, wind and earthquake, concrete and steel quantities), **Civil** (impervious area, rational-method flows, on-site detention from the council's L per m², rainwater tank, outlet size, ramp gradient and driveway width, and with terrain loaded the site fall, platform level, cut and fill and retaining walls), **Geotechnical** (boreholes, soil and AS 2870

class, bearing, pad or piled footings, basement retention, rock, groundwater, acid sulfate, fill and contamination), **Hydraulic** (simultaneous demand and service size, pressure and booster, hot water, sewer size, pump station, fire water), **Mechanical** (air conditioning system and cooling load, exhaust, car park ventilation, apartments per lift), **Electrical** (maximum demand, substation, switchboard, EV-ready spaces and chargers, solar PV and battery, secondary supply) and **Fire** (rise and type, effective height, sprinklers, hydrants, hose reels, exits and stairs, detection, FRLs, fire control centre, tank and pumps, bushfire BAL). Set the inputs in each group; the results, checks and plant rooms update with the design, the quantities price in the Costs tab, and the report and Excel export carry them. Every figure is a concept-stage estimate that names the NCC or Australian Standard clause it follows, for the consultant of that discipline to confirm.

- **Versions** (top bar): save a numbered version with a label, notes, your name and discipline whenever the design reaches a state worth keeping, such as before trying an alternative or when issuing to a consultant. **Changes** lists every field that differs between a version and the current design; **Compare ticked** does the same for two versions; **Restore** puts a version back as the working design (the current state is saved first); **Branch** starts a new design from a version; **File** downloads a version as a project file; **Export history** and **Import history** move the whole history between devices. A version is also saved automatically when you export or share, if the design changed since the last one (switch it off in the dialog). Versions stay on this device with the design.
- **Training data (Pro)**: Pro accounts have a training library on their account page: upload previous designs (PDF, DXF, DWG, IFC, Revit, SketchUp, ArchiCAD), photos of built work and quotes or cost plans, tagged with a project and notes. Build Design Solutions uses them to build a private version of the designer trained on your own typologies, finishes and rates. Files stay on the server with your account until you delete them. Ask for Pro from the account page.

Keyboard and mouse shortcuts

Action	Shortcut
Pan	Drag empty space, right-drag, or two fingers
Zoom	Mouse wheel or pinch
Nudge selected building	    (1 m,  5 m)
Rotate selected building	 (5°,  +  back)
Delete selected building	

Action	Shortcut
Finish drawing / undo last point	Enter / Backspace
Cancel or deselect	Esc
Save now	Ctrl + S
Orbit / pan in 3D	Drag / right-drag or Shift +drag

Troubleshooting

- **"No building fits the buildable envelope"**: reduce the setbacks, the minimum wing depth or the separation, allow more typologies, or check the site was drawn in metres.
- **FSR is well under the limit**: the height, coverage or parking may be the binding control. Try more storeys, a taller tower typology, or a lower separation if your controls allow it.
- **Too many basement levels**: lower the parking rates if your DCP allows, change the grid alignment or ramp position, or reduce the basement setback.
- **Location search or OpenStreetMap import fails**: these use public open-data services and can be busy. Wait a minute and try again, or draw the site and work without context.
- **Designs missing**: designs live in the browser on the device where you made them. Private windows and clearing site data remove them, so export important projects as a project file.