2022 ASSESSMENT REPORT

HDS315118 - Housing and Design

EXAMINATION ASSESSMENT REPORT

Throughout the assessment process, Markers were looking for evidence of understanding on how each of the criterion elements were applied in the context of each question and how well the aims and brief of the question were satisfied.

SECTION A

QUESTION 1: COOL CLIMATE DESIGN

The focus of this question was to design single storey dwelling on a vacant riverside block in southern Tasmania. The footprint of the build is restricted to 70 square metres which must include a small 2-metre-wide deck on the view side of the build. Students were required to retain a 3-metre setback around three sides of the dwelling to minimise impact on neighbours and a 4.5-metre setback from the roadside to satisfy council regulations. Internally, the dwelling required:

- a separate space for a Queen-sized bed
- a separate space for showering
- a separate space for toilet
- facilities for washing clothes
- an area for food preparation, eating and relaxing.

The question asked for students' advice on any passive solar features which should be included within the build area and on the building to improve thermal comfort and minimise energy use.

The orientation of north was at 45 degrees to the top right of the page. Many students incorrectly assumed that north was at the top of the page.

There was confusion amongst some students over the meaning of "Footprint" and what "Potential build area". Many students were confused between the maximum 70m^2 and the possible 332.5m^2 of the site with setbacks.

Some students made poor decisions on zoning, often locating auxiliary areas such as the bathroom to the northern corner of the dwelling. Some students also included a laundry room, though this was not really needed as the washing machine/dryer could have been

incorporated into the kitchen, storage cupboard or bathroom. Some students had separate rooms rather than just 'facilities'.

Many found the competing requirements of passive solar northern orientation and the views to the south-east hard to reconcile. Some students had some passive solar and views and others had views but very little passive solar.

Many students included solar panels even though they are an active solar power system not a passive solar feature as requested.

The required '2m wide deck' was a point of interpretation with some students designing decks that were 2x1m and others 2m along the entire length of the building. The placement of some of the decks on the southern side of their building design would not be comfortable/functional to use as they were exposed to breezes.

Markers noted the number of weaker responses pertaining to the passive solar orientation of many rooms, zones and features that would have taken maximum advantage of the sun and successfully applied passive solar principles. Most students demonstrated a basic knowledge, but this was not incorporated or applied to the drawn response.

QUESTION 2: TROPICAL DESIGN

Question 2 asks students to design a small 70m^2 dwelling on a given site in Darwin, retaining a 3-metre setback around three sides of a central build area and a 4.5-metre setback on the roadside of the block. The dwelling also had to include a small 2-metre-wide deck on the view side of the build. Internally the dwelling required:

- a separate space for a Queen-sized bed
- a separate space for showering
- a separate space for toilet
- facilities for washing clothes
- an area for food preparation, eating and relaxing.

The question required advice on any passive solar features which should be included within the build area and on the building to improve thermal comfort and minimise energy use.

There were several weaker responses that confused cool temperate with hot humid tropical. These students suggested the use of bulk insulation, thermal mass, and a heater for the cold winter days, demonstrating a lack of understanding of the different climate zones and/or poor reading of the question. In weaker responses, many built in the whole "potential build area" making the house far too big, ignoring the 70m^2 requirements.

Successful responses understood and showed the summer solstice sun coming from the south and designed their eaves and overhangs accordingly. These responses also utilised high vented ceilings for good ventilation and recognized that both convective and crossflow ventilation were needed to help cool the house. Skillion roofs were rarely used effectively for this purpose and internal vents between rooms were seldom used effectively to improve crossflow ventilation. Quality responses also placed sleeping areas away from the hot westerly wall. Correct building orientation for the breezes was not often demonstrated; many students did not show the building on a site plan, so its orientation was not easily interpreted. Long thin designs of single room width, with the long axis orientated to the breeze were rarely shown as the most effective way of using crossflow ventilation.

SECTION B.

QUESTION 3: WHEELCHAIR ACCESSIBLE AIRBNB ACCOMMODATION

The question required students to provide a response that would see an existing garage being converted into accommodation for a wheelchair supported client.

The following items were to be addressed to make this a well-considered response:

- The current bathroom does not meet the requirements for universal access and will need to be modified but retain in the same place to reduce plumbing costs.
- Showing the location of a small kitchen/dining/living and sleeping space for one person.
- Recommendations for allowing universal access to the bathroom.

The response drawings were to be drawn at a scale of 1:50 and illustrate any changes required to the bathroom and location for kitchen/dining/living and sleeping space. Include key furniture, appliances, benchtops, and storage. These should be supported by rationale annotation and other additional section sketches around the plan to illustrate critical heights or details to allow for universal access and user needs.

This question was attempted by 92 students, a significant uptake on last year, that was 59. However, very few students were able to provide enough evidence of understanding to achieve high ratings in the B and A range.

Those few students that did achieve higher ratings were able to show a good level of understanding and application of the accessible design principles inclusive of the following:

- A good layout that was fully inclusive of all the requirements outlined in the brief, aims and response instructions.
- Very good transition and flow between spaces, entrance points and appropriate circulation throughout was evident.

- External doors and internal doorways were at the recommended width (1000mm for external and 850mm for internal) These students utilised sliding doors and removed unnecessary walls to open up and make more space, easier for wheelchair transition.
- The bathroom was well planned, showing easy access to shower, using hobless (roll in) arrangement and curtains rather than fixed partitions or glass.
- Toilet spacing from walls were at appropriate dimensions, allowing for easy transfer and parking of wheelchair to allow ease of transition.
- A turning circle of 1400mm was incorporated too.
- Stronger responses also allowed for storage in the sleeping area, but with a 1400mm clearance between the bed and the wardrobe.
- Kitchen layouts were good, again allowing for appropriate spacing for a wheelchair.
- Stronger responses also indicated appropriate clearance heights for knees and toes etc.
- Some furniture was also included for comfort within the living space, particularly use of a properly scaled couch within this space.
- Clear, accurate drawings to scale, supported by appropriate section drawings displaying critical dimensions – particularly of the bathroom and kitchen. Better ones did use scale too.
- The strongest response also went into detail regarding non-slip surfaces, particularly the use of laminates.

Weaker responses did include some of the features mentioned above, but not in a consistent manner and many design flaws were evident that would not support easy access for a wheelchair supported person. Several of these flaws or omissions are listed below:

- Internal and external doorways too small.
- No evidence of support structures (grab rails) drawn on the floor plan, particularly within the bathroom for the toilet or the shower.
- No allowance for wheelchair to park sideways to the toilet to allow for transfer.
- Often had partitions or even doors into showers, again making entrance into these difficult.
- Some responses had no evidence on how the shower would be accessed, or details of shower rose/adjustable shower head and support bench.
- Not enough space to access the toilet or the basin.

- Some bedrooms did not allow for easy access to the bed and no storage for clothing was provided.
- Several students did not include windows at all or only allowed for one window.
- Many responses did not include any supplementary section drawings or sketches and some that did, were not that well-drawn or to scale.
- Layouts were often poorly planned and did not allow for easy transition or circulation between spaces, and entrance points.
- Some students did provide some good visual work, but this was not supported by any annotation or meaningful discussion rationalising their design decisions.
- Lounge furniture was often an unintended omission by some students, this displaying a lack of understanding and empathy for people with accessibility needs.

QUESTION 4: TINY HOME SWANSEA

The focus of this question required students to make use of a prescribed volumetric area of a trailer with the specified dimensions of 4300mm height, 2500m width and 12200 mm to be placed on a flat block of land in Swansea length suitable for a couple.

The question focused on the correct use of scale and measured drawings, using the given space to accommodate a list of internal spaces, fixtures, fittings and furniture. Students were also required to demonstrate key design features appropriate to a tiny home through the presentation of a floor plan drawn at 1:50 and additional sectional sketches to illustrate critical heights.

They were to design a layout that would accommodate two people in a self-contained environment inclusive of the following:

- Two double beds. A food preparation and cooking area.
- A shower.
- A basin big enough for also washing clothes.
- Storage space.
- A dining and TV space.

The toilet was already on an existing site hooked up to a septic tank.

Students who attained a rating of A or B were able to articulate through the use of clear annotations, and illustrate with accurate drawings, the relationship between public and private zones and the connections and flow of movement and circulation through the space using

succinct and clear presentation methods. These students selected and justified key elements of functional design including:

- Open plan public areas – kitchen/living/dining.
- Wet zones for the shower area.
- 2 double beds (with some degree of privacy).
- Appropriate location and number of storage options throughout the home.
- Appropriate placement of openings – windows/doors that would promote good circulation, air movement and light entry.
- Considered use of the additional height of the space to explore the possibility of loft spaces for sleeping and storage.

Very good responses also addressed additional features such as a kitchen layout that included a work triangle, innovative methods of gaining access to light such as light tubes, skylights or clerestory windows.

A recommendation for future students is to explore alternate internal arrangements using bubble diagrams. It was good to see a number of students using a key to help label and annotate and coloured markers or pencils to highlight circulation, zoning and other features and elements of the design response.

Students who achieved B-C rating, identified some key requirements without fully justifying them. Many did not include additional drawings or illustrations to support their ideas or use sufficient annotations to justify their design choices. Some students produced a layout not entirely suitable for a tiny home.

The overall floor area of 30.5m^{2}was more than sufficient to create a usable space and allowed for the inclusion of storage in multiple areas of the tiny home.

Students who achieved lower ratings, did not fulfil the requirements of the brief by not including all required zones and fixtures, or where they were included, they were not drawn to the correct scale. A few students used a scale of 1:100 instead of 1:50 or were mixing the scale of the external parameters and internal fixtures and fittings. A number of students confuse the height and width dimension, creating a plan for a wider and lower space.

Responses at C and T also unnecessarily included passive solar elements in their response. A number of these students also only provided a plan without the additional required sectional sketch(es).

Students who achieved highly presented their responses using clear headings, sketches and illustrations to clarify aspects of their design using concise annotations that clearly addressed the required functional elements for this tiny home context.

EXTERNAL FOLIO ASSESSMENT REPORT

INTRODUCTION

Student are reminded of the significance of ensuring that all ideas, data, words and images that are not their own work are appropriately referenced. Noting that images include any photos, icons, plans or drawing (such as Google maps, sun angles and arcs diagrams, and pictures of buildings or interiors) from the internet or other sources. Academic Integrity it important and has been previously highlighted in these reports.

Criterion 6. Locate and analyse information about user needs and influences in design projects.

Client's Needs Analysis

Students who achieved highly carried out an in-depth discussion of the client's (user's) needs, providing a strong rationale and analysis. From these statements these students would draw their aims and the Brief statement, as the Brief should really reflect the context of the user's needs. An exemplar within the 2019 report, provided an example of how this important phase could be structured.

While useful, it is not a requirement to follow the exemplar. Some students created a scenario that also discussed in detail the needs of the client and rationalised why. Weaker folios gavedot points of recognised needs with no justification or analysis provided.

The Brief

In 'A' rating responses the brief was a concise statement. Some students tended to draw their brief statements out – often a paragraph in length, and this should be avoided.

This year, it seemed that most students acted on advice and guidelines and chose a location/site that was accessible to them to visit and observe, whether it be a green field site or the interior of a building for their folio. This gave them an opportunity to practice their acquired site analysis or spatial analysis skills, utilising the conditions of the site to help inform their design.

The Aims

Higher rating folios listed aims that were tangible, practical, and had a good degree of sophistication, for example:

- A minimal and contemporary building design which remains aesthetically cohesive with the natural environment.
- Create a building envelope that incorporates passive design elements to retain a comfortable interior climate year-round.

Many students still struggled to identify or correctly communicate aims, particularly with a design emphasis, often listing needs as aims. Weaker folios would list such items as a bed or bathroom for a dwelling, pretty much stating the obvious and not doing some higher-level thinking to create good aims to work for. Some aims were rather vague, i.e., such as 'design for upward of 4 people', this is not specific enough to determine whether final design fulfilled the aim. Again, please refer to "Nelson Visual Communication Design".

Basic aims examples:

- Two Vehicle Garage with space for a ride on Lawn Mower.
- Have A Jacuzzi or Bath That Has Access to The Views.

Project Context

TASC's current Folio Guidelines of this course **must** be followed. It is noted that some folios made use of a 'site context formula' that does not align with all current requirements.

Stronger folios did produce a project context statement that discussed the significance of the project i.e., the need for support housing for people in need. Those still working to the old formula made their context relevant to the client, the stage of life or demographic state, their needs, or interests and why the development was sited there, and what things within the area were of relevance. Weaker folios still used lots of maps of different resolutions and scale to explain an area with little else or may have explained something about the site but did not include any on-ground visuals.

Site Analysis

Strong site analysis included a high degree of detail, complimented with a hand-drawn scaled site map as part of this section. Some students also included section drawings or topographic details. Other inclusions were shadow analysis and impacts, vegetation types and their significance, access, seasonal prevailing winds, sun arcs and orientation details, rainfall data and impacts, potential impacts on neighbours or from existing neighbours, existing architectural

influences, soil analysis and views. Students that had visited the site and taken photos showed greater understanding and were able to communicate and showcase the features of the site in their folios. Relevant information such as seasonal wind, solstice sun angles and arcs and rainfall was also referenced clearly.

Good quality interior spatial analysis included a scaled plan of the existing dwelling or area being redeveloped and adjoining areas being impacted along with photos taken by the student explaining the current use or issue and where the proposed change will be undertaken.

Less successful folios did not include much of the above and often relied on cut and paste diagrams from Google Maps, Sun Calc. and Willy Weather, with little explanation of their relevance. Some students completing an interior spatial analysis failed to show the relationship of the room(s) being renovated or extended to the rest of the house.

Precedent Research

Higher achieving students researched and included precedents with a high level of relevance to their brief. Folios often contained one or several case studies analysing key design features that could be utilised within their design response. Students who carried out an in-depth discussion, stating the relevance, how the idea could be utilised including what changes may need to be made generally scored well. Also, students who went with multiple possibilities that could be used to fulfil an aim may also have scored well. Some better responses also categorised their precedents, relating to key aims i.e., architectural styles, interior solutions and so on. The strongest folios used case studies precedents, analysing and evaluating features that were relevant to their aims and brief, and evaluation of what adjustments may need to be made. The students displayed a high degree of understanding of the relevance of the precedent to the aim and brief.

Weaker folios often had examples that may have had relevance to the brief or aims, but very little justification or analysis was carried out. A large cohort of students still tended to create a "product catalogue", or "technical manual" these precedents having little impact on design decisions. It is strongly recommend that future students look to research and gather multiple design precedents that lends themselves to at least one case study being carried out as part of their precedent work. Markers also observed some students not submitting 3 pages of precedent work as noted in the Folio Guidelines, this often impacting on their final assessment of this criterion.

Referencing

It is critical that any existing floor plans, if being used for an interior re-design, are clearly referenced, even if the student has redrawn it.

There is an increase in the number of students using software to produce final drawings and some concept work. Improvements were observed, as many students did reference this software and the "assets" they used.

It is also highly recommended that students utilise plagiarising check software such as Turnitin themselves to help address any plagiarism issues that they may have missed.

Criterion 7. Use and Document the Design Process

Design Development

Students who achieved A and B ratings showed clear design development using accurate drawings that comply with architectural conventions, including appropriate scale bars or dimensions. In-depth discussion outlying and justifying the changes being made and considerations for the next iteration were also evident. Their plan drawings were often supplemented with elevation or section drawings with relevant annotation.

A number of students included "visual brainstorming" sketches that were annotated clearly and supported by dialogue explaining their design thinking – these were well regarded by the Markers. Some students did provide bubble diagrams but did not support them with any written communication explaining their design thinking. It is important that students do not rely on this genre' of visual work alone but use it to help inform their scaled concept drawings.

Stronger responses also regularly reflected their aims or listed the aims that were being addressed in their annotations.

Less successful folios did not include key furnishings in their concept work, thus not providing strong evidence that they had checked that room proportions were workable, and that circulation and flow had been considered.

Design development drawings need to be clearly presented and be large enough to be legible. Scale, scale bars, dimensioning and an indication of the north location are also a critical part of the design process. These elements were absent in some folios this year, drawing a significant marking penalty. There needs to be consistent use of scale throughout the formal concept stage and into the final drawings.

Some design concepts were basically the same from concept 1 through 3 with very little design progression and minimal discussion. Design analysis by some students was very superficial; providing an explanation of what was included but no justification and clarification of the design evolution.

Some designs had negative aspects highlighted in concept 1 but continued to include these in other concepts and in many cases also featured in the final design even though the feature had been identified as a negative. This was often closely linked to some students creating concepts

with intentional "faults" in their design work that are "set to fail", such as "there are no windows in the design, this will have to be addressed in the next design".... or "a toilet could only be accessed externally". This would often suggest that the student had undertaken "Reverse Design" – where they came up with one concept and then tried to de-construct it to form lesser iterations of it. This is not an appropriate design practice.

Overall presentation still needs consideration. Weaker projects had quite small drawings with minimal detail that were difficult to interpret clearly. The marking panel recommends one A3 page per concept/iteration. Stronger projects included hand-drawn images that were accurately presented and contained appropriate supporting annotations. Some students did choose to use CAD in this phase too, and these were generally easy to visualise and assess. It is important that hand drawings are done with appropriate weighted pencils so that scanned copies are clearly legible. Digital annotations do allow for easier reading and more ordered discussion of design details. Even in stronger folios, students often had drawings scaled too small, making the text the main content on the page rather than the visual design work.

Some folios also had completely different design developments, totally different shape or forms not having any connection to the previous iteration, so the student was coming up with a fresh idea every time, rather than developing their original concept further. It is suggested that students experiment with different forms as part of their preliminary brainstorming work, which can still be included within the folio, so long as it does not push the folio over 20 pages. It is quite appropriate to have a modified footprint, so long as there is a connection to the former iteration.

Criterion 8. Generate design solutions which respond positively to the brief and identified aims

Design Resolution

Strong folios clearly showed a resolution to their design problem. High achieving students created well-refined drawings, to scale (with scale evidence included i.e., a scale bar), dimensions and the direction of North. They provided in-depth narratives discussing the design features presented within each drawing whether it be the floor plans, elevations, section drawings and 3D drawings. These narratives also linked the design features with the brief and aims of the project.

Strong folios provided an evaluation that discussed and rationalised how each Aim was achieved. All aims originally listed should have been addressed in a comprehensive manner.

Like last year, many students claimed that a "particular" aim was addressed within the evaluation, but there was no evidence of this occurring throughout their concept work or within their final section of realisation drawings and annotation. Students need to justify

throughout their folio how they are addressing their aims as well as justifying them in their final evaluation.

Less successful foliosdid supply a set of drawings as prescribed in the Folio Guidelines, but not always well detailed and with little discussion or no narrative at all explaining the design features.

As indicated earlier, some students that listed simple, unsophisticated aims restricted their opportunity to attain high outcomes in their folio assessment.

Drawing quality and annotations of the final floor plan still need improvement in Criterion 8 as conventions were not always met, such as wall thickness and furniture inclusions, all drawn to Australian Standards, whether drawn by hand or produced by CAD.

The inclusion of storyboards and colour schemes are not relevant, unless one of the aims is associated with the element of design "colour" and a mood or feeling they are trying to achieve. Some of this information can be provided within precedent research, but best to avoid catalogue style precedent work. There were still folios showing lighting and power-point location plans which are also not relevant to Housing and Design folios, and are not required in a folio, with the exception of universal or accessible design folios, with a particular reference to switch heights.

General Advice for Future Students

Pencil Scans and spell check

Please ensure hand-drawn drawings are drawn with a sharp HB or HB pacer and scanned to 300 DPI and is clearly legible. Undertake a spell check too. When scanning, please ensure scale bar is also present in the image.

Folio Publishing

Seek guidance and instruction from your teacher in using design elements and principles in the publishing of your folio. PowerPoint is a reasonable Publishing Software, but pages using design templates take up too much available space, so just use blank pages. Adobe in Design is another recommended publishing software. It is also important for students to adhere to the folio guidelines and stay within the 20 page limit. A content page is not necessary. Please avoid using white or light-coloured text on black backgrounds. The Marking panel strongly recommends keeping your publishing simple – use black text on white background. Also – many students used up valuable page space by only having one paragraph or one image/ drawing on one page. Students should use page space effectively, and avoid over-crowding and replication of written dialogue just to fill the space.

The Use of CAD in Folios

CAD can assist architectural discourse and skills, as well as provide benefits such as greater efficiency, more precise drawings, and the ability to easily edit designs. Additionally, the use of CAD can resolve difficulties that often occur in the design of complex forms. However, the current course syllabus does not prescribe CAD as a teaching and learning component of this course, and the already rich content of the course would certainly inhibit time required for teachers to provide instruction to students how to use an architectural design software competently. Students who have studied CAD can use this skill set to their advantage and would not be penalised. Obviously, on the flip side, those who are visually strong, artistic or are a natural draftsman are certainly advantaged, too.

As to whether students choose to use CAD or to draw by hand, (these are just the tools) the crucial factors are scale, proportion, appropriate conventions along with appropriate annotations and narrations of the design. These should all be used to a good standard.

It is important that traditional drawing techniques be developed by the student. There is a connection between a student's ability to draw by hand and their ability to design. A sketch demonstrates a process of thinking, analysing, and evaluating, that may not be reflected in CAD work. Drawing by hand develops foundational skills, and practice the design process. By including traditional methods in the design process, students can express their ideas creatively and authentically. This is a critical skill for all students to possess for their end-of-year exams if they are to succeed to a high standard.