

# **National Certificate of Educational Achievement**

## **2014 Assessment Report**

### **Design and Visual Communication (DVC)**

#### **Level 2**

- 91337 Use visual communication techniques to generate design ideas.**
- 91338 Produce working drawings to communicate technical details of a design.**
- 91339 Produce instrumental perspective projection drawings to communicate design ideas.**

## STANDARD REPORTS

### **91337 Use visual communication techniques to generate design ideas.**

#### **ACHIEVEMENT**

**Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They commonly:**

- presented their design ideas using visual communication techniques: the most common techniques shown were sketching that included 2D and 3D
- used SketchUp printouts as a digital form of communication, along with some use of photographed mock-ups, in support of their sketching
- communicated functional qualities through visual means; most commonly this was shown using 2D and 3D sketches; these included cross-sections and detailed drawings to indicate construction
- communicated aesthetic qualities that indicated shape, form and material finish using modes that varied from pencil rendering to the use of marker pens
- demonstrated an ability to communicate ideas using techniques and principles of visual communication (e.g. basic line work, rendering, proportioning) that showed design features.

#### **NOT ACHIEVED**

**Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They commonly:**

- presented their ideas using poorly executed visual communication techniques; predominantly sketching that was out of proportion and lacked identifiable design qualities
- failed to produce sufficient evidence to show how their design functioned in terms of operation, fit for use or construction
- displayed aesthetic qualities that were poorly shown
- produced evidence that was lacking the demonstration of more than a single idea.

#### **ACHIEVEMENT WITH MERIT**

**In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit commonly:**

- presented their ideas using techniques that were skilfully applied; most commonly presented techniques were well-proportioned sketches including 2D, 3D, sectioning and exploded views
- communicated functional qualities with clarity, showing how the design was to work, e.g. how the product being designed was intended to be used or how the product fits into the hand
- communicated aesthetic qualities with clarity; generally this was limited to colour, texture, tone, shape, form and surface finish
- used a variety of different views to fully express the qualities of the design from different angles as well as internally
- demonstrated an ability to show divergent thinking, producing a range of possible ideas using different generative strategies, e.g. mock-ups, research inspired ideas, concept generation, creative experiments with forms and shapes

- produced diverse design ideas that clearly showed identifiable design qualities, which tended to be primarily aesthetic in nature.

## **ACHIEVEMENT WITH EXCELLENCE**

**In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence commonly:**

- applied visual communication techniques that were appropriate to what they were trying to communicate and executed these to a high standard that lead to effective communication of their design thinking
- clarified comprehensively the functional and aesthetic details of the design in depth and with clarity so as to demonstrate a full understanding of the inner working of the design
- extended their design thinking through the on-going exploration and manipulation of their ideas visually in a manner that is informed within the design context.

## **OTHER COMMENTS**

Design ideas must be candidate-generated responses to design briefs.

The types of visual communication techniques observed were predominantly rendered freehand sketches although there has been an increase in the use of digital work to generate different conceptual ideas, predominantly Google SketchUp. Candidates that have mastered this programme were able to use this effectively to present their design thoughts.

Also presented were ruled drawings, some CAD work and the use of photographed models and mock-ups.

A number of candidates used functional models as a way of testing the shape and form of their design; these were generally presented as a series of photos showing what was being tested. These could still be integrated into the process more effectively.

Those candidates that were assessed at the Achievement with Merit or Achievement with Excellence level were able to make judgements as to the best way to view a design and then choose the most suitable technique to use to explain how it might work and look. They then went on to explore their design ideas in detail, and with clarity, that supported clear and coherent design thinking. These were skilfully and effectively presented. Examples of this included time spent in the development stage allowing themselves to reflect on and introduce new aspects/ideas/thinking as they progressed. Those that stuck to a more linear approach found it more difficult to extend their design ideas.

It was interesting to see a number of candidates using ideation in the initial stages of the design. Those who have been encouraged to use an influence to drive their ideation usually arrived at more interesting and divergent ideas and tended to achieve well. Those candidates that tended to look at existing examples of design directly related to the context generally ended up with design solutions very similar to those they started with, which limited their ability to be successful at the higher levels.

Functional qualities generally limited the candidate's ability to reach the higher levels. Those candidates that were successful at the higher levels were able to expand their ideas to show more detail of how things worked or were to be constructed; these were often enlarged sketches that allowed functional details to be shown more comprehensively.

Aesthetic qualities were generally applied with clarity. Candidates in most cases could apply colour, tone, texture and surface finish competently. Candidates that simply coloured their ideas or applied little in the way of aesthetics were limited in their success.

Work presented in the area of Spatial design was stronger this year with candidates presenting work that showed an improved understanding of how buildings functioned. Relationship between rooms – flow and movement, environmental considerations relating to the site, consideration of exterior roof design and material selection were communicated using both 2D and 3D sketches and drawings. Designs varied from – house designs, container houses, cafes, re-modelled kitchens, lounge areas and sleep-outs. Candidates should be reminded that it is not about the complexity of the design, but about exploring and effectively communicating a creative design solution with clarity and a depth of understanding.

Candidates producing evidence in the area of product design generally achieved well as they found it easier to explore both the functional and aesthetic qualities of the design. Candidates often used hands or figures to gauge the scale and proportion of the product then produced construction details to show how a product worked. Briefs need to be carefully selected so as not to restrict the candidates' opportunities for showing divergent thinking (through overly prescribed specifications, for example) that allows them to explore and extend their ideas towards more innovative solutions. Highly utilitarian design briefs can limit the creative responses a candidate can arrive at.

Some technology work was presented with mixed success. These were predominantly textiles candidates. Most candidates could show design ideas but these tend to be limited to just 2D sketches. This was generally in the form of the dress model format and repeated the same form throughout the design process without exploring other methods of communicating ideas or detailing. Functional qualities were generally limited to just a few small 2D and sometime 3D sketches of how the design may be assembled. This is not enough to achieve at the higher levels. Those that achieved with success, fully considered the functional aspects of their design visually and in some cases through functional modelling. The Aesthetic qualities of the designs were often well presented. Candidates used a combination of pens, pencils or marker pens to show texture, pattern and finish.

There are still candidates submitting research, particularly work on a design era and non-related internal work. This should be removed. This includes work in visual diaries. For this standard all that is required is the work that shows the candidate's visual communication techniques to generate ideas.

## **91338 Produce working drawings to communicate technical details of a design.**

### **ACHIEVEMENT**

**Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They commonly:**

- demonstrated an ability to produce a set of interconnected 2D instrumental working drawings to show technical details; most commonly this involved a plan, elevations and clearly related cross-section
- showed the use of recognised drawing conventions appropriate to the drawings being produced, e.g. labelling, scale, basic line types – construction lines, outlines, section lines.

## **NOT ACHIEVED**

**Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They commonly:**

- produced a set of interconnected drawings that did not show enough technical details about the design; the most common example was a working drawing of a product that contained a plan or top view, end elevation and a sectional view that lacked any technical details of distinct parts and their assembly
- produced drawings that were not interconnected; in other words, lacked information that connected one drawing to the next or produced drawings that were not relevant and useful in communicating details of the design
- showed that they were unable to use conventions appropriately, e.g. poor dimensioning techniques, inappropriate sectioning conventions and the misuse of scales were common. The level of poor use of conventions was deemed as such when it was difficult to make sense and understand the information being conveyed.

## **ACHIEVEMENT WITH MERIT**

**In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit commonly:**

- produced a set of interconnecting 2D instrumental working drawings that clearly communicated technical details of the design. Drawings clearly showed construction information or complex detailing that related to the design
- produced drawings that were skilfully and accurately drawn
- demonstrated good skills in applying drawing conventions appropriately to the drawing type being presented.

## **ACHIEVEMENT WITH EXCELLENCE**

**In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence commonly:**

- produced a set of drawings that communicated the technical details of their design effectively and were presented to a high standard using appropriate conventions
- produced drawings that were consistently accurately drawn and included information and details so as to clearly understand the design. These drawings often included sectional views, with enlarged details, which allowed the design to be effectively communicated.

## **OTHER COMMENTS**

This standard is about producing a set of related two-dimensional instrumental working drawings that show one's own design decisions. These drawings must communicate technical details of the design's shape and form and must show complex visual information using conventions that are associated with the type of drawing being produced.

Schools that teach 2D working drawings and encourage quality drawing skills supported by the use of conventions have done well.

Working drawings need to have an element of complexity. Simple designs that included a plan, elevations and a cross section often lacked the detailing that clarifies the workings and or construction of the design. Often all that needs to be added to these drawings is

some technical detailing (e.g. parts and/or assembly) to increase the clarity and complexity of the design and therefore making it a more complete set of related drawings.

Those candidates that were successful in gaining the higher grades, produced a coherent set of working drawings that were accurate and showed quality drawing skills included conventions that were appropriate to the type of drawing produced. The views were correctly scaled, used symbols to indicate sectioning and details were clearly labelled and referenced to each other.

The importance of relating the set (linking) of drawings using conventions is crucial in communicating complex and technical information in order to inform all supporting drawings.

Architectural drawings often included a plan drawn to a scale of 1:100 or 1:50 which showed benches, baths, showers and fittings which clearly indicates the function of the rooms. Two or even four elevations were drawn to a scale of 1:100 or 1:50, in which these views often indicated the materials used. These views were usually supported with a cross-section at 1:50 and one to two enlarged details drawn to a scale of 1:10 or 1:5. A few candidates presented a cross-section at 1:20 which allowed more complex visual information to be shown clearly without drawing enlarged details. For architectural portfolios to be successful in gaining the higher grades, candidates must relate their drawings. In many cases this is as simple as placing a north symbol on the plan view and referencing this to the elevations.

An increased number of candidates presented their working drawings using CAD. It was pleasing to see that there is an improved understanding of how to use this software. Although CAD work was seen across all areas, it was predominantly used in Architecture. In a number of architectural designs, candidates produced plans, elevations and cross-sections, the cross-sections were often at 1:50 scale and then the candidate imported larger details from architectural component libraries, e.g. details of a foundation or a window to show clearly the construction details for their own design. Those that did this were more likely to be successful. However, in some cases these details were imported NTS and the cladding or materials shown in the detail did not relate to that shown on the elevations. In these cases candidates were restricted to the lower levels of achievement. Drawings and details must relate to the candidate's own design. In some cases the drawings had not printed out accurately to scale. This was a result of candidates choosing to resize their drawings or printing to page without checking the settings on the computer. Line work was also an issue; candidates must use the correct line tools. Often lines were drawn too thick and in some cases the technical detailing was not clearly communicated.

Candidates producing auxiliary views as a means of making their working drawings more complex must make sure the views have a purpose, some auxiliary views added no additional information to the drawings.

Candidates need to be reminded that there is no point in producing auxiliary views unless they show relevant information, e.g. the true shape of a sloping surface.

When producing working drawings, whether using CAD or hand-held instruments, candidates should be encouraged to use standard scales, e.g. 1:100, 1:50, 1:20, 1:10 or 1:5. In some cases candidates had just made up a scale to suit the page. This is not appropriate.

Design drawings must be candidate-generated responses to design briefs. There should be no common class exercises or bodies of work that is not the individual candidate's generated ideas or solution.

There are clear conventions to be used when producing 2D working drawings. To successfully gain Achievement with Merit or Achievement with Excellence these need to be applied accurately and appropriately.

## **91339 Produce instrumental perspective projection drawings to communicate design ideas.**

### **ACHIEVEMENT**

**Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They commonly:**

- produced an instrumental perspective drawing that applied the principles of perspective projection correctly, showing the correct setting out of the picture plane, eye line, ground line, vanishing points and station point
- produced a perspective drawing that showed complexity in terms of detail and/or form.

### **NOT ACHIEVED**

**Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They commonly:**

- produced an instrumental perspective drawing where the principles were not applied correctly; the most common fault was not projecting the vanishing points correctly from the station point and picture plane set up
- produced an instrumental perspective drawing that was simple in shape and form, and lacked the communication of complex information in terms of showing any real detail.

### **ACHIEVEMENT WITH MERIT**

**In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit commonly:**

- produced an instrumental perspective drawing that was skilfully drawn in terms of clear and effective line work
- plotted points for more complex shapes and or curves
- produced an instrumental perspective drawing that applied the principles of perspective projection correctly, showing the correct setting out of the picture plane, eye line, ground line, vanishing points and correctly used the height line to project heights on the drawing
- showed some skill in being able to project clearly the detail of the design features, such as window frames, door frames and railings showing thickness and depth communicating construction or materials.

## **ACHIEVEMENT WITH EXCELLENCE**

**In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence commonly:**

- selected a view point that enabled the perspective drawing to communicate visual information about the design effectively and the perspective drawing was highly informative and visually realistic
- produced a perspective drawing that was accurately projected. Design features were skilfully and accurately plotted such, as weatherboards, gaps in fittings, handles, guttering, flooring and decking. A high level of drawing was used to communicate this design information.

## **OTHER COMMENTS**

This standard is about producing a set of related two-dimensional instrumental working Candidates needed to have an understanding of how to produce an instrumental perspective drawing. Those that had success understood the principles of perspective and how to apply them. Those that were able to project detail accurately were able to access higher levels of achievement.

The majority of candidates produced architectural perspective drawings, with many having success.

Those who were able to access higher levels of achievement commonly spent time selecting a view point and thinking carefully about the relationship between the station point, picture plane and vanishing points before starting. This enabled them to obtain a drawing to a size that allowed them to show their design features clearly and in detail.

Common issues that prevented candidates accessing higher levels of achievement included not using the height line correctly, or the height line was often projected correctly but the heights were not then projected around the object correctly to plot the required points.

In a number of cases the perspective drawing was too small to enable the candidate to show design features with any detail and therefore restricted them to Achievement only.

To gain Achievement with Excellence candidates needed to select a view point that effectively communicated their design. This means that the candidate is looking in a direction that best illustrates their design so as to not distort the design. In most cases, candidates chose the correct direction to view their design but not always from the most desirable height.

A good number of candidates presented CAD perspectives. They often presented two or three drawings, one showing the construction lines overlaying the perspective turned on, the other showing the actual perspective without the construction lines so as to show the features more clearly. The concern was that these drawings were often quite small, line work was quite thick and the detail was lost, preventing candidates achieving at the higher levels.

Candidates should remember to attach the plan and elevation to the perspective to justify projection points. A number of candidates had removed these and the markers could not verify heights.

Teachers should encourage accuracy and quality drawing skills. There is a need to show construction clearly, especially circles. These were often just drawn in. To have success at the higher levels these points need to be accurately plotted.