

National Certificate of Educational Achievement

2013 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.**

COMMENTARY

This is the second year for the new standards.

91337

The quality of the design ideas being produced this year has improved and in most cases these design qualities are identifiable. More often it was the aesthetic qualities of the ideas that were more dominant than the functional qualities.

Generally sketching is still the predominant technique being used for the communication of design ideas, and these techniques have improved from 2012.

Digital communication techniques were also evident along with some use of well photographed mock-ups. Effective use of these modes was demonstrated where the submissions were able to show different viewpoints and details for particular digital or physical models produced.

While the standard does not require the use of a range of techniques, there were some good examples of submissions that utilised a range of different techniques such as sketching, mock-ups and/or digital work. Candidates are encouraged to use the techniques that they have the greatest skills in, to best communicate their design ideas and thinking.

Generally, evidence being presented did show improved visual communication techniques. Consequently there are more candidates achieving. A comparable proportion of candidates gained the higher level grade with those at excellence improved slightly to those of 2012.

The demonstration of generating and extending design ideas is an aspect that still needs to develop further. An improvement is expected as the understanding of this develops amongst teachers and candidates for this relatively new standard.

91338

This standard looks for a set of interconnected 2-D instrumental working drawings to show complex visual information. In this context, the complex visual information can be as a result of designs that are complex in form, or are communicated in detail to show internal information of construction or multiple parts.

There was some improvement in the general understanding of this standard, with successful submissions producing a set of working drawings that helped communicate design details, rather than simply producing orthographic drawings to show conventions and projection principles.

The general improvement was reflected within candidate results with a larger proportion of candidates gaining higher grades, especially at the Achievement with Merit level.

91339

This standard specifically looks at the candidate's ability to produce an instrumental perspective drawing to communicate design ideas.

The general understanding of this standard has continued to consolidate, with the majority of successful submissions utilising angular perspective projection (two-point) more than parallel perspective projection (one-point). Clearly establishing an appropriate use of the height line generally meant very good results were attained. While the majority of evidence is still primarily hand drawn, there was also computer-generated evidence (CAD) submitted with success.

The general improvement was reflected within candidate results with a larger proportion of candidates gaining better grades, especially at the Achievement, and the Achievement with Excellence level.

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 typically:

- presented their design ideas using visual communication techniques: most commonly presented techniques were sketching that included 2-D and 3-D
- used mainly Sketch Up printouts as a typical form of digital 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 2-D and 3-D 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 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
- generated different ideas that were predictable and/or similar to the researched solutions gathered.

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 typically:

- presented their ideas using poorly executed visual communication techniques; predominantly sketching was out of proportion and lacked identifiable design qualities
- failed to produce sufficient evidence to show how their design functioned
- displayed aesthetic qualities that were poorly applied
- produced evidence that was incomplete or 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 typically:

- presented their ideas using techniques that were skilfully applied; most commonly presented techniques were well proportioned sketches including 2-D, 3-D, 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 fitted into the hands
- 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 and 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 typically:

- applied visual communication techniques that were appropriate to what they were trying to communicate and executed these to a high standard that led 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 ongoing exploring and extending of their ideas through visual means, so as to inform and further manipulate and extend the idea within the design context.

OTHER COMMENTS

Schools need to select their brief carefully as briefs can be very restrictive, limiting the student's ability to think divergently and allowing them to explore and extend their ideas to arrive at innovative solutions. Highly utilitarian design briefs can limit the creative responses a candidate can arrive at.

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

A high proportion of candidates submitted visual communication techniques using sketching and rendering. Sketches were generally well proportioned, 2-D and 3-D, and were supported with a mixture of cross sectional and sometimes exploded views. In some cases these were rendered to show tone, texture and surface finish. Those candidates that achieved at the higher level were able to produce sketches using a variety of techniques making judgements as to the best way to view the design and the best type of drawing to use to explain how it might work and look. These were well proportioned using techniques that were applied skilfully and effectively using coloured pencils, and marker pens for surface finish.

Functional qualities generally limited the candidates' ability to achieve at the higher levels. Sketches were limited to a few simple cross sections, exploded views or architectural plan views showing room layouts. Those candidates who achieved at the higher levels were able to produce well-proportioned sketches which allowed them 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. Those candidates that could apply visual communication techniques showing tonal change, used pens, pencils or marker pens to show texture, pattern and surface finish achieved at the higher levels.

A high proportion of candidates were able to show design ideas that showed identifiable design qualities. A good number of candidates produced divergent ideas but showed them as a collection of ideas. The ideas need to be reflected on, explored and extended visually to gain the higher grades.

Candidates working in the area of architecture and wishing to achieve at the higher levels need to clarify functional qualities in more detail e.g. relationship between rooms – flow and movement, views from windows - size of windows and environmental considerations relating to the site (e.g. how the sun rise and sun set might affect the building). This needs to be communicated in both 2-D (plans) and 3-D drawings.

A good proportion of students used functional models as a form of testing the shape and form of the design; these were generally presented as a series of photos showing what was being tested. These could be more integrated into the process.

Some digital work was evident as a form of visual communication mainly in the context of architecture with mixed success. As an example where a candidate just produces views of rooms and simply views them from different directions, is not using communication techniques effectively and as a result is restricted to lower achievement levels. Those that used digital based drawings effectively to explore and clarify their designs, used this format to show design ideas in detail and with clarity that supported clear and coherent design thinking, achieved well. This form of visual communication still needs to be used effectively to achieve at the higher levels.

Candidates producing evidence in the area of product design generally achieved well as they found it easier to understand and explore both the functional and aesthetic qualities of the design, including the human factor and construction details.

Some technology work was presented with mixed success. These were mainly textiles candidates. Most candidates could show design ideas but these tended to be limited to just 2-D 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 2-D and sometimes 3-D 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 were many candidates that generated a range of creative and distinctly different ideas using a variety of visual approaches (e.g. research inspiration, concept generation, and visual experimenting with shapes and forms). However in most cases this generation of different ideas only occurred in the initial design stage. Candidates would benefit in taking this approach further into the development phase by some further exploration and extension of design possibilities later in the design process. It should be noted that the extending of divergent ideas needs to occur within a single design brief.

A good number of candidates are still submitting research 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 typically:

- demonstrated an ability to produce a set of interconnected 2-D instrumental working drawings to show technical details; most commonly this involved a plan, elevations and an appropriate and clearly related cross section (e.g. through an identified section plane)
- showed the use of recognised drawing conventions appropriate to the drawings being produced.

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 typically:

- 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, end elevation and a sectional elevation 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 drew 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 misuse of scales were common.

ACHIEVEMENT WITH MERIT

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

- produced a set of interconnecting 2-D 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 typically:

- 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 2-D drawings and encourage quality drawing skills supported by the use of conventions have done well.

Working drawings need to have an element of complexity. Some two dimensional working drawings such as cabinets, salt and pepper shakers and simple chairs showing three views, were often not complex enough. Scaled cross sections or enlarged details of construction joints would need to be added to the set of drawings to increase the clarity of the technical details being shown therefore making it a more complete set of related drawings.

Architectural drawings often included a plan drawn at 1:100 or 1:50 scale and two or even four elevations drawn to a scale of 1:100, in these cases there is not enough information to communicate technical details of the design. Candidates needed to support these drawings with a cross section to a larger scale or a cross section and some enlarged construction details to show more clearly the technical details.

Plan views often lacked detailed information (e.g. benches, baths, showers, fittings) to clearly indicate how the rooms were to function and elevations often lacked material finish. Labeling of views – 'plan view', 'elevations', 'cross section' was in some cases missing. Section lines and cross referencing of views was also often missing and this made it difficult to read the drawings. This restricts the candidate ability to achieve at the higher levels.

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. The inability to provide sufficient linking conventions resulted in some drawings not being able to support design solutions and ideas and therefore in isolation not considered in the overall assessment.

Those candidates that achieved well 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.

Some packaging was evident which showed a plan, elevations and surface development. Teachers need to be careful that they are not restricting the candidates to simple design outcomes.

In a number of cases these solutions were lacking technical details and were not complex enough to achieve.

Some working drawings included a plan and elevations supported by component details, those that drew the components showing shape, form and included conventions achieved success.

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

Teachers and 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.

CAD submissions are starting to be used effectively. Work submitted generally showed the correct use of conventions.

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. a foundation detail or windows details to show clearly the construction details of their own design. Those that did this successfully usually achieved well. However often 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 could only achieve at the lower level. Drawings and details must relate to the candidate's own design.

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

Line work especially those working in CAD must use the correct line tools, often lines were drawn too thick and in some cases the technical detailing was not clearly communicated.

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 student's generated ideas or solution.

There are clear conventions to be used when drawing 2-D working drawings. To gain merit or excellence these need to be applied 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 typically:

- 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 from design decisions
- 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 typically:

- produced an instrumental perspective drawing where the principles were not applied correctly; the most common fault was not projecting the vanishing points correctly
- 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 typically:

- produced an instrumental perspective drawing that was skilfully drawn
- 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 typically:

- selected a view point that enabled the perspective drawing to communicate visual information about the design effectively and the perspective visually looked correct
- 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.

COMMENTARY

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 attainment.

Often candidates knew what to do, they just lacked the guidance to use the height line correctly, which prevented them from achieving at higher levels. Height lines were often projected correctly but the heights were not then projected around the object correctly to plot the required points. This prevented them from moving past Achievement.

Often perspective drawings were too small to enable the candidate to show design features with any detail and therefore restricted them to Achievement. Those teachers that encouraged the candidates to explore the best position to place the plan view in relation to

the PP and SP so as to obtain a larger drawing allowed the candidates to show their design features in detail. This resulted in more successful grades.

To achieve with excellence candidates needed to select a viewpoint that effectively communicated their design. This means that you are looking in a direction that best illustrates your design and that the relationship between the SP, PP and VPs is chosen carefully to avoid distorting the final view.

Candidates may need to look at some set out points first or trial some ideas before deciding on the best position to view their design. In most cases candidates chose the correct direction to view their design but not always from the most desirable height.

A few schools used the Measuring point perspective method (Perspective plan method). This is an acceptable perspective projection method. Those that used this method produced larger perspective drawings which enabled detailed features to be plotted more accurately and therefore produced work that allowed candidates to achieve at the higher levels.

A good number of candidates presented CAD perspectives. They often presented two or three drawings, one showing the construction lines turned on overlaying the perspective and 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, the line work was quite thick and the detail was lost.

Candidates that produced larger perspective drawings were more successful.

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 plotted accurately.