PROCTN405

# Produce CAD, carton design and sample making

## Overview

This standard is for print finishers who produce CAD, carton designs or samples.

This standard involves:

1. interpretation of briefs;
2. programming and using software;
3. identifying materials for best end of use solutions;
4. creating or choosing shapes;
5. checking products are suitable for manufacture;
6. ensuring designs are economical;
7. creating carton profiles.

## Performance criteria

*You must be able to:*

1. make samples for a given carton using CAD software
2. programme plotters to cut samples by machine
3. create hand cut samples using knife and scoring sticks to meet specifications
4. prepare fully dimensioned blueprints from the CAD software, showing grain direction to meet specifications
5. make CAD prepared layouts to show multi-up sheets considering internal waste, gripper, back edge, side and off lay
6. indicate internal waste, varnish and ink free areas, glue patterns and board grain direction
7. show cost efficient use of boards, both in single pack and overall sheet utilisation
8. use CAD software to demonstrate modulation of one up designs into a tooling specifications for die, matrix, stripping and blanking tools

## Knowledge and understanding

*You need to know and understand:*

1. how written brief translates into practical solutions for carton end use
2. how print restrictions/attributes affect final appearance of cartons
3. how carton folds, and function of creases, scores and skip cuts
4. how features such as opening devices, tear-strips, point of sale billboard and locking features enhance carton performance
5. how to programme and use CAD software
6. how to programme and use sample cutting machines (plotters)
7. how to cut samples by hand
8. different materials (stock) available
9. how different types of stock affect carton performance
10. importance of grain direction to the performance of cartons
11. coatings and finishes available on boards and their characteristics
12. library of folding carton shapes
13. different styles of erecting machines
14. functions of proprietary and non-proprietary machines
15. the implication of licences and patents, including intellectual property of carton design features
16. how graphics are applied to carton shapes for production requirements
17. how cartons interlock and economically fit on flat production sheets
18. how and why to estimate for waste for gripper, back edge, side and off lay
19. how to prepare drawings for alternative options to suit production
20. purpose and scope of cutting and creasing machine tooling, to include cutting die (forme); female matrix – engraved counter plate and plastic counters, male and female stripping tool; male and female blanking tool
21. how tooling is manufactured and used
22. how cutting and creasing machinery works (not operated)
23. cutting pressures and how this affects crease quality
24. dynamic waste ejection
25. how folder gluing machinery works (not operated)
26. how make-ready and machine set-up affects the quality of carton creases
27. styles used
28. how ancillary equipment such as foil blocking, windowing and other

attachments can enhance cartons
29. cost efficient features of designs to aid better production capability
30. decisions made for styles and features on designs
31. machine erecting capabilities and patent features
32. features which restrict ink and varnish coverage and how the graphics will 'sit' on outlined profiles
33. line patterns and legend
34. how designs impact on estimated cost of producing production orders
35. carton finishing features from folding and gluing to added enhancements such as window patching

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| **Originating Organisation** | Proskills |
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| **Relevant Occupations** | Printers, Printing Machine Minders and Assistants, Printing Trades |
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