Australian Government
Civil Aviation Safety Authority

ADVISORY CIRCULAR
AC 21.J-01 v1.1

Approved design organisations

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Advisory circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.

Advisory circulars should always be read in conjunction with the relevant regulations.

Audience

This advisory circular (AC) applies to:

- applicants seeking approval as an approved design organisation (ADO)
- organisations maintaining their approval as an ADO.

Purpose

The purpose of this AC is to provide guidance and acceptable means of compliance with the requirements of Subpart 21.J of the *Civil Aviation Safety Regulations 1998* (CASR).

This AC is not mandatory and does not constitute a regulation, nor will the Civil Aviation Safety Authority (CASA) use it as the basis for accepting or rejecting other means of compliance with the regulations. Other means of compliance may be acceptable if in compliance with the regulations.

For further information

For further information, contact CASA's Airworthiness Standards (telephone 131 757).

Status

This version of the AC is approved by the Branch Manager, Airworthiness and Engineering.

Note: Changes made in the current version are not annotated. The document should be read in full.

Version	Date	Details
v1.1	November 2022	Administrative review only.
v1.0	June 2014	Initial AC.

Unless specified otherwise, all subregulations, regulations, Divisions, Subparts and Parts referenced in this AC are references to the *Civil Aviation Safety Regulations 1998 (CASR)*.

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1 Reference material

1.1 Acronyms

The acronyms and abbreviations used in this AC are listed in the table below.

Acronym	Description
AC	Advisory Circular
ADO	Approved design organisation
APMA	Australian Parts Manufacturer Approval
ATSO	Australian Technical Standard Order
CAR	*Civil Aviation Regulations 1988*
CASA	Civil Aviation Safety Authority
CASR	*Civil Aviation Safety Regulations 1998*
DASM	Design assurance system manual
ICAO	International Civil Aviation Organization
STC	*Supplemental Type Certificate*

1.2 Definitions

Terms that have specific meaning within this AC are defined in the table below. Where definitions from the civil aviation legislation have been reproduced for ease of reference, these are identified by 'grey shading'. Should there be a discrepancy between a definition given in this AC and the civil aviation legislation, the definition in the legislation prevails.

Term	Definition
Design assurance system	For an ADO, means the system described in the organisation's design assurance system manual. It is the documented processes and procedures that the organisation uses to carry out design activities to ensure that the designs comply with the applicable airworthiness standards and do not introduce an unsafe feature or characteristic.
Independent checking	Means a comprehensive and systematic examination of a design activity by an independent individual to evaluate the adequacy and accuracy of its assumptions, methodology, calculations and conclusions.[1]
Independent monitoring	Means ongoing assessment by an independent person of: 1. the adequacy of the ADO's design assurance system; and 2. compliance by the ADO and its subcontractors (if any) with the requirements of the design assurance system.[2]
Key personnel	Means the individuals that hold the following positions in the ADO: 1. accountable manager; 2. head of design;

[1] See subregulations 21.269(4) and (5) in relation to independent checking.
[2] See subregulation 21.269(3) in relation to independent monitoring.

Term	Definition
	3. each other managerial position whose responsibilities relate to compliance with Subpart 21.J; and 4. each position held by a person who carries out a design activity.3
Key positions	Means the following positions in an ADO: 1. Accountable manager; 2. head of design; 3. each other managerial position whose responsibilities relate to compliance with Subpart 21.J; and 4. each position held by a person who carries out a design activity.4
Person	An individual or body corporate.
Relevant ADO	In relation to a design activity and an aircraft or aeronautical product of a particular kind, means an ADO that is approved under Subpart 21.J to carry out that design activity in relation to aircraft or aeronautical products of that kind.
Unsafe feature or characteristic	See guidance for paragraph 21.247(1)(d).

1.3 References

Legislation

Legislation is available on the Federal Register of Legislation website https://www.legislation.gov.au/

Document	Title
Part 11 of CASR	Regulatory administrative procedures.
Part 13 of CASR	Enforcement procedures.
Part 21 of CASR	Certification and airworthiness requirements for an aircraft and parts.
Subpart 21.J of CASR	Approved design organisations.
CASR Dictionary	
Schedule 1 to the *Civil Aviation (Fees) Regulations 1995*	Fees for aviation regulatory services.

International Civil Aviation Organization documents

International Civil Aviation Organization (ICAO) documents are available for purchase from http://store1.icao.int/

Document	Title

[3] See paragraph 21.263(c) for the key positions for an ADO.
[4] See paragraph 21.263(c) for the key positions for an ADO.

Document	Title

Advisory material

CASA's advisory materials are available at https://www.casa.gov.au/publications-and-resources/guidance-materials

Document	Title
AC 21-8	Approval of modification and repair designs under Subpart 21.M
AC 21-10	Experimental certificates
AC 21-12	Classification of design changes
AC 21-13	Australian-designed aircraft - type certification
AC 21-14	Production certificates
AC 21-15	Supplemental type certificates
Ac 21-16	Approval of materials, parts, processes and appliances
AC 21-22	Approval of imported engines, propellers, materials, parts and appliances
AC 21-23	Technical data
AC 21-28	Permissible unserviceabilities - unrepaired defects (r.21.007)
AC 21-35	Calibration of inspection and test equipment.

1.4 Forms

CASA's forms are available at http://www.casa.gov.au/forms

Form number	Title
CASA Form 21-J01	Application for Grant, Re-issue or Change of Approval as an Approved Design Organisation
CASA Form 21-J02	Change Request
CASA Form 4	Nominated Personnel
CASA Form 655	Design Advice
CASA Form 724	Statement of Conformity
CASA Form 882	Conformity Inspection Record
CASA Form 979	Statement of Compliance with the Civil Aviation Regulations

2 Introduction

2.1 Overview of approved design organisations

2.1.1 An ADO is an organisation that has been approved by CASA under Subpart 21.J to carry out *design activities*.[5] Design activities are certain activities, covered by various provisions of Part 21, associated with the design of, and design of changes to, aircraft and aeronautical products.

2.1.2 Any person—individual or body corporate—may apply for approval as an ADO.

2.1.3 An ADO must develop and maintain a design assurance system manual and an exposition that meet the requirements of Subpart 21.J. These documents describe the ADO's processes and procedures for carrying out design activities and are the basis of approval by CASA as an ADO.

2.1.4 An ADO's approval certificate defines the ADO's scope of approval, i.e. the design activities that the ADO is approved to carry out and the aircraft and aeronautical products in relation to which the ADO may carry out those activities.

2.1.5 CASA may also grant an ADO privileges other than design activities via an instrument of appointment.

2.2 Explanation of specific regulatory requirements

2.2.1 The explanatory material in this AC is arranged in the same manner as the regulations in Subpart 21.J. It provides explanations and amplification of the policy intention of certain provisions and, in some cases, acceptable means of compliance with the requirements.

[5] See regulation 21.233 for the definition of 'design activity'.

3 Division 21.J.1—General

3.1 Regulation 21.231—What Subpart 21.J is about

3.1.1 The objective of Subpart 21.J is to provide a regulatory framework by which CASA can assess an organisation's capability to carry out design activities.

3.1.2 Subpart 21.J sets out the requirements for approval as an ADO, the privileges and obligations of an ADO, and the roles and responsibilities of an ADO for carrying out design activities.

3.1.3 It provides the framework for an ADO to describe *how* it will carry out design activities, but the performance rules for *what* must be done in relation to a particular design activity remain in the provisions of Part 21 associated with the particular activity.

3.2 Regulation 21.235—Privileges for approved design organisations

3.2.1 When an ADO may carry out a design activity

Design activities other than certification activities

3.2.1.1 An ADO may carry out a design activity, other than a *certification activity*[6], in relation to an aircraft or aeronautical product only if the ADO is approved under regulation 21.243 to carry out that activity on that kind of aircraft or aeronautical product. This includes advice activities, approval activities and experimental certificate activities.

Certification activities[7]

3.2.1.2 An ADO may carry out a certification activity in relation to an aircraft or aeronautical product only if the ADO is:

approved under regulation 21.243 to carry out the activity on aircraft or aeronautical products of that kind; and
specifically authorised under regulation 21.251 to carry out the certification activity in relation to a particular application that was made to CASA.

3.2.2 Subcontracting a design activity

3.2.2.1 An ADO that is approved to carry out a design activity may authorise a *subcontractor*[8] to carry out an activity on its behalf. The subcontractor can be, but need not be, another ADO. Design activities carried out by a subcontractor must be carried out under the ADO's approval certificate and in accordance with the ADO's exposition and design assurance system manual, even if the subcontractor is another ADO.

3.2.2.2 An ADO may only subcontract a design activity that it is approved to carry out.

[6] See regulation 21.233 for the definition of 'certification activity'.
[7] See regulation 21.251 and associated guidance for more information on certification activities.
[8] See regulation 21.233 for the definition of 'subcontractor'.

3.2.3 Coordination of a design activity[9]

Design activities other than certification activities

3.2.3.1 If an ADO accepts an application for an advice, approval or experimental certificate activity, and some parts of the activity are not covered under the ADO's approval certificate (e.g. certain engineering specialities or particular design activities), then the ADO must coordinate the design activity with another ADO whose approval certificate covers those parts of the activity. The activities carried out by the second ADO must be carried out under its own approval certificate. The first ADO issues the final advice, approval or experimental certificate required for the application relying on the activities carried out by the second ADO.

Certification activities[10]

3.2.3.2 Coordination of certification activities is a function of CASA, not an ADO. Certification activities are only carried out:

in relation to applications that are made to CASA and for which CASA will be providing the final approval; and
in accordance with a specific authorisation provided by CASA.

3.2.3.3 CASA may only authorise an ADO to carry out a certification activity if the activity is within the ADO's scope of approval.

3.2.3.4 CASA may authorise multiple certification activities to cover different aspects of a single application.

3.2.3.5 A separate certificate is required for each certification activity.

3.2.4 Other privileges under Part 11

3.2.4.1 Regulation 11.026 provides that, in relation to advice, approval and experimental certificate activities, a reference to CASA in Part 11 includes a reference to the ADO that received the application, which provides for the ADO to:

impose conditions on and vary the conditions of an authorisation granted by the ADO in carrying out the design activity, after the ADO has granted the authorisation;
impose a requirement relating to certain notifications and information on an authorisation granted by the ADO in carrying out the design activity; and
vary an authorisation granted by the ADO in carrying out the design activity at the request of the holder.

3.2.4.2 In relation to certification activities, regulation 11.026 provides that an ADO may:

ask the applicant to provide more information under regulation 11.040; and
ask the applicant to provide a statutory declaration to verify the application under regulation 11.047.

[9] See paragraph 21.263(h) and associated guidance for more information on coordination of design activities.
[10] See regulation 21.251 and associated guidance for more information on certification activities.

3.2.5 Additional privileges

3.2.5.1 If an ADO requests an additional privilege that is not within the definition of design activity[11] then CASA may grant the additional privilege to the ADO through a separate instrument of appointment, provided the ADO complies with the requirements to obtain and maintain the privileges (e.g. issue of special flight permits under regulation 21.200).

3.3 Regulation 21.237—Prohibition of unauthorised carrying out of design activities

3.3.1 This regulation provides that a design activity may only be carried out by:

an ADO;
an authorised person, if provided for in the relevant provision under which the activity is carried out; or
CASA, if provided for in the relevant provision under which the activity is carried out.

3.3.2 If an ADO carries out a design activity then the activity must be carried out by an employee or a subcontractor whose scope of authorisation by the ADO covers the activity. The ADO's exposition must clearly identify the names and responsibilities of the individuals and subcontractors authorised by the ADO to carry out design activities on its behalf.[12]

3.4 Regulation 21.239—Applications may be made to approved design organisation—approval activities and experimental certificates

3.4.1 This regulation provides a general legal mechanism for ADOs to receive applications for design activities where the respective provisions do not specifically state that the application for those activities can be made to an ADO. In particular, if an ADO is a relevant ADO in relation to an approval activity or the issue of an experimental certificate under regulation 21.195A, then an application for the approval or experimental certificate may be made to the ADO.

[11] See regulation 21.233 for the definition of 'design activity'.
[12] See regulation 21.263 and associated guidance for more information on the exposition.

4 Division 21.J.2—Approval as approved design organisation

4.1 Regulation 21.241—Applying for approval

4.1.1 Who can apply?

4.1.1.1 Any person may apply to CASA for approval as an ADO—there are no set criteria for an ADO's size or type of corporate entity. The requirements of Subpart 21.J are scalable such that the means of compliance is appropriate for the size of the ADO and the nature and complexity of the design activities the ADO is approved to carry out.

4.1.2 How to apply?

4.1.2.1 An application for approval as an ADO should be made to CASA on Form 21-J01. Application forms may be obtained from any CASA office or downloaded from the CASA website.[13]

4.1.2.2 To avoid unnecessary cost to the applicant, the regulation provides that the applicant may give CASA a copy of their proposed exposition and design assurance system manual after CASA has made a preliminary assessment of the application and agreed on the scope of the approval certificate. However, the applicant must give CASA its proposed exposition and design assurance system manual before the application may be approved.

4.1.3 Where to apply?

4.1.3.1 All applications for issue of, or changes to, an approval certificate for an ADO must be lodged with CASA's Permission Application Centre. The Permission Application Centre can be contacted by telephone on 13 17 57. Additional information and contact details are available under the Services menu on the CASA website.

4.1.4 Payment of fees

4.1.4.1 CASA charges a fee to process an application for an ADO approval certificate in accordance with the *Civil Aviation (Fees) Regulations 1995*. The Permission Application Centre will provide a quotation based on an estimate of the amount of work required. The applicant must pay the estimated fee before CASA will begin to assess the application. In accordance with section 97 of *Civil Aviation Act 1988*, CASA may not process an application until the fee is paid in full.

Transitional arrangements

4.1.4.2 CASA will not charge current CAR 30 design organisations and holders of instruments of appointment fees to transition from current privileges to their equivalent privileges under Subpart 21.J. However, applicants seeking new or additional privileges will be subject to cost recovery for those new or additional privileges.

[13] http://www.casa.gov.au

4.2 Regulation 21.243—Granting approval

4.2.1 Compliance criteria

4.2.1.1 The applicant must demonstrate compliance with the requirements of Subpart 21.J. CASA will assess the following specific elements for compliance:

Exposition[14]

4.2.1.2 The applicant's exposition must contain the information mentioned in regulation 21.263 and be consistent with the applicant's design assurance system manual. See Appendix A for further information.

Design assurance system[15]

4.2.1.3 The applicant's design assurance system manual must meet the requirements of regulations 21.269 and 21.270. See Appendix B for further information.

4.2.1.4 The applicant must have established and be able to maintain the design assurance system. CASA will consider the following criteria to determine whether the design assurance system is established:

a. the applicant has provided a finalised and complete design assurance system manual that meets the requirements of regulations 21.269 and 21.270
b. the applicant's head of design has:
    i. approved the design assurance system manual
    ii. a comprehensive knowledge of the design assurance system manual
c. the applicant's other key personnel who hold managerial positions or carry out design activities have a good working knowledge of the design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to their positions
d. the tools, equipment and facilities upon which the design assurance system depends are operational and available to the applicant's personnel.

Personnel

4.2.1.5 The applicant must have sufficient appropriately qualified and experienced personnel to carry out each design activity mentioned in the applicant's proposed exposition. CASA will consider the following criteria to determine whether the applicant meets the requirements:

a. The determination of what constitutes sufficient personnel is based on the ability of the applicant to meet the requirements of the applicable design activities and comply with the applicant's exposition and design assurance system manual with the personnel and resources described in the application documents. However:

[14] See regulation 21.263 for more information on the exposition.
[15] See regulations 21.269 and 21.270 and associated guidance for more information on the design assurance system.

i. the applicant must be able to demonstrate that the personnel, including both employees and subcontractors, mentioned in their exposition are available; and

ii. if an applicant relies on subcontractors for certain activities or functions then the procedures that the ADO uses to manage the activities of the subcontractor must be:

A. included in the applicant's exposition[16]; and

B. acceptable to CASA.

b. The individuals who will hold the key positions in the ADO must be acceptable to CASA, based on their demonstrated qualifications, experience and knowledge.[17]

Facilities

4.2.1.6 The applicant must have appropriately equipped facilities for carrying out the design activities mentioned in the applicant's proposed exposition, including:

office accommodation for all employees carrying out design activities—the accommodation must be of a standard that will ensure employees can perform their duties without undue distraction or discomfort; and
facilities for the completion and retention of records and documents in accordance with the requirements of the regulations.

Equipment, tools and design reference data

4.2.1.7 The applicant must have, or have access to, the equipment, tools and up-to-date design reference data (in electronic form or otherwise) necessary for carrying out each design activity mentioned in the applicant's proposed exposition.

4.2.1.8 The applicant need not possess all the equipment, tools and design reference data at the time of assessment of their application. However, they must be able to demonstrate to CASA:

a. that they have ready access to the necessary:

i. tools and equipment (including test apparatus):

A. all equipment and tools used to make conformity or airworthiness determinations must be properly maintained and calibrated to a standard acceptable to CASA[18]

B. the applicant's exposition must describe how the ADO will ensure the calibration is up to date at the time the tools and equipment are used to make conformity or airworthiness determinations; and

ii. properly amended and up-to-date design reference data; and

how they would make the equipment, tools and design reference data available to the relevant personnel.

[16] See paragraph 21.263(g) and associated guidance in relation to subcontracting in the exposition.
[17] See paragraph 21.263(d) and associated guidance in relation to qualifications, experience and knowledge for key positions.
[18] See AC 21-35 for further guidance on calibration.

Accountable manager

4.2.1.9 The applicant must nominate an individual for the position of accountable manager. CASA must be satisfied that the individual:

a. has the authority to carry out the responsibilities of the position;
b. understands the responsibilities of the position; and
c. has the knowledge, qualifications and experience required by the ADO's exposition for the position.[19]

Head of design

4.2.1.10 The applicant must nominate an individual for the position of head of design. CASA must be satisfied that the individual has:

a. knowledge, qualifications and experience that are suitable for the position; and
b. the knowledge, qualifications and experience required by the ADO's exposition for the position.[20]

4.2.2 Verification of information by CASA

4.2.2.1 Under Subpart 11.B, CASA may inspect the applicant's facilities and resources to verify the information contained in the application (including any supporting documents). CASA may also interview the individuals nominated to key positions in the ADO to ensure that their knowledge of the relevant:

a. regulations;
b. applicable design standards;
c. policies and procedures of the ADO; and
d. technical subject matter

is adequate and that they are competent to carry out the responsibilities of the position.

4.2.3 Determination of scope of approval

4.2.3.1 If CASA decides to approve an applicant as an ADO then CASA must determine:

a. the design activities that the applicant is approved to carry out;
b. the aircraft and aeronautical products in relation to which the applicant is approved to carry out those design activities; and
c. if the applicant is approved to grant a modification/repair design approval under regulation 21.437—whether the applicant is approved to make an equivalent level of safety determination under regulation 21.436.

4.2.3.2 These determinations will be based on the capability demonstrated by the applicant and the policies, procedures and personnel described in the applicant's exposition and design assurance system manual.

[19] See paragraph 21.263(d) and associated guidance in relation to qualifications, experience and knowledge for key positions.
[20] See paragraph 21.263(d) and associated guidance in relation to qualifications, experience and knowledge for key positions.

4.2.3.3 If the applicant wishes to be approved to make an equivalent level of safety determination under regulation 21.436 then they must include in their exposition and design assurance system manual:

a. the individuals who will be authorised to make a determination;
b. the policies and procedures that the ADO will use to make a determination;
c. the procedures that the ADO will use to send and receive the required notifications to and from CASA; and
d. the procedures that the ADO will use to incorporate a determination into the applicable modification/repair design.

4.2.3.4 The scope of approval will be specified on the applicant's approval certificate.[21]

4.2.4 Approval of exposition and design assurance system manual

4.2.4.1 If CASA approves the applicant and issues an approval certificate under regulation 21.245, then the applicant's proposed exposition and design assurance system manual are taken to be approved.

4.3 Regulation 21.245—Approval certificate

4.3.1 An ADO's approval certificate defines its scope of approval. An ADO's scope of approval defines the design activities that the ADO is approved to carry out and the aircraft and aeronautical products in relation to which the ADO is approved to carry out those design activities.

4.3.2 An ADO's scope of approval, including any limitations, is determined by CASA based on the capability demonstrated by the applicant and the policies, procedures and personnel described in the applicant's exposition and design assurance system manual. The scope of approval and limitations may be expressed using criteria such as:

a. engineering specialities (e.g. structures, system and equipment (mechanical), system and equipment (electrical), engines, propeller, flight analyst)
b. airworthiness standards (e.g. Part 23, Part 27)
c. a category of aeronautical products (e.g. piston engines, propellers)
d. certain technologies (e.g. composite, wood or metallic construction).

4.3.3 When CASA must issue a new certificate

Change to scope of approval

4.3.3.1 CASA must issue a new approval certificate if the ADO demonstrates a new capability and CASA approves, under regulation 21.253, a change to the ADO's scope of approval.

Change to name of ADO

4.3.3.2 CASA must issue a new approval certificate if the ADO changes its name (i.e. the name of the ADO specified on its approval certificate). However, to be eligible for a new certificate without submitting a new application under regulation 21.241, an ADO must

[21] See regulation 21.245 and associated guidance in relation to an ADO's approval certificate.

provide evidence that there is no change to any other aspect of the approval, including the key personnel, design assurance system and location of the principal facility.

4.3.4 Change of certificate holder / transferability of certificate

4.3.4.1 The issuance of an approval certificate is based on the demonstrated capability of the applicant, who becomes the certificate holder upon approval. Therefore, under regulation 11.080, an approval certificate is not transferable to another person (i.e. an individual or company), which means that the certificate itself cannot be sold.

4.3.4.2 However, if the holder of the certificate is a corporate entity, then the certificate can effectively change hands if the company is sold. In that instance, so long as the underlying company remains the same legal entity (i.e. same ACN), then the certificate remains in force following the sale.

4.3.4.3 If a change to the certificate holder is desired then a new application must be submitted under regulation 21.241. When assessing the application CASA will consider the previous approval and the extent and effect of any changes made to the ADO.

4.4 Paragraph 21.247(1)(d)—Approval subject to conditions—unsafe feature or characteristic

4.4.1 Regulation 21.247 sets out the general conditions associated with approval as an ADO. Paragraph 21.247(1)(d) requires an ADO to ensure that no design activity that the ADO carries out introduces an unsafe feature or characteristic into the design of the aircraft or aeronautical product. This is a separate condition from compliance with the applicable airworthiness standards because in some cases an unsafe condition may exist even though the design complies with applicable airworthiness requirements.

4.4.2 An ADO must describe in their design assurance system manual the procedures that the ADO will use to determine that each design activity does not introduce an unsafe feature or characteristic to the aircraft or aeronautical product.[22]

4.4.3 An unsafe feature or characteristic includes:

a. a feature or characteristic that may lead to an event that would:
    i. result in fatalities, usually with the loss of the aircraft; or
    ii. reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:
        A. a large reduction in safety margins or functional capabilities;
        B. physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely; or
        C. serious or fatal injury to one or more occupants,

unless it is shown that the probability of such an event is within the limit defined by the applicable airworthiness standards;

[22] See paragraph 21.269(2)(d) and associated guidance in relation to procedures to ensure no unsafe feature or characteristic.

b. a feature or characteristic that too frequently (i.e. significantly beyond the applicable safety objectives) leads to events having less severe immediate consequences than those listed above but:
    i. could eventually lead to one of the consequences listed above in specific operating environments; or
    ii. may reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be, for example:

    i. a significant reduction in safety margins or functional capabilities;
    ii. a significant increase in crew workload, or in conditions impairing crew efficiency; or
    iii. discomfort to occupants, possibly including injuries;

c. a feature or characteristic with which there is an unacceptable risk of serious or fatal injury to persons other than occupants; or
d. design features intended to minimise the effects of survivable accidents not performing their intended function.

5 Division 21.J.3—Authorisation to carry out particular certification activity

5.1 Regulation 21.251—Authorisation of approved design organisations to carry out certification activities

5.1.1 Purpose of certification activity

5.1.1.1 Certification activities are applicable to certain kinds of applications[23] when the application has been made to CASA and for which CASA will be providing the final approval. Certification activities are not applicable to an application for a design activity made to an ADO.

5.1.1.2 Certification activities provide an alternative to CASA carrying out the analyses, tests and inspections that are necessary to grant the approval. The certification activity provisions enable CASA to authorise an ADO to make a compliance determination against some or all of the applicable airworthiness requirements of a design.

5.1.1.3 If the ADO determines that the relevant criteria have been met, then the ADO gives CASA a certificate to that effect. When making a decision on the application CASA need only consider the certificate from the ADO (in relation to the particular element of the design covered by the certification activity). However, if CASA is not satisfied that the determination is appropriate or complete then CASA may disregard the certificate.

5.1.1.4 Certification activities are limited to compliance verification against the airworthiness requirements specified by CASA in the authorisation notice. CASA retains the responsibility to establish the certification basis and other functions such as:

a. determination of special conditions
b. approval of acceptable means of compliance
c. the grant of exemptions
d. approval to deviate from Technical Standard Order performance standards.

5.1.1.5 An ADO cannot perform the above functions as a certification activity.

5.1.2 Applications for which CASA may authorise certification activities

5.1.2.1 The applications for which CASA may authorise a certification activity are specified in subregulation 21.251(1), which includes:

a. a type certificate
b. approval of a change to a type design
c. a supplemental type certificate
d. approval of a variation of a supplemental type certificate
e. approval of the design of a Class II or Class III product
f. an Australian Parts Manufacturer Approval (APMA)
g. a modification/repair design approval
h. an Australian Technical Standard Order (ATSO) authorisation.

[23] See section 5.1.2 for the list of applications for certification activities.

5.1.3 When CASA may authorise an ADO to carry out a certification activity

5.1.3.1 CASA may authorise an ADO to carry out a certification activity only if:

a. the activity is within the ADO's scope of approval;
b. the applicant nominates the ADO; and
c. CASA is satisfied that the ADO is capable of carrying out the certification activity.

5.1.4 How CASA authorises an ADO to carry out a certification activity

5.1.4.1 If CASA is to authorise an ADO to carry out a certification activity, CASA must:

a. specifically authorise the ADO to carry out the activity – the authorisation must:
   i. be in writing; and
   ii. specify the scope of the activity, including the airworthiness requirements against which the determination of compliance is to be made; and
b. notify the applicant in writing.

5.1.5 CASA's observation and oversight of a certification activity

5.1.5.1 If CASA authorises an ADO to carry out a certification activity then CASA may carry out inspections or observe the ADO as it conducts the certification activity[24]. If CASA intends to inspect or observe an ADO then CASA must notify the ADO in writing.

5.1.6 Form and content of certificate to CASA

5.1.6.1 If the ADO determines that the design complies with the requirements specified in the authorisation notice, then the ADO gives CASA a certificate to that effect. If the ADO determines that the design does not comply with the requirement then the ADO should notify CASA in writing.

5.1.6.2 The certification should be made on CASA Form 979, or as otherwise agreed with CASA. The certificate may be provided to CASA in electronic form.

5.1.6.3 The certificate should contain the following:

a. a brief description of the activity;
b. the CASA certification activity authorisation notice reference number;
c. a statement by the ADO that the design complies (or does not comply, as applicable) with the requirements specified in the authorisation notice – a separate determination should be provided on the certificate for each requirement specified on the certification activity authorisation notice;
d. the name of the ADO and its approval certificate reference number (i.e. the approval certificate reference number determined by CASA for regulation 21.245);
e. the name and signature of the individual who carried out the certification activity on behalf of the ADO;
f. the date on which the certificate was signed by the individual who carried out the design activity (format: dd/mmm/yyyy); and
g. a unique reference number assigned to the certificate by the ADO.

[24] See regulation 21.275 in relation to inspections and observations by CASA.

5.1.6.4 The ADO may also be required to produce a detailed report of the certification activity and provide a copy of the report to CASA with the certificate. The report should include:

a. a description of the activity;
b. the CASA certification activity authorisation notice reference number;
c. the reasons for the determination;
d. evidence to support the determination(s), including details and results of the tests, inspections and analyses that were carried out to make the determination(s);
e. the name of the ADO and its approval certificate reference number (i.e. the approval certificate reference number determined by CASA for regulation 21.245);
f. the name and signature of the individual who carried out the certification activity on behalf of the ADO;
g. the date on which the report was signed by the individual who carried out the design activity;
h. the name(s) and signature(s) of the individual(s) who carried out the independent checking of the certification activity;
i. the date on which the report was signed by the individual(s) who carried out the independent checking of the certification activity; and
j. a unique reference number assigned to the report by the ADO.

5.1.7 Fees associated with certification activities

5.1.7.1 Certification activities are an alternative to CASA carrying out all the necessary tasks associated with a particular approval—the applicant can elect to have CASA carry out all the necessary tasks or they may nominate an ADO to carry out a certification activity.

5.1.7.2 If the applicant elects to nominate an ADO to carry out a certification activity then the ADO's fees and commercial arrangements are a matter between the applicant and the ADO.

5.1.7.3 CASA charges the applicant fees for the tasks that it carries out in accordance with the *Civil Aviation (Fees) Regulations 1995*. If CASA considers it necessary to review the work carried out by an ADO under a certification activity, then CASA may charge the applicant a fee for the time taken to carry out the review.

6 Division 21.J.4—Changes to approved design organisations

6.1 Regulation 21.253—Application for approval of change to scope of approval

6.1.1 Any proposed change to an ADO's scope of approval, whether an increase or decrease, requires an application be made to CASA by or on behalf of the certificate holder. An ADO may apply to CASA for approval to change:

a. the design activities that the ADO is approved to carry out;
b. the aircraft and aeronautical products for which the ADO is approved to carry out design activities; or
c. any limitations associated with the ADO's scope of approval.

6.1.2 The application and associated demonstration of compliance with Subpart 21.J requirements need only address the proposed changes. The application for approval to change the scope of the approval certificate must:

a. be in writing (on CASA Form 21-J01 and 21-J02);
b. state the proposed change; and
c. be accompanied by a copy of all parts of the ADO's exposition and design assurance system manual that would be affected by the proposed change, with all proposed changes clearly identified.

6.1.3 If CASA is satisfied that the ADO will continue to meet the requirements of the regulations (in particular, see subregulation 21.243(5)) under the changed scope, then CASA will approve the change and issue a new approval certificate to the ADO.[25]

6.1.3.1 If the application is for an increase to the ADO's scope of approval then under Subpart 11.B, CASA may test or interview the individual(s) who will be responsible for the increased scope to assess their knowledge, skill or competence relevant to the application.

6.1.4 In the period after an ADO submits an application to CASA for approval of a proposed change and before CASA approves the change, the ADO is only permitted to carry out design activities within the ADO's existing scope of approval. The ADO is not permitted to carry out design activities under the proposed new scope until the change has been approved by CASA.

6.1.5 An ADO's scope of approval may also be changed (reduced) due to a loss of key personnel responsible for certain design activities. In the period after the ADO has lost such key personnel, the ADO is only permitted to carry out design activities within the ADO's existing scope of approval for which it has the appropriate personnel at its disposal. If the ADO is not able to restore its capabilities (e.g. via recruitment or subcontracting arrangements) then the ADO will have to submit an application to CASA for approval of a proposed change (reduction) to its scope. The time from loss of

[25] See regulation 21.245 and associated guidance in relation to the issue of a new approval certificate.

capability to either restoration of capability or submission of an application to CASA for a change of scope should not exceed 6 months.

6.1.6 If CASA approves the changed scope of approval, the associated changes to the ADO's exposition and design assurance system manual are also taken to have been approved.

6.2 Regulation 21.255—Application for approval of change to design assurance system manual

6.2.1 Any proposed change to an ADO's design assurance system, as reflected in the ADO's design assurance system manual, requires an application to CASA by or on behalf of the certificate holder.

6.2.2 The application for a proposed change to the approved design assurance system must:

a. be in writing (on CASA Form 21-J02);
b. state the proposed change – to facilitate the approval process the ADO should provide CASA a copy of the relevant section of their design assurances system manual with the changes marked; and
c. if applicable, be accompanied by a copy of any part of the exposition affected by the proposed change, with the proposed change clearly identified.

6.2.3 CASA will approve the change if satisfied that the design assurance system would continue to meet the requirements of regulations 21.269 and 21.270. If CASA approves a change to an ADO's design assurance system manual then the associated changes to the exposition are also taken to have been approved.

6.2.4 In the period after an ADO submits an application to CASA for approval of a proposed change and before CASA approves the change, the ADO is permitted to carry out design activities under its existing design assurance system. The ADO is not permitted to carry out design activities under the proposed changes to the design assurance system until the changes have been approved by CASA.

6.3 Regulation 21.257—Application for approval of permanent appointment of new accountable manager or head of design

6.3.1 If an ADO wishes to permanently appoint an individual as their accountable manager or head of design, the ADO must apply in writing to CASA for approval of the appointment. The application must:

a. be in writing (on CASA Form 21-J02);
b. state the name of the proposed individual and the position to which they are to be appointed; and
c. be accompanied by a copy of any part of the exposition affected by the proposed change, with the proposed change clearly identified.

6.3.2 The applicant should also include with the application supporting documents to demonstrate that the individual meets the requirements of the position.[26]

6.3.3 If CASA approves the permanent appointment of a new accountable manager or head of design, the relevant change(s) to the ADO's exposition made as a result of the application are also be taken to be approved.

6.3.4 An ADO is not required to apply for a temporary change, provided the change is in accordance with the ADO's exposition.[27]

6.4 Regulation 21.258—Permanent appointment of key personnel—requirement to tell CASA

6.4.1 An ADO may permanently appoint an individual to the following positions in accordance with its exposition:

a. managerial positions (other than accountable manager or head of design)
b. individuals authorised to carry out a design activity.[28]

6.4.2 If an ADO makes such an appointment it must give CASA written notification within 7 days of the appointment being made. Notifications should be sent to CASA's Permission Application Centre using Form 21-J02.

6.4.3 An ADO is not required to tell CASA about a temporary appointment, provided the appointment is in accordance with the ADO's exposition.[29]

6.5 Regulation 21.259—Change to exposition by organisation

6.5.1 An ADO must always ensure that its exposition remains an accurate description of the ADO and its activities. If an ADO undergoes a change to something mentioned in its exposition (e.g. standards or procedures for appointment of key personnel; organisational structure; locations; facilities; subcontracting arrangements) then the ADO must update its exposition accordingly.

6.5.2 If an ADO makes a change to its exposition (other than a change mentioned in regulation 21.253, 21.255, 21.256, 21.257 or 21.261, or subregulation 21.259(1)) it must give CASA a copy of the changed part of the exposition within 30 days of making the change. Notifications should be sent to CASA's Permission Application Centre using Form 21-J02 and Form 21-J01 if necessary (refer to the forms for details).

6.5.3 If an ADO makes a change to its exposition under regulation 21.259 (i.e. a change that does not require approval by CASA), then it must operate in accordance with the change from the time the change is made.

[26] See regulation 21.263 and associated guidance in relation to acceptable qualification, experience and knowledge standards and procedures for appointment of key personnel.
[27] See paragraph 21.263(f) and associated guidance in relation to temporary appointment of key personnel.
[28] See regulation 21.263 and associated guidance in relation to acceptable qualification, experience and knowledge standards and procedures for appointment of key personnel.
[29] See paragraph 21.263(f) and associated guidance in relation to temporary appointment of key personnel.

6.5.4 If CASA is not satisfied that the changed exposition contains the information required by regulation 21.263, or adequately provides for compliance with the regulations and the safety of air navigation, then CASA may direct the ADO to change its exposition.[30]

6.5.5 The requirement under regulations 11.070–11.072 to notify CASA of a change of name, address, nationality or business status is taken to be met if an ADO provides the necessary notification to CASA under this regulation (i.e. an ADO only needs to notify CASA once if a change is covered by both regulations 11.070–11.072 and this regulation).

[30] See regulation 21.261 in relation to changes to the exposition at the direction of CASA.

7 Division 21.J.5—Obligations of approved design organisations

7.1 Regulation 21.263—Content of exposition

7.1.1 The exposition sets out the key elements of the ADO and its operations, including the key personnel, organisational structure, the design activities that the ADO may carry out and the procedures that the ADO must follow to carry out those activities. The information in the exposition must be provided in sufficient detail to demonstrate compliance with the regulations.

7.1.2 Regulation 21.263 does not require a particular format for the exposition or specific implementation schemes or organisational concepts that must be established—an ADO may design its own processes and procedures that best fit its operational requirements, provided it can demonstrate compliance with the regulations.

7.1.3 The exposition may refer to other documents and manuals of the ADO to provide the required content. However, if this is done, then the other documents and manuals are taken to be part of the exposition and therefore become subject to the same requirements and controls as the exposition.

7.1.4 A sample ADO exposition that an ADO may use as a basis for developing its own exposition is provided in Attachment 1 to this AC.

7.1.5 The ADO's exposition and design assurance system manual may be combined in the same document provided the two elements are clearly distinguishable.

7.2 Paragraph 21.263(b)—Content of exposition—the aircraft or aeronautical products in relation to which the ADO may carry out design activities

7.2.1 An ADO must include in their exposition a detailed description of the aircraft or aeronautical products in relation to which the ADO may carry out design activities. This may include specific aircraft types and models or part numbers, or may be described more generally (e.g. Part 23 aeroplanes). The list must be consistent with the ADO's scope of approval.

7.3 Paragraph 21.263(b)—Content of exposition—organisational structure

7.3.1 An ADO must include in their exposition a detailed description of its organisational structure. This should include:

a. all the key positions, including or referencing an accurate description of the responsibilities of each position; and
b. a clear depiction of the reporting lines within the ADO.

7.4 Paragraph 21.263(b)—Content of exposition—procedures for carrying out design activities

7.4.1 An ADO must include in their exposition a detailed description of its procedures for carrying out design activities. The exposition may refer to the design assurance system manual for the specific procedures covered by that manual, e.g. showing compliance, ensuring no unsafe features or characteristics and independent checking.

7.5 Paragraph 21.263(c)—Content of exposition—responsibilities of the key positions—general

7.5.1 An ADO must include in their exposition a description of the responsibilities of the key positions. This may be combined with the description of the organisational structure. The responsibilities should cover all of the required tasks and functions necessary to comply with the regulations. The description should include:

a. an outline of the role of the position in the ADO;
b. the specific tasks and functions for which the position is responsible; and
c. the provisions in the regulations for which the individual holding the position is authorised to act on behalf of the ADO.

7.5.2 Accountable manager

7.5.2.1 The accountable manager is responsible for:

a. ensuring that the ADO complies with its exposition and design assurance system and the regulations;
b. ensuring that the ADO is able to finance the carrying out of the design activities stated in its approval certificate; and
c. ensuring that the ADO has adequate resources available to enable the ADO to carry out design activities in accordance with its exposition and design assurance system.[31]

7.5.2.2 The accountable manager is CASA's primary point of contact within the ADO for matters associated with the responsibilities of the accountable manager.

7.5.3 Head of design

7.5.3.1 The head of design has design responsibility for the ADO, i.e. the head of design is responsible to the accountable manager for ensuring that the ADO complies with its exposition and design assurance system manual and the regulations in carrying out design activities.[32]

7.5.3.2 The head of design is CASA's primary point of contact within the ADO for matters associated with the responsibilities of the head of design.

[31] See regulation 21.233 for the responsibilities of the accountable manager.
[32] See regulation 21.233 for the responsibilities of the head of design.

7.5.4 Other managerial positions—position responsible for independent monitoring

7.5.4.1 An ADO should nominate the individual responsible for independent monitoring for the ADO. The individual who holds the position may or may not be the individual who carries out the independent monitoring. If the ADO does not nominate a position responsible for independent monitoring then responsibility for the function will default to the head of design.

7.5.5 Other managerial positions—office of airworthiness manager

7.5.5.1 The ADO may nominate an office of airworthiness manager within the ADO to act as a liaison between the ADO and CASA for other matters not covered by the accountable manager or head of design.

7.5.6 Positions held by a person who carries out a design activity

7.5.6.1 The individuals authorised by the ADO to carry out a design activity are responsible for complying with the ADO's exposition and design assurance system manual and the regulations to ensure that in relation to each design activity that the person carries out:

a. each aircraft or aeronautical product in relation to which the activity is carried out complies with the applicable airworthiness standards; and
b. the design activity does not introduce an unsafe feature or characteristic to an aircraft or aeronautical product.

7.6 Paragraph 21.263(c)—Content of exposition—responsibilities of the key positions—appointments and authorisations

7.6.1 The ADO should describe the procedures that it will use to appoint individuals to key positions and authorise individuals to carry out design activities. General guidance for standards that are acceptable to CASA for each of the key positions is detailed below.

Note: Procedures to assess whether individuals meet the minimum qualifications, experience and knowledge criteria for a key position, as specified in the ADO's exposition, should be included in the ADO's design assurance system manual.

7.6.2 Accountable manager

7.6.2.1 The accountable manager should be nominated by the certificate holder for approval by CASA.

7.6.3 Head of design

7.6.3.1 The head of design should be nominated by the accountable manager for approval by CASA.

7.6.4 Individuals authorised to carry out design activities

7.6.4.1 Individuals authorised to carry out design activities must be authorised in writing by the ADO. The authorisation should be approved by the ADO's head of design and included in the ADO's exposition.

7.6.4.2 The scope of an individual's authorisation must be clearly specified and include:

a. the design activities the individual is authorised to carry out; and
b. any limitations associated with the authorisation—limitations should be expressed in the following terms:
    i. engineering specialities (e.g. structures, system and equipment (mechanical), system and equipment (electrical), engines, propeller, flight analyst)
    ii. airworthiness standards (e.g. Part 23, Part 27)
    iii. a category of aeronautical products (e.g. piston engines, propellers)
    iv. certain technologies (e.g. composite, wood or metallic construction).

7.6.4.3 The scope of an individual's authorisation must be within the ADO's scope of approval.

7.7 Paragraph 21.263(c)—Content of exposition—responsibilities of the key positions—multiple positions to be held by the same individual

7.7.1 Multiple positions may be held by the same individual but in all cases the exposition must clearly define and delineate the responsibilities of each position.[33]

7.7.2 An individual holding one or more positions in the ADO must have a clear understanding of the responsibilities of each position and the division of those responsibilities, and be able to demonstrate this to CASA.

7.8 Paragraph 21.263(d)—Content of exposition—qualifications, experience and knowledge standards for key positions

7.8.1 An ADO must include in their exposition the minimum qualifications, experience and knowledge required by the ADO for each of the key positions. General guidance for standards that are acceptable to CASA is detailed below.

7.8.2 Accountable manager

7.8.2.1 To be eligible for appointment as the accountable manager of an ADO an individual must be able to demonstrate to CASA that they have a good understanding of the following:

a. the responsibilities of the position of accountable manager;
b. the obligations of the ADO;
c. the scope of the ADO's approval; and
d. the organisational structure and high level operational arrangements of the ADO.

7.8.2.2 The individual's level of understanding must be sufficient to satisfy CASA that they would be able to fulfil the responsibilities of the position.[34]

7.8.2.3 Under regulations 21.243 and 21.257, the appointment of an individual as the accountable manager of an ADO must be approved by CASA. Such an approval is

[33] See section 7.5 for further guidance on the responsibilities of the key positions.
[34] See section 7.5 for further guidance on the responsibilities of the key positions.

subject to Subpart 11.B, which provides that CASA may test or interview the individual to assess their knowledge, skill or competence relevant to the application.

7.8.3 Head of design

7.8.3.1 To be eligible for appointment as the head of design of an ADO an individual must be able to demonstrate to CASA that they possess the following qualifications, experience and knowledge:

Qualifications

7.8.3.2 The head of design should have tertiary qualifications in an engineering discipline that is relevant to the ADO's scope of approval. The qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.3.3 The head of design should have:

a. at least 10 years of progressively responsible experience in an engineering discipline that is relevant to the ADO's scope of approval;
b. at least 2 years experience as an individual authorised to carry out design activities that are relevant to the ADO's scope of approval (either under Subpart 21.J or a similar precursor, e.g. a CASA instrument of appointment);
c. experience in certification processes relevant to the ADO's scope of approval;
d. experience working with other technical disciplines; and
e. experience in project management related to aircraft or aeronautical product certification, including experience dealing with the kinds of management issues that may be encountered in certification projects and obtaining approvals, relevant to the ADO's scope of approval.

Knowledge

7.8.3.4 The head of design should have:

a. a comprehensive knowledge of the responsibilities of the position of head of design;
b. a comprehensive knowledge of the regulations and standards applicable to ADOs generally;
c. a good working knowledge of the regulations and standards applicable to the design activities that the ADO is approved to carry out; and
d. a comprehensive knowledge of the ADO's exposition and design assurance system manual.

7.8.3.5 The individual's qualifications, experience and knowledge must be sufficient to satisfy CASA that they would be able to fulfil the responsibilities of the position.[35]

[35] See section 7.5 for further guidance on the responsibilities of the key positions.

7.8.3.6 Under regulations 21.243 and 21.257, the appointment of an individual as the head of design of an ADO must be approved by CASA. Such an approval is subject to Subpart 11.B, which provides that CASA may test or interview the individual to assess their knowledge, skill or competence relevant to the application.

7.8.4 Other managerial positions—general

7.8.4.1 If an ADO elects to have managerial positions, other than accountable manager or head of design, whose responsibilities relate to compliance with Subpart 21.J, then the ADO must document in their exposition the qualifications, experience and knowledge that an individual must possess in order hold the positions.

7.8.4.2 The qualifications, experience and knowledge must be adequate to ensure that the individuals holding the positions are capable of fulfilling the responsibilities of the position. Any unique requirements associated with each particular position must be included and the general requirements must ensure the individuals have a good understanding of the following:

a. the responsibilities of the position;
b. the obligations of an ADO;
c. the scope of the ADO's approval; and
d. the organisational structure and high level operational arrangements of the ADO.

7.8.4.3 Specific guidance for possible other managerial positions is provided in the following sections.

7.8.5 Other managerial positions—position responsible for independent monitoring (Quality Assurance)

7.8.5.1 The qualifications, experience and knowledge that CASA would generally consider necessary for the position responsible for independent monitoring (Quality Assurance) for the ADO are the following:

Note: The individual holding the managerial position responsible for independent monitoring may or may not be the individual who carries out the independent monitoring. See section 7.19.3 for acceptable qualifications, experience and knowledge standards for individuals who may carry out independent monitoring.

Qualifications

7.8.5.2 The individual responsible for independent monitoring should have:

a. tertiary qualifications in an engineering discipline that is relevant to the ADO's scope of approval—the qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program; and
b. successfully completed a course in quality management sufficient to gain certification as a lead auditor,

or hold an equivalent combination of aeronautical/aircraft engineering and quality assurance qualifications.

Experience

7.8.5.3 The individual responsible for independent monitoring should have either:

a. at least 8 years experience in aircraft design and certification, including at least 12 months in a civil aviation environment; or
b. at least 3 years experience in quality management in an aviation environment, preferably in aircraft design and certification.

Knowledge

7.8.5.4 The individual responsible for independent monitoring should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. knowledge of the regulations and standards applicable to design assurance;
c. knowledge of the regulations and standards applicable to ADOs generally;
d. knowledge of the regulations and standards applicable to the relevant design activities; and
e. a good working knowledge of the ADO's exposition and design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to independent monitoring.

7.8.6 Other managerial positions—office of airworthiness manager (Compliance Assurance)

7.8.6.1 The qualifications, experience and knowledge that CASA would generally consider necessary for the office of airworthiness manager (Compliance Assurance) are the following:

Qualifications

7.8.6.2 The office of airworthiness manager should have tertiary qualifications in an engineering discipline that is relevant to the ADO's scope of approval. The qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.6.3 The office of airworthiness manager should have at least 8 years experience in aircraft design and certification, including at least 12 months in a civil aviation environment.

Knowledge

7.8.6.4 The office of airworthiness manager should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;
c. a good working knowledge of the regulations and standards applicable to the design activities that the ADO is approved to carry out; and
d. a good working knowledge of the ADO's exposition and design assurance system manual.

7.8.7 Individuals authorised to carry out a design activity—general

7.8.7.1 To be eligible to be authorised by an ADO to carry out a design activity on behalf of the ADO, an individual must be able to demonstrate that they have the qualifications, experience and knowledge required by the ADO for the position. The qualifications, experience and knowledge required by the ADO must be specified in the ADO's exposition. The minimum qualifications, experience and knowledge specified in the ADO's exposition must be sufficient to satisfy CASA that an individual who met those requirements would be able to fulfil the responsibilities of the position.

7.8.7.2 At transition to approval as an ADO under Subpart 21.J, either from a CAR 30 design organisation or an instrument of appointment, a current instrument of appointment is sufficient evidence that an individual has the necessary qualifications, experience and knowledge for an equivalent authorisation under Subpart 21.J (i.e. with equivalent limitations to those specified in the instrument of appointment, such as engineering speciality and kinds of aircraft and aeronautical products).

7.8.7.3 The specific qualifications, experience and knowledge standards for certain kinds of design activities are set out in more detail in the following sections. This section sets out the qualifications, experience and knowledge that CASA considers applicable to design activities generally, and should be applied as the basic requirements for design activities not specifically covered by the following sections (any specific additional requirements relevant to a particular kind of design activity should be included by the ADO in their exposition).

Qualifications

7.8.7.4 An individual authorised to carry out design activities should have tertiary qualifications in an engineering discipline that is relevant to the particular design activity and the individual's scope of authorisation. The qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.7.5 An individual authorised to carry out design activities should have:

a. at least 8 years of progressively responsible experience in an engineering discipline that is relevant to the particular design activity and the individual's scope of authorisation, including at least 12 months in a civil aviation environment;
b. experience in certification processes relevant to the particular design activity; and
c. experience working with other technical disciplines.

Knowledge

7.8.7.6 An individual authorised to carry out design activities should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;

c. a good working knowledge of the regulations and standards applicable to the particular design activity generally and a comprehensive knowledge of the regulations and standards applicable to the individual's scope of authorisation;
d. a comprehensive knowledge of the technical subject matter applicable to the individual's scope of authorisation; and
e. a good working knowledge of the ADO's exposition and design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to the particular design activity.

7.8.8 Individuals authorised to carry out a design activity—approving technical data under regulation 21.009

7.8.8.1 Approving technical data under regulation 21.009 is considered as the basic design activity, with greater emphasis on engineering and technical aspects of a design. Where practicable, an ADO's procedures should provide for an individual's scope of authorisation to initially be limited to approval of technical data. After the individual has demonstrated satisfactory performance and has become familiar with the processes and responsibilities associated with providing approvals then their scope of authorisation can be expanded to include other design activities for which the focus shifts further toward regulatory compliance matters.

7.8.8.2 An authorisation to approve technical data should be limited to the engineering specialities for which the individual has the necessary qualifications, experience and knowledge.

7.8.8.3 Authorisation to approve technical data should generally not involve coordination of multiple engineering specialities—that should be a function of the higher level design activity that provides the overall approval of the design.

7.8.8.4 The qualifications, experience and knowledge that CASA would generally consider necessary for an individual to be authorised to approve technical data under regulation 21.009 are described in the following paragraphs.

Qualifications

7.8.8.5 An individual authorised to approve technical data under regulation 21.009 should have tertiary qualifications in an engineering discipline that is relevant to the individual's scope of authorisation. The qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.8.6 An individual authorised to approve technical data under regulation 21.009 should have:

a. at least 6 years of progressively responsible experience in an engineering discipline that is relevant to the individual's scope of authorisation, including at least 12 months in a civil aviation environment;
b. experience in certification processes relevant to the particular design activity; and
c. experience working with other technical disciplines.

Knowledge

7.8.8.7 An individual authorised to approve technical data under regulation 21.009 should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;
c. a good working knowledge of the regulations and standards applicable to approval of technical data generally;
d. a comprehensive knowledge of the regulations and standards applicable to the individual's scope of authorisation;
e. a comprehensive knowledge of the technical subject matter applicable to the individual's scope of authorisation; and
f. a good working knowledge of the ADO's exposition and design assurance system manual generally, and a comprehensive knowledge of the sections that are directly applicable to approval of technical data.

7.8.9 Individuals authorised to carry out a design activity—approving a defect as a permissible unserviceability under regulation 21.007

7.8.9.1 Approving a defect as a permissible unserviceability under regulation 21.007 requires a higher minimum standard of qualifications, experience and knowledge than that required for design activities generally.

7.8.9.2 The qualifications, experience and knowledge that CASA would generally consider necessary for an individual to be authorised to approve a defect as a permissible unserviceability under regulation 21.007 are described in the following paragraphs.

Qualifications

7.8.9.3 An individual authorised to approve a defect as a permissible unserviceability under regulation 21.007 should have tertiary qualifications in an engineering discipline that is relevant to the individual's scope of authorisation—the qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.9.4 An individual authorised to approve a defect as a permissible unserviceability under regulation 21.007 should have:

a. at least 10 years of progressively responsible experience in an engineering discipline that is relevant individual's scope of authorisation;
b. at least 2 years current or previous experience as an individual authorised to carry out design activities—either under Subpart 21.J or a similar precursor (e.g. a CASA instrument of appointment)—with a scope of authorisation similar to the regulation 21.007 scope of authorisation;
c. experience in certification processes relevant to regulation 21.007 approvals; and
d. experience working with other technical disciplines.

Knowledge

7.8.9.5 An individual authorised to approve a defect as a permissible unserviceability under regulation 21.007 should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;
c. a good working knowledge of the regulations and standards applicable to regulation 21.007 approvals and a comprehensive knowledge of the regulations and standards applicable to the individual's scope of authorisation;
d. a comprehensive knowledge of the technical subject matter applicable to the individual's scope of authorisation; and
e. a good working knowledge of the ADO's exposition and design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to regulation 21.007 approvals.

7.8.10 Individuals authorised to carry out a design activity—approving a minor change in a type design under regulation 21.095

7.8.10.1 The qualifications, experience and knowledge that CASA would generally consider necessary for an individual to be authorised to approve a minor change in a type design under regulation 21.095 are described in the following paragraphs.

Qualifications

7.8.10.2 An individual authorised to approve a minor change in a type design under regulation 21.095 should have tertiary qualifications in an engineering discipline that is relevant to the individual's scope of authorisation—the qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.10.3 An individual authorised to approve a minor change in a type design under regulation 21.095 should have:

a. at least 8 years of progressively responsible experience in an engineering discipline that is relevant individual's scope of authorisation;
b. at least 2 years current or previous experience as an individual authorised to approve technical data or carry out design activities—either under Subpart 21.J or a similar precursor (e.g. a CASA instrument of appointment)—with a scope of authorisation similar to the regulation 21.095 scope of authorisation;
c. experience in certification processes relevant to regulation 21.095 approvals; and
d. experience working with other technical disciplines.

Knowledge

7.8.10.4 An individual authorised to approve a minor change in a type design under regulation 21.095 should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;
c. a good working knowledge of the regulations and standards applicable to regulation 21.095 approvals and a comprehensive knowledge of the regulations and standards applicable to the individual's scope of authorisation;
d. a comprehensive knowledge of the technical subject matter applicable to the individual's scope of authorisation; and
e. a good working knowledge of the ADO's exposition and design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to regulation 21.095 approvals.

7.8.11 Individuals authorised to carry out a design activity—approving a major change in a type design under regulation 21.098

7.8.11.1 Approving a major change in a type design under regulation 21.098 requires a higher minimum standard of qualifications, experience and knowledge than that required for design activities generally.

7.8.11.2 The qualifications, experience and knowledge that CASA would generally consider necessary for an individual to be authorised to approve a major change in a type design under regulation 21.098 are described in the following paragraphs.

Qualifications

7.8.11.3 An individual authorised to approve a major change in a type design under regulation 21.098 should have tertiary qualifications in an engineering discipline that is relevant to the individual's scope of authorisation—the qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.11.4 An individual authorised to approve a major change in a type design under regulation 21.098 should have:

a. at least 10 years of progressively responsible experience in an engineering discipline that is relevant individual's scope of authorisation;
b. at least 2 years current or previous experience as an individual authorised to carry out design activities—either under Subpart 21.J or a similar precursor (e.g. a CASA instrument of appointment)—with a scope of authorisation similar to the regulation 21.098 scope of authorisation;
c. experience in certification processes relevant to regulation 21.098 approvals; and
d. experience working with other technical disciplines.

Knowledge

7.8.11.5 An individual authorised to approve a major change in a type design under regulation 21.098 should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;
c. a good working knowledge of the regulations and standards applicable to regulation 21.098 approvals and a comprehensive knowledge of the regulations and standards applicable to the individual's scope of authorisation;
d. a comprehensive knowledge of the technical subject matter applicable to the individual's scope of authorisation; and
e. a good working knowledge of the ADO's exposition and design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to regulation 21.098 approvals.

7.8.12 Individuals authorised to carry out a design activity—approving a variation of a supplemental type certificate under regulation 21.120B

7.8.12.1 The qualifications, experience and knowledge that CASA would generally consider necessary for an individual to be authorised to approve a variation of a supplemental type certificate under regulation 21.120B are described in the following paragraphs.

Qualifications

7.8.12.2 An individual authorised to approve a variation of a supplemental type certificate under regulation 21.120B should have tertiary qualifications in an engineering discipline that is relevant to the individual's scope of authorisation—the qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.12.3 An individual authorised to approve a variation of a supplemental type certificate under regulation 21.120B should have:

a. at least 8 years of progressively responsible experience in an engineering discipline that is relevant individual's scope of authorisation;
b. at least 2 years current or previous experience as an individual authorised to carry out design activities—either under Subpart 21.J or a similar precursor (e.g. a CASA instrument of appointment)—with a scope of authorisation similar to the regulation 21.120B scope of authorisation;
c. experience in certification processes relevant to regulation 21.120B approvals; and
d. experience working with other technical disciplines.

Knowledge

7.8.12.4 An individual authorised to approve a variation of a supplemental type certificate under regulation 21.120B should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;

c. a good working knowledge of the regulations and standards applicable to regulation 21.120B approvals and a comprehensive knowledge of the regulations and standards applicable to the individual's scope of authorisation;
d. a comprehensive knowledge of the technical subject matter applicable to the individual's scope of authorisation; and
e. a good working knowledge of the ADO's exposition and design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to regulation 21.120B approvals.

7.8.13 Individuals authorised to carry out a design activity— granting a modification/repair design approval under regulation 21.437

7.8.13.1 The qualifications, experience and knowledge that CASA would generally consider necessary for an individual to be authorised to grant a modification/repair design approval under regulation 21.437 are described in the following paragraphs.

Qualifications

7.8.13.2 An individual authorised to grant a modification/repair design approval under regulation 21.437 should have tertiary qualifications in an engineering discipline that is relevant to the individual's scope of authorisation. The qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program.

Experience

7.8.13.3 An individual authorised to grant a modification/repair design approval under regulation 21.437 should have:

a. at least 8 years of progressively responsible experience in an engineering discipline that is relevant to the individual's scope of authorisation, including at least 12 months in a civil aviation environment;
b. at least 2 years current or previous experience as an individual authorised to approve technical data or carry out design activities—either under Subpart 21.J or a similar precursor (e.g. a CASA instrument of appointment)—with a scope of authorisation similar to the scope of authorisation for modification/repair design approvals;
c. experience in certification processes relevant to modification/repair design approvals; and
d. experience working with other technical disciplines.

Knowledge

7.8.13.4 An individual authorised to grant a modification/repair design approval under regulation 21.437 should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. a good working knowledge of the regulations and standards applicable to ADOs generally;

c. a good working knowledge of the regulations and standards applicable to modification/repair design approvals generally and a comprehensive knowledge of the regulations and standards applicable to the individual's scope of authorisation;
d. a comprehensive knowledge of the technical subject matter applicable to the individual's scope of authorisation; and
e. a good working knowledge of the ADO's exposition and design assurance system manual generally and a comprehensive knowledge of the sections that are directly applicable to modification/repair design approvals.

7.9 Subregulation 21.263(d)—Content of exposition—qualifications, experience and knowledge standards of key personnel—ongoing competency

7.9.1 The exposition should include procedures to ensure and maintain the competency of its key personnel. The procedures must be sufficient to ensure that the ADO's key personnel continue to meet the knowledge and experience requirements of the position.

7.9.2 The procedures should provide for ongoing training of key personnel to ensure that their technical and regulatory knowledge is up-to-date.

7.9.3 The procedures should also provide for individuals authorised to carry out design activities to be reviewed periodically to ensure their ongoing competency. The procedures should include a review of the following:

a. the individual's performance in the period, including:
   i. audit findings
   ii. independent monitoring findings
   iii. independent review findings
   iv. in-service performance of the designs approved by the individual
b. the level of activity of the authorised individuals—lack of activity in particular activities or specialities should be managed to ensure the ongoing competency of the individual.

7.9.4 The procedures should also provide for the training and reviews to be documented and the relevant records to be retained.

7.10 Paragraph 21.263(f)—Content of exposition—arrangements for temporary absences/vacancies of key personnel

7.10.1 The ADO must describe how it will manage the responsibilities of any of the key positions for any period during which the position is vacant or the occupant of the position is unable to carry out the responsibilities of the position.

7.10.2 If another individual is to be temporarily appointed to a position, then that individual must also have the qualifications, experience and knowledge required by the ADO for the position, as specified in the ADO's exposition.

7.10.3 For the accountable manager and head of design, the ADO should name in their exposition the individual(s) who may temporarily hold the position. For the other key

positions, the ADO may specify predetermined alternates or arrangements in their exposition, or it may provide for temporary appointments to be made as required.

7.10.4 The procedures should include a means to ensure that all relevant personnel are informed of any changes to the ADO's arrangements that may affect compliance with the regulations.

7.10.5 If applicable, the procedures must cover the scenario where the absence of an individual would result in the ADO being unable to demonstrate a capability associated with its scope of approval (e.g. if an ADO's capability to carry out particular design activities or specialities is based on the availability of a particular individual). Examples of procedures that would be acceptable to CASA include:

7.10.6

c. The ADO may cease carrying out the relevant design activities while a suitable individual is recruited to carry out the activities. This procedure alone would only be acceptable for a limited period (not more than 6 months) after which the ADO's approval certificate must be changed to reflect its current capability.
d. The ADO may cease carrying out the relevant design activities and submit an application to change to its scope of approval.
e. The ADO may enter into an arrangement with another individual or ADO to subcontract the relevant design activities.

Note: For paragraph 7.10.5, if the ADO is to authorise another employee or subcontractor who has not previously held an equivalent authorisation, then the ADO should notify CASA accordingly because CASA may elect, under Subpart 11.B, to test or interview the individual to assess their knowledge, skill or competence relevant to the position.

7.11 Paragraph 21.263(g)—Content of exposition—procedures for subcontracting a design activity

7.11.1 If an ADO subcontracts a design activity, or part of a design activity, the ADO must describe in its exposition the procedures that the ADO uses to manage the activities of the subcontractor.

7.11.2 A subcontractor carries out a design activity on behalf of the ADO, therefore the subcontractor must comply with the ADO's exposition and design assurance system manual (regardless of whether the subcontractor is also an ADO).

7.11.3 The procedures must describe how the ADO will oversee the activities of the subcontractor and should include:

a. authorisation of the subcontractor[36]
b. the information that the ADO must provide to the subcontractor
c. how the ADO will provide information to the subcontractor
d. the information that the subcontractor must provide to the ADO
e. how the subcontractor will provide information to the ADO
f. the requirements of the ADO's design assurance system manual for which the ADO is responsible

[36] See section 7.11.4 for further guidance on authorisation of a subcontractor.

g. the requirements of the ADO's design assurance system manual for which the subcontractor is responsible.

7.11.4 Authorisation of a subcontractor to carry out a design activity

7.11.4.1 Under regulation 21.237, a subcontractor must be authorised in writing by the ADO. The scope of a subcontractor's authorisation must be clearly specified and should include:

a. the design activities the subcontractor is authorised to carry out;
b. if the subcontractor is an organisation, the individuals who may carry out the design activities; and
c. any limitations associated with the authorisation—limitations should be expressed in the following terms (both for the subcontractor generally and for specific individuals within a subcontracted organisation if necessary):
    i. engineering specialities (e.g. structures, system and equipment (mechanical), system and equipment (electrical), engines, propeller, flight analyst)
    ii. airworthiness standards (e.g. Part 23, Part 27)
    iii. a category of aeronautical products (e.g. piston engines, propellers)
    iv. certain technologies (e.g. composite, wood or metallic construction).

7.11.4.2 The scope of a subcontractor's authorisation must be within the ADO's scope of approval.

7.11.4.3 If the subcontractor is not an ADO, then the ADO must ensure that the design activity is carried out by an individual who meets the ADO's qualifications, experience and knowledge requirements for that activity.

7.11.4.4 If the subcontractor is also an ADO (the subcontracted ADO) and the design activity is within the subcontracted ADO's existing scope of approval then the ADO may automatically accept the qualifications, experience and knowledge of an individual who is authorised by the subcontracted ADO to carry out the activity (the individual must still be provided with, and work in accordance with, the ADO's exposition and design assurance system manual).

7.12 Paragraph 21.263(h)—Content of exposition—procedures for coordinating design activities

7.12.1 If an ADO carries out a design activity, other than a certification activity (coordination of certification activities is CASA's responsibility), that relies on another design activity being carried out by another ADO (or multiple other ADOs), the ADO must describe in its exposition the procedures that the ADO uses to coordinate the design activities.[37]

7.12.2 It is acceptable for the specific procedures to be contained in the design assurance system manual and a reference to those procedures included in the exposition.

7.12.3 There are various scenarios in which an ADO may need to coordinate design activities with another ADO. The ADO must provide for all relevant scenarios in its exposition. The two general scenarios that should be considered are:

[37] See also regulation 21.235 guidance for further information about coordination of design activities.

a. When the ADO is the coordinating ADO and will be providing the final approval
b. When the ADO is not the coordinating ADO and will not provide the final approval.

7.12.4 The procedures should include:

a. clear specification of which ADO is the coordinating ADO
b. clear specification of the design activities that are to be carried out by each ADO
c. the information that the ADO must provide to the other ADO(s)
d. how the ADO will provide information to the other ADO(s)
e. the information that the other ADO(s) must provide to the ADO
f. how the other ADO(s) will provide information to the ADO
g. procedures to ensure that the design activity carried out by the ADO complies with the applicable airworthiness standards and does not introduce an unsafe feature or characteristic to the aircraft or aeronautical product.

7.12.5 For paragraph 7.12.4.g, the ADO may rely on the design activities carried out by the other ADO(s); however, in the case of coordinated design activities, the ADO must consider the design activity that it is carrying out in relation to the other coordinated design activities. The ADO's procedures must include consideration of:

a. the scope of the design activities carried out by the other ADO(s)
b. interface issues with design activities carried out by the other ADO(s)
c. any conditions, limitations or restrictions associated with the design activities carried out by the other ADO(s)
d. any findings of compliance that are partial or incomplete in relation to the other design activities.

7.13 Paragraph 21.263(i)—Content of exposition—documents and records

7.13.1 The ADO should include in its exposition a description of the way the ADO will prepare and retain its documents and records.

7.13.2 The documents and records that must be retained are the following:

a. the documents and records mentioned in subregulation 21.277(2)
b. if the ADO is the holder or licensee of another authorisation or certificate issued under Part 21, the documents and records required to be retained under the applicable regulations.[38]

7.13.3 The procedures must provide for the following:

a. the documents and records must be:
    i. clearly identified
    ii. in a usable form (hard copy or electronic)
    iii. stored in a way that will ensure that the records remain in a usable condition

[38] See regulation 21.248 for requirements for holders and licensees of other authorisations under Part 21.

b. how the ADO will provide for the documents and records to be retained and made available to CASA if the ADO ceases to be an ADO—it is acceptable for the ADO to arrange for the records to be provided to another ADO or to CASA.

7.14 Paragraph 21.263(j)—Content of exposition—procedures for making changes to exposition or design assurance system manual

7.14.1 The ADO must include in its exposition a description of the ADO's process for making changes to its exposition or design assurance system manual.

7.14.2 Changes to exposition

7.14.2.1 The exposition should include:

a. procedures for employees to notify the ADO of errors, deficiencies or improvements to the exposition
b. the position or individual in the ADO responsible for managing changes to the exposition
c. the position or individual in the ADO responsible for approving changes to the exposition
d. procedures for applying to CASA for approval of changes that require CASA approval[39] (applications should be made to CASA using Form 21-J02 and should be made or approved by the ADO's head of design)
e. procedures to notify CASA about changes within the required timeframe[40] (notifications should be sent to CASA's Permission Application Centre using Form 21-J02)
f. procedures for including changes in the exposition
g. procedures for notifying the necessary individuals in the ADO about changes to the exposition within the required timeframes.[41]

7.14.3 Changes to design assurance system manual

7.14.3.1 Under regulation 21.255, changes to the design assurance system must be approved by CASA. The exposition should include:

a. procedures for employees to notify the ADO of errors, deficiencies or improvements to the design assurance system manual
b. the position or individual in the ADO responsible for managing changes to the design assurance system manual
c. procedures for applying to CASA for approval of changes (applications should be made to CASA using Form 21-J02 and should be made or approved by the ADO's head of design)
d. procedures for including changes in the design assurance system manual

[39] See Division 21.J.4 for requirements relating to changes to ADOs.
[40] See Division 21.J.4 for requirements relating to changes to ADOs.
[41] See regulation 21.283 in relation to providing employees and subcontractors with the exposition.

e. procedures for notifying the necessary individuals in the ADO about changes to the design assurance system manual within the required timeframes.[42]

7.15 Regulation 21.263—Content of exposition—procedures for informing CASA of design activities

7.15.1 An ADO should include in their exposition a procedure for periodically providing CASA a report of the design activities that the ADO has carried out.

7.15.2 The design activity report should be submitted in January every year or after one hundred approvals, whichever occurs first, or as otherwise acceptable to CASA.

7.15.3 The following information should be included for each design activity in the report:

a. the kind of design activity
b. the date the design activity was carried out
c. the registered operator of the aircraft or owner of the aeronautical product
d. the aircraft make, model and serial number and/or registration number, or the part and serial number of the aeronautical product
e. a brief description of the activity
f. the individual who carried out the activity on behalf of the ADO.

7.15.4 If no activities are carried out over a reporting period, a report should still be submitted stating that no activities were carried out in the period.

7.16 Regulation 21.267—Design assurance system

7.16.1 An ADO's design assurance system is the documented policies and procedures that the ADO uses to carry out design activities. It comprises the specific planned and systematic actions that ensure and demonstrate that each design activity, and the associated aircraft or aeronautical product, complies with the applicable requirements.

7.16.2 An ADO's design assurance system (in conjunction with the exposition) is the mechanism that provides the necessary level of assurance for CASA to approve the ADO to carry out design activities.

7.16.3 The requirements that a design assurance system must meet are set out in regulations 21.269 and 21.270. Regulation 21.269 sets out the general requirements that apply to all ADOs; regulation 21.270 only applies if the ADO is the holder or licensee of certain authorisations or certificates issued under Part 21.

7.16.4 An ADO's design assurance system must be:

a. documented in the ADO's design assurance system manual; and
b. appropriate for the size, nature and complexity of the ADO and the design activities that the ADO carries out.

7.16.4.1 An ADO's exposition and design assurance system manual may be combined in the same document provided the two elements are clearly distinguishable.

[42] See regulation 21.283 in relation to providing employees and subcontractors with the design assurance system manual.

7.16.5 A sample design assurance system manual that an ADO may use as a basis for developing its own design assurance system manual is provided in Attachment 2 to this AC.

7.17 Regulation 21.269—Requirements for design assurance system—general

7.17.1 A design assurance system involves specific planned and systematic actions that should be integrated throughout the entire course of each design activity to ensure that the necessary considerations are made and the work is checked at appropriate stages of the activity.

7.17.2 Regulation 21.269 sets out the high-level requirements that must be covered in an ADO's design assurance system. The ADO must design its design assurance system such that the requirements of this regulation are met; however, the specific policies, procedures and actions that provide the means of compliance should be scaled to the size, nature and complexity of the ADO and the design activities that the ADO carries out.

7.17.3 The policies and procedures must be described in sufficient detail:

a. for CASA to determine that they meet the requirements of this regulation; and
b. to ensure and demonstrate that each design activity, and the associated aircraft or aeronautical product, complies with the applicable requirements.

7.17.4 An ADO's design assurance system manual may refer to other documents and manuals of the ADO to provide the required content. However, if this is done, then the other documents and manuals are taken to be part of the design assurance system manual and therefore become subject to the same requirements and controls as the design assurance system manual.

7.17.5 A sample design assurance system manual that an ADO may use as a basis for developing its own design assurance system manual is provided in Attachment 2 to this AC.

7.17.6 General

7.17.6.1 The design assurance system manual must describe the policies and procedures that the individuals who carry out design activities on behalf of the ADO follow when carrying out those activities to ensure that:

a. each design activity is carried out in accordance with Part 21 and the conditions of the ADO's approval;
b. each aircraft or aeronautical product to which the design activity relates complies with the applicable airworthiness standards; and
c. the design does not introduce an unsafe feature or characteristic to an aircraft or aeronautical product.

7.17.7 Unsafe feature or characteristic determination

7.17.7.1 The design assurance system manual must describe the policies and procedures that the ADO uses to determine that each design activity does not introduce an unsafe feature or characteristic[43] to an aircraft or aeronautical product. These policies and procedures must be appropriate for the particular design activities carried out by the ADO.

7.17.7.2 Depending on the particular design activity, the analysis may be qualitative or quantitative. In cases where formal and quantitative safety analyses are not available, the level of analysis should be consistent with that required by the applicable airworthiness standards and may be based on engineering judgement supported by service experience data.

7.17.8 Human factors

7.17.8.1 The policies and procedures set out in the design assurance system manual should be designed with consideration of human performance limitations that are relevant to the ADO and its employees, for example:

a. fatigue management for individuals carrying out design activities
b. commercial pressure (real or imagined) for individuals carrying out:
    i. design activities
    ii. independent checking
    iii. independent monitoring
c. fair and open safety reporting and investigation system so that:
    i. employees are encouraged to report errors and deficiencies
    ii. investigations focus on why an error was made
    iii. management act promptly and effectively to correct the root cause of the error or deficiency
d. clear policies and procedures.

7.18 Regulation 21.269—Requirements for design assurance system—assessment of key personnel

7.18.1 The ADO should describe the procedures that it will use to determine whether an individual meets the minimum qualifications, experience and knowledge standards specified in the ADO's exposition for the ADO's key positions. General guidance for procedures that are acceptable to CASA is detailed below.

7.18.2 In the case of individuals authorised to carry out design activities, the scope of the individual's authorisation should be determined according to the individual's demonstrated qualifications, knowledge and experience.

7.18.3 The procedures should also provide for the ADO to:

a. have copies of all documents that demonstrate that each individual has the required qualifications, experience and knowledge for the position

[43] See paragraph 21.247(1)(d) guidance for the meaning of unsafe feature or characteristic.

b. keep the copies for at least 2 years after the individual ceases to hold the position.

Qualifications

7.18.4 The ADO should require the individual to provide copies of the certificates that show that they have successfully completed the required qualifications.

Experience

7.18.5 The ADO should require the individual to provide copies of the employment records, position descriptions and work samples that show that they have the required experience.

Knowledge

7.18.6 The knowledge assessment should include a documented interview with the ADO's head of design. The ADO should require the individual to provide copies of relevant training records and certificates.

7.19 Subregulation 21.269(3)—Requirements for design assurance system—independent monitoring

7.19.1 General

7.19.1.1 Independent monitoring provides assurance that the policies, processes and procedures of the design assurance system are properly documented, controlled, performed and corrected, as needed. Therefore, the design assurance system manual must include procedures to:

a. independently monitor:
   i. the compliance of the design assurance system with the regulations
   ii. the adequacy and ongoing effectiveness of the design assurance system
   iii. the compliance of the ADO's personnel and subcontractors with the design assurance system
b. provide the associated feedback to the ADO's head of design.

7.19.2 Who may carry out independent monitoring

7.19.2.1 Independent monitoring must be carried out by an individual who is sufficiently independent of the day-to-day operation of the element of the design assurance system that they are monitoring to ensure that the independent monitoring system is effective.

7.19.2.2 The independent person does not need to be a qualified auditor, but must be suitably knowledgeable and experienced in design assurance.

7.19.2.3 It is not necessary to have the independent monitoring carried out by a person from outside the ADO. However, in all cases, the ADO must be able to demonstrate the independence of the individual(s).

7.19.2.4 There are several ways in which an ADO may achieve the necessary levels of independence. For example:

a. If the ADO is part of a larger organisation then the quality assurance part of the larger organisation may carry out the independent monitoring of the ADO.
b. An ADO may assign the independent monitoring function to a dedicated employee within the ADO and ensure that their duties and responsibilities maintain their independence.
c. An ADO may develop a system where discrete elements of the design assurance system are monitored by individuals within the ADO who are independent of the particular element.
d. A single-person ADO may enter into an arrangement with an independent individual or organisation (e.g. another ADO or quality assurance organisation) to carry out the independent monitoring.

7.19.2.5 It is not necessary to name all the individuals who may carry out independent monitoring in the ADO's exposition or design assurance system manual; however, the standards and procedures must be documented[44] and the ADO must be able to demonstrate that the individual(s) meet the requirements.

7.19.3 Individuals who may carry out independent monitoring

7.19.3.1 The qualifications, experience and knowledge that CASA would generally consider necessary for an individual to be permitted to carry out independent monitoring are the following:

Qualifications

7.19.3.2 An individual authorised to carry out independent monitoring should have:

a. tertiary qualifications in an engineering discipline that is relevant to the individual's scope—the qualifications should be at least equivalent to a 4-year Bachelor of Engineering degree under an Australian accredited or recognised program; and
b. successfully completed a course in quality management sufficient to gain certification as a lead auditor,

or hold an equivalent combination of aeronautical/aircraft engineering and quality assurance qualifications.

Experience

7.19.3.3 An individual authorised to carry out independent monitoring should have either:

a. at least 8 years experience in aircraft design and certification, including at least 12 months in a civil aviation environment; or
b. at least 3 years experience in quality management.

Knowledge

7.19.3.4 An individual authorised to carry out independent monitoring should have:

a. a comprehensive knowledge of the responsibilities of the position;
b. knowledge of the regulations and standards applicable to design assurance;

[44] See section 7.19.4 for guidance on independent monitoring procedures.

c. knowledge of the regulations and standards applicable to ADOs generally; or
d. knowledge of the regulations and standards applicable to the relevant design activities.

7.19.4 Feedback from independent monitoring

7.19.4.1 The design assurance system must include procedures for providing feedback from the independent monitoring system to the organisation's head of design. [45]

7.19.4.2 If the positions of accountable manager and the head of design are not held by the same individual then feedback should also be provided to the organisation's accountable manager to ensure the accountable manager can effectively fulfil their responsibilities.[46]

7.19.5 Independent monitoring procedures

7.19.5.1 An ADO's independent monitoring procedures should include:

a. the qualifications, knowledge and experience required for an individual to carry out independent monitoring[47]
b. the procedures for carrying out independent monitoring, including:
    i. scheduling—period and duration. If the monitoring is carried out progressively or separated into discrete elements then the procedures must ensure that all elements of the design assurance system are covered in a systematic manner over a period of not more than:
        A. 12 months for ADOs that carry out a high volume of design activities (i.e. greater than 100 activities per year) or with a scope of approval that includes any of the following:
            1. design activities for transport category aircraft (Part 25 aeroplanes or Part 29 rotorcraft)
            2. certification activities
            3. regulations 21.007, 21.095, 21.098, 21.132A

        or

        A. 24 months for ADOs other than those mentioned above. However, reporting of errors and deficiencies should provide an immediate trigger within the quality assurance system for investigations that will enable for root cause analysis and timely implementation of remedial and preventive actions and reporting to CASA
    ii. scope—if the monitoring is carried out progressively or separated into discrete elements
    iii. content—the procedures, actions and records
    iv. how the individual will be provided access to the relevant procedures, actions and records
    v. method of assessment

[45] See paragraph 21.269(3)(b).
[46] See section 7.5.2 for the responsibilities of the accountable manager.
[47] See section 7.19.3 for acceptable qualifications, experience and knowledge standards.

c. procedures for receiving feedback from the audit, including:
   i. form of reporting
   ii. method of receipt and acknowledgement
d. procedures for dealing with the feedback received from the audit, including:
   i. documenting the required actions
   ii. timeframes for action to be taken
e. recordkeeping arrangements.

7.20 Subregulation 21.269(4)—Requirements for design assurance system—independent checking

7.20.1 The design assurance system manual must include procedures for independent checking. These procedures should cover the required elements of independent checking, which are detailed in the following paragraphs.

7.20.2 Subregulation 21.269(4)—Purpose of an independent check

7.20.2.1 The independent check of a design activity is to ensure that:

a. each aircraft or aeronautical product to which the design activity relates complies with the applicable airworthiness requirements
b. for an approval activity—carrying out the activity would not be likely to have an adverse effect on the safety of air navigation
c. for an experimental certificate activity—carrying out the activity would not be likely to have an adverse effect on the safety of other airspace users or persons on the ground or water.

7.20.2.2 If there are no applicable airworthiness requirements (e.g. in the case of an experimental certificate activity), only the safety tests in paragraphs b. and c. above need to be considered. If there are no applicable airworthiness requirements then this should be documented as part of the independent check, including the reason why there are no applicable airworthiness requirements.

7.20.3 Subregulation 21.269(4)—Design activities for which an independent check is required

7.20.3.1 Independent checking is required for all design activities, except the following experimental certificate activities[48]:

a. asking the holder of the certificate to make the certificate available for inspection under subregulation 21.195B(3)
b. asking the holder of the certificate to surrender the certificate under subregulation 21.195B(8).

7.20.4 Data taken to meet independent checking requirements

7.20.4.1 For certain kinds of data produced under an approved system that ensures the accuracy of the data, the combination of the original data approval system and

[48] See subregulation 21.269(6) for design activities not subject to independent checking.

checking/validation of the data by the individual carrying out the design activity is considered to meet the independent checking requirements of regulation 21.269. Such systems include:

a. Data that is taken to have been approved under regulation 21.470, i.e. data associated with a design approval that is:
   i. issued by the NAA of a recognised country
   ii. issued by a type certificate holder or manufacturer under a system approved by the NAA of a recognised country
   iii. accepted by CASA under an agreement with another NAA
b. Data issued by a person mentioned in regulation 21.470, but that is not issued as a design approval, e.g. design information issued by a type certificate holder or manufacturer
c. Data issued by a person authorised by the NAA of a recognised country to carry out design activities (however described)
d. Technical data previously approved by an ADO in accordance with Subpart 21.J
e. Data from previous design approvals (e.g. approvals under regulation 21.007 or regulation 35 of CAR), provided the data meets the requirements of Subpart 21.J. Such data must include a comprehensive and documented showing of compliance against the applicable airworthiness requirements.

7.20.4.2 However, any variations of the data or use of the data in substantially different applications must be independently checked.

7.20.5 Paragraph 21.269(5)(a)—What an independent check involves

7.20.5.1 Independent checking of a design activity requires a comprehensive and systematic examination of the activity to evaluate the adequacy and accuracy of its assumptions, methodology, calculations and conclusions.

7.20.5.2 The independent check procedures should include procedures to check that:

a. the applicable airworthiness requirements have been correctly identified; and
b. the showing of compliance is valid and accurate.

7.20.5.3 If the design activity only involves a particular part of an aircraft or a higher assembly aeronautical product, then the independent check should involve consideration of the effect of the design activity on other parts or elements of the design of the aircraft or higher assembly. The independent check is not required to consider the compliance of unaffected parts or elements of the design of the aircraft or higher assembly.

7.20.6 Paragraph 21.269(5)(b)—Who may carry out an independent check

7.20.6.1 The independent check must be carried out by an individual who:

a. has the knowledge, experience and qualifications required by the ADO's exposition for individuals carrying out the design activity, in the relevant engineering speciality when applicable[49]; and

[49] See paragraph 21.263(d) guidance in relation to acceptable qualification, experience and knowledge standards.

b. is not the individual who carried out the design activity for the ADO.

7.20.6.2 An independent check may be carried out by an individual who is not an employee of the ADO.

7.20.6.3 It is not necessary to specifically name all the individuals who may carry out independent checking in the ADO's exposition or design assurance system manual; however, the standards and procedures must be documented and the ADO must be able to demonstrate that the individual met the requirements.

7.20.6.4 It is not necessary for the individual carrying out the independent check to be completely isolated from the particular design activity, but they should be sufficiently remote from the development of the design to ensure the integrity of the independent check.

7.20.6.5 If an ADO carries out multiple design activities in relation to a single design (e.g. approval of technical data under regulation 21.009 and approval of a modification/repair design under regulation 21.437), then the same individual may carry out the independent check for all activities.

7.20.6.6 It is not necessary that a single individual carry out the independent check for a design activity, particularly in the case of a large or multi-disciplinary design project. However, if more than one person carries out the independent check then the procedures must adequately provide for considerations such as systems overview and interface issues, and accurate identification of which portion of the design activity is being checked by each person.

7.20.7 When an independent check should be carried out

7.20.7.1 The independent check must be carried out after the portion of the design activity being checked has been finalised.

7.20.7.2 In the case of a certification activity, the independent check must be carried out and any necessary resultant actions taken before the certificate is provided to CASA.

7.20.7.3 In the case of a design activity other than a certification activity, the independent check should be carried out before the advice, approval or certificate is provided to the applicant. However, in certain situations it is acceptable for the independent check to be carried out after the advice, approval or certificate is provided to the applicant. If the procedures provide for the independent check to be carried out after the advice, approval or certificate is provided to the applicant then the procedures must include:

a. when such arrangements may be used, e.g. for after-hours support or in locations where normal arrangements are impractical
b. that such arrangements may only be used for design activities that have been classified as minor
c. that the individual who carries out the activity must be suitably experienced—the individual should have at least 2 years experience carrying out the associated design activities
d. when the independent check must be carried out—the independent check must be carried out no later than the next business day

e. adequate provisions for any necessary resultant actions to be taken to ensure the airworthiness of the aircraft or aeronautical product.

7.20.7.4 The procedures may provide for the independent checking to be done as a single task or a series of tasks, particularly in the case of a large or multi-disciplinary design project. However, if the independent checking is carried out as a series of tasks then the procedures must adequately provide for considerations such as systems overview and interface issues, and accurate identification of which portion of the design activity is being checked.

7.20.8 Feedback and actions resulting from an independent check

7.20.8.1 Providing feedback from the independent checking process and taking the necessary actions to address any issues that were identified are an essential part of an effective design assurance system. The ADO's design assurance system should include procedures for:

a. the individual who carried out the independent check to provide feedback to the individual who carried out the design activity
b. the individual who carried out the design activity to:
    i. consider the feedback from the independent check
    ii. take any necessary resultant actions.

7.20.9 Paragraph 21.269(5)(c)—Documentation

7.20.9.1 The independent check must be thoroughly documented by the individual who carried out the check. The independent check documents must clearly show that all the relevant required elements of an independent check were covered.

7.20.9.2 The individual who carried out the check must provide a record of the check in such a way as to ensure non-repudiation of the record (e.g. physical signature or secure electronic system).

7.20.9.3 The independent check records must be kept by the ADO that carried out the design activity, in accordance with regulation 21.277.

7.21 Regulation 21.270—Requirements for design assurance system—holders of other authorisations under Part 21 and licensees

7.21.1 If an ADO is the holder or licensee of another authorisation or certificate issued under Part 21 then the ADO's design assurance system manual must include policies and procedures that enable the ADO to comply with its obligations as the holder of the authorisation or certificate. Examples of other authorisations and certificates include:

a. a type certificate
b. a supplemental type certificate
c. a production certificate
d. an APMA
e. a modification/repair design approval

f. an approval granted in accordance with a legislative instrument issued under regulation 21.475
g. an ATSO authorisation.

7.21.2 The policies and procedures should cover obligations such as reporting and investigation in accordance with regulation 21.003.

7.22 Regulation 21.277—Record keeping and production of records to CASA

7.22.1 An ADO must retain the following documents and records:

a. the documents and records mentioned in subregulation 21.277(2); and
b. if the ADO is the holder or licensee of another authorisation or certificate issued under Part 21, the documents and records required to be retained under the applicable regulations.[50]

7.22.2 The documents and records mentioned in subregulation 21.277(2) must be retained until at least 12 months after the organisation or individual ceases to be an ADO, including any period in which the ADO approval certificate is suspended.

7.22.3 The ADO's record keeping procedures must provide for the following:

a. the documents and records must be:
   i. clearly identified
   ii. in a usable form (hard copy or electronic)
   iii. stored in a way that will ensure that the records remain in a usable condition
b. how the ADO will provide for the documents and records to be retained and made available to CASA if the ADO ceases to be an ADO—it is acceptable for the ADO to arrange for the records to be provided to another ADO or to CASA.

[50] See regulation 21.248 for requirements for holders and licensees of other authorisations under Part 21.

Appendix A

Guidance for developing an ADO's exposition

Note: An ADO's exposition and design assurance system manual may be combined in the same document provided the two elements are clearly distinguishable.

A.1 Introduction

A.1.1 Regulation 21.263 specifies the information that the exposition must contain, including:

a. a description of the ADO's scope of approval, its organisational structure and facilities
b. names of individuals who occupy key positions
c. duties and responsibilities of key positions
d. arrangements to manage the activities of subcontractors.

A.1.2 CASA has not specified any specific format for an ADO's exposition, but the exposition should follow a format that allows both CASA and the ADO's personnel to:

a. easily find the requirements applicable to the subject in question
b. assess or audit the ADO to ensure that all regulatory requirements are being met.

A.1.3 The exposition may refer to other documents and manuals of the ADO to provide the required content. However, if this is done, then the other documents and manuals are taken to be part of the exposition and therefore become subject to the same requirements and controls as the exposition.

A.1.4 A sample ADO exposition that an ADO may use as a basis for developing its own exposition is also included in this AC. This sample exposition is available for download in an editable format from the CASA website.

A.1 Exposition contents

A.1.1 An ADO's exposition will vary depending upon the size and complexity of the ADO and its scope of approval. The following guidance may assist with the development of an exposition; however, it should be adapted to suit the particular ADO's requirements.

A.1.2 Cover page

A.1.2.1 The exposition should have a cover page that includes the document number, revision number, title and the name of the ADO.

A.1.3 Table of contents

A.1.3.1 A table of contents should identify each section and its location within the document. The table of contents should include at least section and sub-section levels. Inclusion of any additional sub-levels is at the ADO's discretion.

A.1.4 Revision history

A.1.4.1 The exposition should include a revision history that identifies the nature and location of changes that have been made to the exposition as well as an amendment record.

A.1.5 List of abbreviations and acronyms

A.1.5.1 A list of any abbreviations or acronyms used in the exposition should be included at the beginning of the document.

A.1.6 List of tables and figures

A.1.6.1 A list of tables and figures may be useful in large expositions.

A.1.7 Scope

A.1.7.1 The exposition should describe the scope of the ADO's approval, including any additional privileges granted to the ADO via instruments of appointment.

A.1.8 Organisational structure

A.1.8.1 The exposition should describe the ADO's leadership and chain of command, including the following key positions:

a. accountable manager
b. head of design
c. other managerial positions
d. each position responsible for carrying out design activities.

A.1.9 Organisational requirements

A.1.9.1 The exposition should:

a. identify the name, responsibilities and authority of the individuals who hold the following key positions:
    i. accountable manager
    ii. head of design
    iii. other managerial positions
    iv. each position responsible for carrying out design activities
b. describe how the ADO will manage the responsibilities of the key positions for any period when the position is vacant or the individual is unable to carry out the responsibilities of the position
c. describe the qualifications, experience and knowledge required by the ADO for each of the key positions and other individuals who carry out compliance functions, including independent checking and independent monitoring
d. describe the ADO's procedures for coordinating design activities with other ADOs
e. describe the ADO's subcontracting arrangements including:
    i. how it will authorise its subcontractors to carry out design activities on its behalf
    ii. a list, including detailed contact information, of all subcontractors authorised to carry out design activities on its behalf
    iii. a procedure to notify CASA of changes to the list of subcontractors.

A.1.10 Facilities

A.1.10.1 The exposition should describe the facilities that the ADO uses to carry out design activities, including:

a. facilities owned by the ADO
b. subcontractors' facilities that are relevant to the scope of the ADO's approval certificate.

A.1.10.2 The information for each facility should include:

a. the address
b. contact information for the individual responsible for management of the facility
c. the design activities carried out at the facility.

A.1.11 Tools and equipment

A.1.11.1 The exposition should describe:

a. the tools and equipment (including any test apparatus) that the ADO uses to make conformity or airworthiness determinations
b. how the tools and equipment are made available to the ADO's personnel
c. how the tools and equipment are properly maintained and calibrated to an acceptable standard.

A.1.12 Communications

A.1.12.1 The exposition should describe the ADO's procedures for communication with CASA, including a procedure to notify CASA if the ADO is not able to comply with any requirement of its certificate.

A.1.13 Changes to the scope of approval certificate

A.1.13.1 The exposition should define the procedures that the ADO will use to apply for a change to the scope of its approval certificate and how it will operate pending CASA's approval.

A.1.14 Changes to exposition and design assurance system manual

A.1.14.1 The exposition should include procedures to:

a. notify CASA of changes to the exposition and design assurance system manual. This should include procedures to ensure that changes to the design assurance system are approved by CASA prior to implementation
b. respond to any request by CASA to change the content of the exposition or design assurance system manual
c. make changes to the ADO's procedures that support its exposition and design assurance system manual. These supporting procedures and any changes made to them must be documented and made available to CASA.

A.1.15 Record keeping

A.1.15.1 The exposition should describe the ADO's record keeping procedures, including:

a. the documents and records that the ADO must keep
b. how those documents and records will be kept
c. how the ADO will make documents and records available to CASA, either upon request or through an established means of reporting
d. how the ADO will ensure the required documents and records are retained if it ceases to be an ADO.

A.1.16 Appendices

A.1.16.1 The exposition should contain sample documents and forms that will be used by the ADO to carry out activities associated with its approval.

Appendix B

Guidance for developing a design assurance system manual

Note: An ADO's exposition and design assurance system manual may be combined in the same document provided the two elements are clearly distinguishable.

B.1 Introduction

B.1.1 An ADO's design assurance system (in conjunction with the exposition) is the mechanism that provides the necessary level of assurance for CASA to approve the ADO to carry out design activities. It must provide a high degree of assurance that the ADO conducts and manages design activities in a controlled and compliant manner to ensure that each aircraft or aeronautical product in relation to which the ADO carries out a design activity complies with the applicable airworthiness requirements and has no known unsafe features.

B.1.2 An ADO's design assurance system manual documents the ADO's design assurance system. It therefore contains the documented policies and procedures that the ADO uses to carry out design activities. It sets out the specific planned and systematic actions and the associated forms and checklists related to the conduct of those design activities.

B.1.3 The design assurance system manual may refer to other documents and manuals of the ADO to provide the required content. However, if this is done, then the other documents and manuals are taken to be part of the design assurance system manual and therefore become subject to the same requirements and controls as the design assurance system manual.

B.1.4 Processes and procedures included or referred to in the manual should be of adequate depth and include sufficient detail to demonstrate compliance with applicable airworthiness requirements.

B.1.5 A sample design assurance system manual that an ADO may use as a basis for developing its own design assurance system manual is also included in this AC. This sample design assurance system manual is available for download in an editable format from the CASA website.

B.1.6 An ADO's design assurance system manual will vary depending upon the size and complexity of the ADO and its scope of approval. The following guidance may assist with the development of an design assurance system manual; however, it should be adapted to suit the particular ADO's requirements.

B.2 Individuals authorised to carry out design activities

B.2.1 The design assurance system manual should define the procedures the ADO uses to ensure that the individuals authorised by the ADO to carry out design activities are appropriately qualified, experienced and knowledgeable. This should include procedures for:

a. candidate identification and training
b. candidate assessment
c. authorisation of individuals
d. ongoing assessment of authorised individuals' performance
e. ongoing training.

B.3 Compliance assurance system

B.3.1 Major/minor classification

B.3.1.1 The design assurance system manual should define the procedures the ADO uses to classify damage or design changes as major or minor.

B.3.2 Submitting a design advice to CASA

B.3.2.1 The design assurance system manual should define the procedures the ADO uses to submit a design advice to CASA.

B.3.3 Compliance planning

B.3.3.1 The design assurance system manual should define the procedures the ADO uses to identify regulatory requirements and demonstrate compliance. This should include procedures to:

a. define compliance requirements
b. review and acquire current regulatory requirements and implement policy that affects the scope of the ADO
c. establish acceptable methods of showing compliance
d. establish a plan for access to facilities and equipment necessary for the ADO's activities
e. establish and maintain design practices and standards
f. establish, approve and revise project compliance plans during the project
g. review and approve project planning for compliance monitoring prior to execution.

B.3.4 Compliance demonstration

B.3.4.1 The design assurance system manual should describe the procedures the ADO uses to demonstrate compliance. This should include procedures to:

a. identify how claims of compliance are made within the ADO
b. create and approve analytical reports to be used for demonstration of compliance
c. define test articles and document conformity
d. conduct compliance testing, including appropriate risk assessment
e. perform and document safety assessments (e.g. functional hazard analysis, system safety assessment, common cause analysis)
f. specify compliance processes for subjective regulatory standards
g. manage previously approved data
h. evaluate damage limits and damage tolerance
i. verify compatibility with other modifications or repairs
j. manage technical data (and changes to that data) provided by subcontractors
k. establish function and reliability test requirements, objectives and failure dispositions
l. prepare and approve required documents within the scope of the approval certificate
m. create or change the aircraft flight manual and airworthiness limitations

n. develop or change instructions for continuing airworthiness for the approved design
o. maintenance and calibration of tools.

B.3.5 Compliance finding

B.3.5.1 The design assurance system manual should describe the procedures the ADO uses to record the finding of compliance. This should include procedures to:

a. identify and define the criteria to transition between the compliance determination and compliance finding phases of a design activity
b. prepare a statement of compliance – the manual should include procedures to document and certify that all compliance requirements have been met. The statement of compliance should be certified by an individual (or individuals) who is authorised to approve or certify the design activity.

B.3.6 Ensuring no unsafe features or characteristics

B.3.6.1 The design assurance system manual should describe the procedures the ADO uses to ensure that each design activity carried out by the ADO does not introduce an unsafe feature or characteristic to the aircraft or aeronautical product.

B.3.7 Independent checking

B.3.7.1 The design assurance system manual should describe the procedures the ADO uses to carry out independent checking of all the design activities carried out by the ADO.

B.3.8 Compliance data management

B.3.8.1 The design assurance system manual should include a procedure to manage and control compliance data.

B.4 Quality assurance system

B.4.1 Quality management

B.4.1.1 The design assurance system manual should include the procedures the ADO uses to monitor the effectiveness of its design assurance system, and the compliance of the ADO and its subcontractors with the design assurance system. The manual should also include procedures to update and correct its procedures. The procedures should ensure that any issues are resolved in a manner proportionate to the risk they present, or may have presented.

B.4.2 Independent monitoring

B.4.2.1 The design assurance system manual should include the procedures the ADO uses for independent monitoring of the adequacy of its design assurance system, and the compliance of the ADO and its subcontractors with the design assurance system. The procedures should include internal assessment and regular audits of both procedures and technical data compliance determinations to ensure compliance with the regulations.

B.4.2.2 The manual should specify the frequency of assessments and audits and the basis used to determine the frequency (e.g. risk assessment).

B.4.2.3 The manual should describe how the results of assessments and audits will be documented and how they will be provided to the head of design. The manual should also include a procedure to retain assessment and audit results.

B.4.3 Reporting operational or safety concerns

B.4.3.1 The design assurance system manual should include a procedure for the ADO's personnel and subcontractors to raise a safety concern. The manual should also define procedures to document and resolve any such issues.

B.4.4 Design assurance system manual configuration control

B.4.4.1 The design assurance system manual should include procedures for configuration management and change control to ensure that the approved procedures continue to meet the required purpose.