สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

Guidance Material for Airport Safety Self-Inspection

CAAT-GM-AGA-ASSI

Revision: 00

Date: 20 September 2021

Approved By

Suttipong Kongpool

Director General of The Civil Aviation Authority of Thailand

Intentionally Left Blank

Table of Contents

0. Introduction

0.1 Background

While some hazardous airport conditions develop virtually instantaneously, others are gradual. It is important to have an airport safety self-inspection program that monitors specific areas so that small problems do not have the chance to grow into safety hazards.

A number of airports have some form of a safety self-inspection program. The programs used vary in scope and effectiveness from verbal instructions and unscheduled and unrecorded inspections to very comprehensive inspection programs with multiple daily schedules and widely distributed responsibilities. Under RCAAT No. 14, all airports which are open for public use operations of an air carrier must have an airport operating certificate. One of the requirements of RCAAT No. 14 is that the operator of each certificated airport regularly conducts a daily safety self-inspection to ensure that prompt corrective action is taken to eliminate unsafe conditions on the airport. The details of the self-inspection program are spelled out in the airport certification manual.

This guidance material suggests components, responsibilities, and items for regularly scheduled, continuous surveillance, periodic condition and special inspections, and checklists for use during any of this airport safety self-inspection. This guidance can be modified as necessary to meet local situations. The information and suggestions in this publication serve as a basis by which airports, for certification or safety inspection purposes, may develop their own safety self-inspection programs.

0.2 Purpose

The purpose of this Guidance Material is to provide supplementary guidance to airport operators on inspection of movement area programs and identifies items that airport operators should include in such a program.

0.3 Applicability

This Guidance Material applies to Thai aerodrome operators operating a public-use aerodrome.

0.4 Effective Date

20 September 2021

0.5 Reference

a) Requirement of The Civil Aviation Authority of Thailand No. 14 on Aerodrome Standards B.E. 2562

b) Rule of Department of Civil Aviation on Standards of Aerodrome Operating Procedures B.E. 2557

1. Responsibilities

1.1 Safety Self-Inspection.

Self-inspection is a primary responsibility of the airport owner, operator, or a duly authorized representative. It is customary to assign the job of assuring overall airport ground safety to the airport manager or operations supervisor. Primary attention should be given to such operational items as pavement areas, safety areas, markings and signs, lighting, aircraft rescue and firefighting, fueling operations, navigational aids, ground vehicles, obstructions, public protection, wildlife hazard management and construction. Inspection of areas which have been assigned to individual air carriers, fixed base operators, or other tenants can be made the responsibility of the user, with airport management retaining overall inspection supervision, as management cannot delegate their responsibility for operating the airport safely.

1.2 Inspection Frequency

1.2.1 Regularly scheduled inspection. The airport should be inspected at least daily when activities are at a relatively low operational level in order to create the least impact on airport operations.

1.2.2 Continuous surveillance. Those activities and facilities that have been identified to require continuous surveillance should be inspected any time personnel are in the air operations area.

1.2.3 Periodic condition evaluation. Periodic condition evaluation of activities and facilities can be conducted on a regularly scheduled basis but less frequently than daily.

The time interval could be weekly, monthly, or quarterly depending on the activity or facility.

1.2.4 Special inspection. Special inspections of activities and facilities should be conducted after receipt of a complaint or when an unusual condition or unusual event occurs on the airport, such as an accident or incident.

1.3 Inspection Recording

An effective safety inspection establishes procedures for reporting deficiencies so that they can be corrected. The operator should issue a Notice to Airmen (NOTAM) through the Air Traffic Management Department reporting deficient conditions which could have an immediate and critical impact on the safety of aircraft operations. When corrective actions have been taken, the NOTAM should be cancelled. For even the smallest airport, it is desirable to use a safety self-inspection checklist which constitutes a written record of conditions noted, and acts as a check on follow up actions taken. The

scheduled use of a dated checklist will assure the regularity and thoroughness of safety inspections and follow up. The checklist can be an important administrative tool for airport management. It is most desirable to use a format (see examples, Appendices 1-4)in which each inspected area of the airport complex is positively noted. Retain the checklist until indicated actions are completed. Airports certificated under RCAAT No. 14 must retain the regularly scheduled inspection checklist for 6 months. Airports may use additional, specialized materials and forms, such as maintenance work orders, Notice to Airmen. (NOTAMs), fire station and first aid reports, etc.. However, the regularly scheduled inspection checklist should be the basic log indicating that safety inspection responsibilities are being met.

1.4 Follow-up

Follow-up on complaints or requests for corrective action and on all deficient items or problem areas noted during the daily inspection. Determine which problems require immediate attention and treat those with highest priority, including developing appropriate NOTAM notification.

2. Knowledge and Equipment for Self-Inspection

Airport personnel who conduct safety self-inspections should:

a) Know the location and types of airport facilities and airport rules and regulations.

b) Know the standards applicable to the airport.

c) Have a vehicle with a two-way ground control radio capable of communicating with the Air Traffic Control Tower on controlled airports: a beacon for nighttime inspections and either a beacon or checkered flag for daytime inspections.

d) Know and use correct radio communication procedures and techniques.

e) Be supplied with checklists covering the various inspection areas (suggested airport safety self-inspection checklists are contained in Appendices 1-4. While format of checklists vary, it is important to develop a checklist that is useful for the airport and its operation. If certain inspectors will be responsible for only certain items, separate checklists pertinent to those areas may be developed. A sketch of the airport should accompany the checklist so that the location of problems can be marked for easy identification.

f) Review the most recently completed checklist from the previous inspection cycle prior to beginning the inspection.

g) If construction is in progress, be familiar with the safety plan for the project.

h) If the airport is certificated under RCAAT No. 14, be familiar with the airport certification manual requirements concerning self-inspection.

3. Components of Safety Self-Inspection

A successful safety self-inspection program has four components:

a) A regularly scheduled inspection of physical facilities (which must be conducted daily at RCAAT No. 14 airports with an operating certificate);

b) Continuous surveillance of certain airport activities, such as fueling operations, construction, airfield maintenance;

c) A periodic condition evaluation program for such things as surveying approach slopes, obstructions, etc.; and

d) Special inspections during unusual conditions or situations such as changing weather or days of unusually high flight activity.

4. Regularly Scheduled Inspection

The regularly scheduled inspection consists of specific observations of airport physical facilities on at least a daily basis. This inspection should concentrate on the areas described in this section which are also included in Appendix 1. If deficiencies exist, indicate the item and

Identify its location on a sketch. If necessary provide dimensions and depths. Take photographs, if appropriate, to document the condition.

4.1 Pavement Areas.

The condition of pavement surfaces is an important part of airport safety. Pavement inspection should be conducted before beginning flight operations to ensure pavement surfaces are clear. As a minimum, a daily inspection should be performed of all paved areas which are the responsibility of the operator or included in its Airport Operating Certificate.

4.1.1 Check the pavement lips-the area between full-strength pavement and shoulders or paved shoulders and safety areas-to assure that they are no greater than necessary to allow water to drain off the pavement. A lip height no greater than 4 cm. is usually sufficient to allow proper drainage. (At airports subject to RCAAT No. 14, any lip exceeding 7.5 cm. is a violation.)

4.1.2 Determine if there are any cracks wide enough to cause directional control problems for an aircraft. Report and monitor these cracks.

4.1.3 Determine if there are any holes that could cause directional control problems for an aircraft. (At airports subject to RCAAT No. 14, any hole that cannot be covered by a 15 cm. circle and the side slope at any point in the hole that exceeds 7.5 cm. in depth is 45 degrees or greater, is a violation. If the hole cannot be covered by a 15 cm. circle but the side slope at any point in the hole that exceeds 7.5 cm. in depth is less than 45 degrees, it may be a violation if it is determined to be a surface variation that could impair directional control of an air carrier aircraft.)

4.1.4 Check the condition of pavement areas for scaling, spalling, bumps, low spots, and for debris that could cause foreign object damage to aircraft.

4.1.5 Check for vegetation growth along runway and taxiway edges that may impede drainage from the pavement surface.

4.1.6 Check for vegetation growth in cracks.

4.2 Safety Areas

The inspector should know the dimensions of the runway and taxiway safety areas at the airport.

4.2.1 Determine if there are any hazardous ruts, depressions, humps or variations from the normal smooth surface.

4.2.2 Check to ensure no object is located in a safety area, except objects that must be in the safety areas because of their functions (such as runway lights, signs, or navigational aids).

4.2.3 Determine if the base for any equipment in safety areas is at grade level (especially during the winter thaw) and mounted on frangible couplings.

4.2.4 Check to ensure that manhole and manhole covers are at grade level and mounts for light fixtures are at grade level. (At airports subject to RCAAT No. 14, the frangible point must be no higher than 7.5 cm. above grade.)

4.2.5 Check for damage caused by rodents or other animals.

4.2.6 Check to ensure areas are free from vegetation using mowing machines.

4.3 Markings and Signs

Airport markings and signs provide important information to pilots during takeoff, landing, and taxiing. Airport markings and signs should be standardized to avoid confusion and disorientation. The inspector should know the appropriate markings and signs at the airport.

4.3.1 Check markings for correct color coding, peeling, blistering, chipping, fading, and obscurity due to rubber buildup.

4.3.2 Check signs to ensure they are the correct color coding, easy to read, and that all lights are working and not obscured by vegetation, dirt, etc.

4.3.3 Check to see if all taxiway hold position markings and runway designation signs are in good condition from a visibility standpoint and the sign lights are working.

4.3.4 Check signs to ensure they are frangibly mounted.

4.3.5 Check to see that signs are not missing, that they have the correct legend and orientation, and that they have no broken panels.

4.4 Lighting

At night and during periods of low visibility, lighting is important for safe airport operations. Lights come in different shapes, sizes, colors, and configurations and can be located either in the pavement or along its edges.

4.4.1 Check to ensure that the following are operable, if installed, and that the optical systems are not obscured by vegetation or deposits of foreign material.

a) Runway and taxiway edge lights.

b) Apron edge lights.

c) Runway centerline and touchdown zone lights.

d) Taxiway centerline lights.

i. Taxiway edge or centerline reflectors.

e) Guidance signs.

4.4.2 Check that the following are operable, if installed:

a) Floodlights.

b) Obstruction lights.

c) Lighting in fuel storage area.

4.4.3 Report all fixtures missing and lights that are not working.

4.4.4 Report any missing or broken light fixture lenses.

4.4.5 Ensure that runway and taxiway lights and runway threshold lights are the proper color and are oriented correctly.

4.4.6 Check that lights function properly through the manual or radio control features, and that photocell controls function properly.

4.5 Navigational Aids

The inspection should concentrate on the visual navigational aids owned by the airport. However, the inspector should observe any navigational aids owned or operated by others and report any observed problems immediately to the appropriate responsible owner.

4.5.1 Determine if the segmented circle is clear of vegetation and that it can be seen easily from the air.

4.5.2 Determine if the airport rotating beacon is visible and working properly.

4.5.3 Check the wind cone to ensure that it swings freely and, if lighted, that all lights are operating.

4.5.4 Determine if the Runway End Identifier Lights (REIL´s) are flashing, and mounted on frangible couplings.

4.5.5 Check Visual Glide Slope Indicators (VASI´s, PLASI´s, or PAPI´s) to ensure that their lights are working and mounted on frangible couplings.

4.6 Obstruction

The inspection should concentrate on a visual check of construction under-way on or near the airport that could affect aircraft operations,

4.6.1 Check to ensure that construction equipment, especially tall cranes being used at construction sites, are not an obstruction. If construction is found and thought to create an obstruction, the airport should determine if proper notification to Aeronautical Information Service Office or Airport Layout Plan review, has been provided.

4.6.2 Determine if obstructions are properly marked and lighted.

4.7 Fueling Operations

The inspection should concentrate on the fuel farm and include security, fire protection and general housekeeping, and fuel dispensing facilities and procedures.

Check grounding clips and cables to ensure they are available and in good condition.

4.7.3 Determine if the operator is permitting any unsafe fueling practices.

4.7.4 Check to ensure that the appropriate signs for the fuel farm are installed and that all gates are capable of being closed and locked.

4.7.5 Determine if the fuel farm is clean, not littered with debris, vegetation is not growing in or around the area, and any flammable material is removed.

4.7.6 Report any leaks and fuel spills in the fuel farm.

4.8 Construction

The inspection should focus on construction activities on the airport to ensure that a high level of safety is maintained.

4.8.1 Determine if stockpiled materiel and construction materials are properly stored to keep them from being moved by wind, jet blast, or propwash.

4.8.2 Check all construction adjacent to movement areas to ensure areas are identified with conspicuous marking and lighting.

4.8.3 Determine if heavy construction equipment (such as bulldozers, cranes, etc.) are marked and lighted and parked clear of the safety areas.

4.8.4 Check to determine that stockpiles and stored equipment are not left in safety areas.

4.8.5 Check to ensure that debris and foreign objects are continuously being picked up around construction areas.

4.9 Public Protection

Check gates, fencing, locks, etc., for security.

4.10 Wildlife Hazard Management

Check for dead birds or animals on the runways, taxiways, aprons, and ramps or other signs that wildlife problems may have developed - such as large flocks of birds on or adjacent to the airport.

5. Continuous Surveillance

Continuous surveillance consists of general observation of activities for compliance with regulations, procedures, etc., as well as abnormalities with physical facilities that are readily apparent. This is performed any time personnel are on the air operations area. Continuous surveillance of airport physical facilities and activities should cover at least the areas described in this section which are also included in Appendix 2.

5.1 Ground Vehicles

5.1.1 Determine if procedures and arrangements for the orderly operations of ground vehicles (including mowing machines in the safety areas) are being followed.

5.1.2 Report any deficiencies, if appropriate.

5.2 Fueling Operations

5.2.1 Continuous surveillance of fueling operations should emphasize fire and explosion hazard.

5.2.2 Ensure proper grounding is being used, deadman controls are not blocked, and no smoking is being observed.

5.3 Construction

5.3.1 Check for unauthorized use of runways, taxiways, and aprons by construction personnel and equipment.

5.3.2 Keep a sharp eye out for possible opportunities of runway incursions and other irregularities.

5.3.3 Check all construction projects to ensure that the Operational Plan during Construction (OPC) is being followed by the contractor.

5.3.4 Ensure that construction equipment is not operated in navigational aid critical areas unless coordination with CARC has been accomplished.

5.4 Public Protection

5.4.1 Be alert for unauthorized personnel, vehicles, and animals.

5.4.2 Ensure gates are kept operable and clear for access by aircraft rescue and fire fighting equipment.

5.5 Wildlife Hazard Management

5.5.1 Note any birds or animals, such as dogs, deer, etc., on or adjacent to the runways, taxiways, aprons, and ramps to determine if there is a potential wildlife hazard problem.

5.5.2 Report any potential hazard created by birds on or adjacent to the airport.

5.6 Check the Following for Any Potential Problems

5.6.1 Control of pedestrian access to the movement areas.

5.6.2 Loading and off-loading of passenger areas.

5.6.3 Other movement areas frequented by the general public.

5.6.4 Debris in movement areas.

6. Periodic Condition Evaluation

Periodic condition evaluations consist of specific checks of physical facilities on a regularly scheduled basis (but less frequently than daily). Checks may require use of equipment (e.g., Walker Bar to measure VASI glide slope angles or transit to survey approach slopes) or checking specific features of physical facilities. Periodic evaluation of airport physical facilities and activities should cover at least the areas described in this section which are also included in Appendix 3.

6.1 Markings and Signs

6.1.1 Check pavement markings to ensure they are correct and clearly visible.

6.1.2 Determine if markings are visible at night, especially examine for rubber buildup in the touchdown zone areas.

6.2 Lighting

6.2.1 Determine that power generator and circuit resistance tests are being conducted.

6.2.2 Lights with adjustable optical systems should be checked for proper aiming.

6.3 Navigational Aids

Periodically check the aiming of REIL´s and Visual Glide Slope Indicators owned by the airport.

6.4 Obstructions

6.4.1 Check to ensure there are no overhead power lines in the aircraft parking areas.

6.4.2 Annually survey trees and other structures near the airport which could affect glide path angles, approach light lanes, or be an obstruction to RCAAT No. 14 Section 4 Obstacle limitation surface.

6.5 Fueling Operations

6.5.1 Quarterly inspect all fuel trucks to ensure they meet fire safety standards.

6.5.2 Check fire extinguishers to ensure they are B-C rated, their seals are not broken, and the gauges read the proper pressure, if installed.

6.5.3 Check the labeling on pipes in the fuel farm, especially at the loading platform, to ensure they are legible and properly marked.

6.5.4 Check grounding facilities to ensure they are adequate.

6.5.5 Check fuel storage tank overfill warning devices.

6.5.6 Quarterly inspect all physical facilities for safety against fire and explosion. Airports certificated under RCAAT No. 14 are required to maintain a record of this inspection.

7. Special Inspections

Special inspections occur after receipt of a complaint or as triggered by an unusual condition or event. A special inspection should be conducted after an accident or incident. Depending upon circumstances, special inspections may include the inspection of any of the specific facilities or activities under the other three components. A special inspection of airport physical facilities and activities should cover at least the areas described in this section which are also included in Appendix 4.

7.1 Safety Areas

7.1.1 Check storm sewer system to verify that inlets are not clogged and drainage channels are free of debris. Note any standing water.

7.1.2 Ensure all inlet covers are in place and sewer covers are at grade level.

7.1.3 Conduct a special inspection before re-opening a runway or taxiway following any construction or maintenance that has been performed in or around that safety area.

7.1.4 Any time an aircraft has left the pavement and entered a safety area check to ensure that no ruts or holes have been made by the aircraft tires or by personnel and equipment during the recovery operation.

7.1.5 Check for construction and maintenance activities to ensure that no hazardous conditions have been created (equipment left in safety areas, unacceptable pavement lips created by ground alteration work, ruts from mowing equipment, etc.).

7.2 Markings and Signs

7.2.1 Determine if markings are visible at night especially when the pavement is wet following a rain.

7.2.2 After construction or maintenance operations, ensure that pavement markings are correct.

7.3 Construction

7.3.1 Conduct night inspections to ensure that obstruction and similar warning lighting is adequate to keep aircraft away from the construction area.

7.3.2 Check construction equipment to ensure that they are parked within the pre-arranged areas.

8. Notices to Airmen

Ensure that if unsafe conditions are uncovered as a result of safety self inspections and corrective action can not completed immediately, appropriate NOTAMS are issued through the Air Traffic Services and that local airport users are aware of the situation. After reporting NOTAMS to the Air Traffic Management Department, follow-up to ensure that the NOTAMS were issued.

9. Appendices

Suggested airport safety self-inspection checklists

An airport safety self-inspection checklist should cover the condition of the facilities and equipment on the airport for it to be a part of a good safety inspection program. The checklist should be developed so that it is useful for the airport and its operation. A sketch of the airport is highly recommended to readily identify the location of problems found during the daily inspection.

The suggested checklists consist of a listing of facilities and equipment and a series of conditions that are inspected along the side of the page.

The blank squares indicate the conditions to be evaluated for each facility. A check in one of these squares would indicate that the condition of the facility and equipment was found to be satisfactory. On the other hand, an "x" in one of these squares would indicate that the condition of the facility and equipment was found to be unsatisfactory.

When an unsatisfactory condition is found:

(1) An "x" for each applicable square should be entered;

(2) A note provided in the remark section;

(3) The location of the condition should be identified in the airport sketch; and

1. Appropriate follow-up action including NOTAMS should be initiated.

Appendix 1

Regularly schedule inspection checklist

Date: ✓ Satisfactory X Unsatisfactory

Time: ☐ Day ☐ Night Inspector:

Facilities	Condition	D	N	Remark	Resolved by (Date/Initials)
Pavement Areas	Pavement lips over 7.5 cm.				
	Hole – 12 cm. Diam. 7.5 cm Deep				
	Crack/spalling/Bumps				
	FOD: Gravel/Debris/Etc.				
	Ponding/ Edge dams				
Safety Area	Ruts/Humps/Erosion				
	Drainage/Construction				
	Objects/Frangible bases				
Marking and Signs	Visible/Standard				
	Hold lines/Signs				
	Frangible signs				
	Obscured/Dirty/Faded				
Lighting	Damaged/Missing				
	Inoperative				
	Faulty aim/Adjustment				

Facilities	Condition	D	N	Remark	Resolved by (Date/Initials)
Navigational aids	Rotating beacon				
	Wind indicators				
	VASI/PAPI/REIL systems				
Obstructions	Obstruction lights				
	Cranes/Tress				
	Fencing/Gates/Signs				
Fueling operations	Fuel marking/labeling				
	Fire extinguishers				
	Grounding clips				
	Fuel leaks/Vegetation				
Construction	Equipment parking				
Public protection	Fencing/Gates				
	Signs				
Wildlife hazards	Dead birds				
	Flocks of birds/Animals				

Airfield map on next page

Appendix 2

Continuous surveillance checklist

Date: ✓ Satisfactory X Unsatisfactory

Time: Inspector:

Facilities	Condition	✓	Remarks/Action taken
Ground vehicles	Rules/Procedures followed		
Fueling operations	Fire/Explosion hazards		
	Signing/No smoking		
Construction	Safety plan		
	Runway incursions		
	Runway & taxiway use		
Public protection	Unauthorized persons		
	Unauthorized vehicles		
	Gates clear		
Wildlife hazards	Birds/Animal		
Miscellaneous	Pedestrians in movement area		
	Passenger load/Unload		
	Debris in movement area		
Additional remark:			

Airfield map on next page

Appendix 3

Periodic condition inspection checklist

Date: ✓ Satisfactory X Unsatisfactory

Time: Inspector:

Facilities	Condition	✓	Remarks/Action taken
Marking and signs	Visible/Standard		
Lighting	Power generator check		
	Circuit resistance test		
	Aim/Adjustment		
Navigation aids	REILs/VGSI aiming		
Obstructions	Surveyed trees/Structures		
	Overhead power line		
Fueling operation	Physical facilities		
	Mobiles fuelers		
	Fire Extinguishers		
	Fuel marking/Labeling		
	Grounding clip		
Additional remarks:			

Airfield map on next page

Appendix 4

Special inspection checklist

Date: ✓ Satisfactory X Unsatisfactory

Time: Inspector:

Facilities	Condition	✓	Remarks/Action taken
Safety areas	Drainage		
	Reopening runways		
	Reopening taxiways		
Markings and signs	Visible after rain		
	Standard after construction		
Construction	Barricades		
	Construction lights		
	Equipment parking		
Additional remarks:			

Airfield map on next page