



**LEARNING**  
FOR PREDICTIVE MAINTENANCE TECHNOLOGIES

INFRARED  
INSPECTION OF  
BUILDING  
ENVELOPES &  
ROOFS

PRACTICAL TRAINING FOR REAL WORLD THERMOGRAPHY

# WHY CHOOSE IPI LEARNING?

IPI Learning trains employees of large international corporations and standalone operators in cities across multiple countries. We provide the most comprehensive and progressive predictive maintenance training in the world. As a one stop training centre for predictive maintenance technologies, IPI Learning course subjects include:



Infrared  
Thermography



Infrared Windows  
& Electrical Safety



Condition  
Monitoring



Vibration



Alignment



Airborne Ultrasound

“ Our training courses are designed to provide you with the skills you need to perform your surveys with confidence, competence and most importantly, results. ”

*Brenton Ward, IPI Learning Trainer*

IPI Learning has been providing expert predictive maintenance services for almost 20 years.

- ✓ Training
- ✓ Sales support
- ✓ Professional consultancy to industry

Our Trainers have decades of real world experience and are qualified in training & assessment (TAE 40110) in Australia.





Infrared Inspection of Building Envelopes & Roofs focuses on the use of thermal imaging to locate and evaluate energy loss and moisture problems within building envelopes & insulated roofing systems.

## Course overview

The Infrared Inspection of Building Envelopes & Roofs is an 18 hour theory and application course for the use of thermal imaging to locate and evaluate energy loss and moisture problems within building envelopes and insulated roofing systems.

**This course covers:** This course covers infrared theory, heat transfer concepts, equipment operation and selection, standards compliance, image analysis, and report generation.

Students are trained to identify and document thermal patterns caused by improper design, workmanship, or material failure.

<b>Course name</b>	Infrared Inspection of Building Envelopes & Roofs
<b>Prerequisite</b>	None
<b>Study mode</b>	Distance Learning
<b>Duration</b>	18 hour theory and application course
<b>Assessment</b>	n/a

## Inclusions (Fees)

Course tuition includes 24 hour access to all online course presentations, Student Reference Manual, online quizzes, proof of course completion. Student must complete training within 60 days of registration.

This is a non-certification course focused on a single application. Course completion may be applied to training requirements for thermographer certification.

## Student support



**Comprehensive websites**  
[infraredtraining.com.au](http://infraredtraining.com.au)  
[cita.org.au](http://cita.org.au)



**Onsite consulting & mentoring**  
 Program setup  
 Program audits  
 Onsite training and mentoring



**Free advice from expert thermographers**  
**Email** [training@infraredtraining.com.au](mailto:training@infraredtraining.com.au)  
**Web forum** [cita.org.au](http://cita.org.au)

# TYPES OF TRAINING



## Distance Learning

Take your infrared training wherever and whenever it's convenient for you. With IPI Learning's distance learning course, you get the same quality content for which we are famous.

We utilize state-of-the-art web servers and dynamic multimedia resources to provide a unique, quality educational experience

- Distance Learning Courses are divided into narrated one-hour online infrared lecture training units allowing you to work at a pace that's convenient for you.



# INFRARED INSPECTION OF BUILDING ENVELOPES & ROOFS

## COURSE OUTLINE

1

### Basic Infrared Theory

- Heat transfer
- Electromagnetic spectrum
- Emittance, reflectance, and transmittance
- Atmospheric transmission
- IR wavebands and lens materials

2

### Infrared Equipment

- Selection criteria
- Range and level settings
- Equipment set-up & operation
- Image recording
- Equipment care & maintenance
- Self-directed learning activities for hands-on use

3

### Implementing an IR Predictive Maintenance Program

- 9 steps to setting up a program
- Integrating with other predictive technologies
- Cross-verifying with other predictive technologies
- Why programs fail, how they succeed

4

### Energy Loss Inspections

- Theory and component construction
- Insulation & material characteristics
- Inspection techniques
  - Interior, exterior
- Weather variables and models
- Required site conditions
  - Creating sufficient delta-T
- Pre-inspection procedures
- Inspection and data recording
- Verification of data
- Conduction losses by insufficient, missing, damaged or improperly-installed insulation:
  - Weather variables and influences
  - Thermal signatures
- Convection losses by uncontrolled air movement
  - Natural and forced convection
  - Thermal signatures
  - Pressurization/depressurization techniques
- Standards for inspection
  - End user and thermographer responsibilities
  - Safety practices
  - Data gathering and report preparation

5

### Building / Roof Moisture & Pest Inspections

- Theory and component construction
- Insulation & material moisture characteristics
- Inspection techniques
  - Interior, exterior
- Weather variables and models
- Required site conditions
  - Creating sufficient delta-T
- Pre-inspection procedures
- Thermal signatures of latent moisture
- Thermal signatures of pest damage
- Mold detection
- Inspection, data recording, marking and mapping
- Destructive and non-destructive moisture verification
- Standards for inspection
  - End user and thermographer responsibilities
  - Safety practices
  - Data gathering and report preparation



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To register and see our course schedule visit:

[infraredtraining.com.au](http://infraredtraining.com.au)

Register directly on the training website or complete the registration form included in this information pack and return it by email to:

[training@infraredtraining.com.au](mailto:training@infraredtraining.com.au)

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## For further information

or to find out about our course schedules and locations please contact us.

### Melbourne

12/634-644 Mitcham Rd Vermont VIC 3133

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1-909-547-3300 (USA)

+61 3 9872 5055 (International)

Email: [training@infraredtraining.com.au](mailto:training@infraredtraining.com.au)

Web: [infraredtraining.com.au](http://infraredtraining.com.au)

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