

## EGOLF RECOMMENDATION 062-2022 V2

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| Subject of Recommendation  | <b>Reporting test results</b>  |
| Related test standard  | EN 1363-1, EN 1634-1, EN 1366-6  |
| Date of issue  | 2022-06-14   |
| Reference original query   | Egolf TC2 RR on doorset: action plan 02, Egolf TC2 N941, Egolf TC2 N941 Rev 2  |
| Previous publication number (if applicable)                      | TC2 N957   |
| Keywords (max. 20)   | Tests results, expression, reporting, criteria, performance, interaction between performances, termination of test   |
| If Recommendation to be forwarded to CEN TC 127, please state WG | EGR 062 to be forwarded to CEN/TC127 WG1 TG7 after experience of use by EGOLF TC2, together with other recommendations arising from Action Plan 02 (RR on doorset) |

### Problem

The testing round robin on doors has shown that too many labs:

- Don't understand the following basic general principles that defines what are test results in fire resistance testing:
  - o Test methods define two types of test results: criteria and performances,
  - o Each performance is determined by the combination of one or several criteria. Performance is expressed as the time during which the appropriate criteria have been satisfied,
  - o The insulation performance shall automatically be assumed not to be satisfied when the integrity performance stop to be satisfied.
  - o The insulation performance and integrity performance shall automatically be assumed not to be satisfied when the loadbearing capacity performance stop to be satisfied
- Are unable to catch the right criteria failure times (at least in completed minutes) from their spreadsheet of raw recorded values, and then in determining the resulting insulation performances. One reason could be the non-utilisation of automated data extraction procedure, like dedicated software or Excel tools.
- Round up their result to the nearest minute above.

Thus, expressing and reporting test results need to be more consistent and uniformed in order to avoid reporting errors.

### Recommendation

After discussion in action plan 02 task group and presentation of reporting template (table and flow chart) in 2021 – 10 and 2022 – 04 virtual TC2 Egolf meeting, the following tables and flow charts are proposed to standardize the expression of test results in the test report.

These tables and flow charts are improvements of the single example given in 12.2 of EN 1363-1:2020 (expression of test results in the test report)

The purpose of these tables is to give all details, for all criteria, on time and failure recorded or not after test process.

Tables and flow charts proposed allow to fulfil request of last chapter of 11.3 of EN 1363-1:2020 regarding evaluation of all discrete areas of tested specimen.

In addition to test results expressed in tables, flow charts allow to:

- Illustrate interactions between performances (as given in 11.4 of EN 1363-1:2020)
- Express reason for termination of the test (as requested in chapter 10.5 of EN 1363-1:2020).

With these tables and flow charts, laboratories are in position to:

- Express unequivocally classification in classification report according to EN 13501-2.
- Harmonize expression of test results in the test report

**Main performances: Table and flow chart to be used with EN 1363-1**

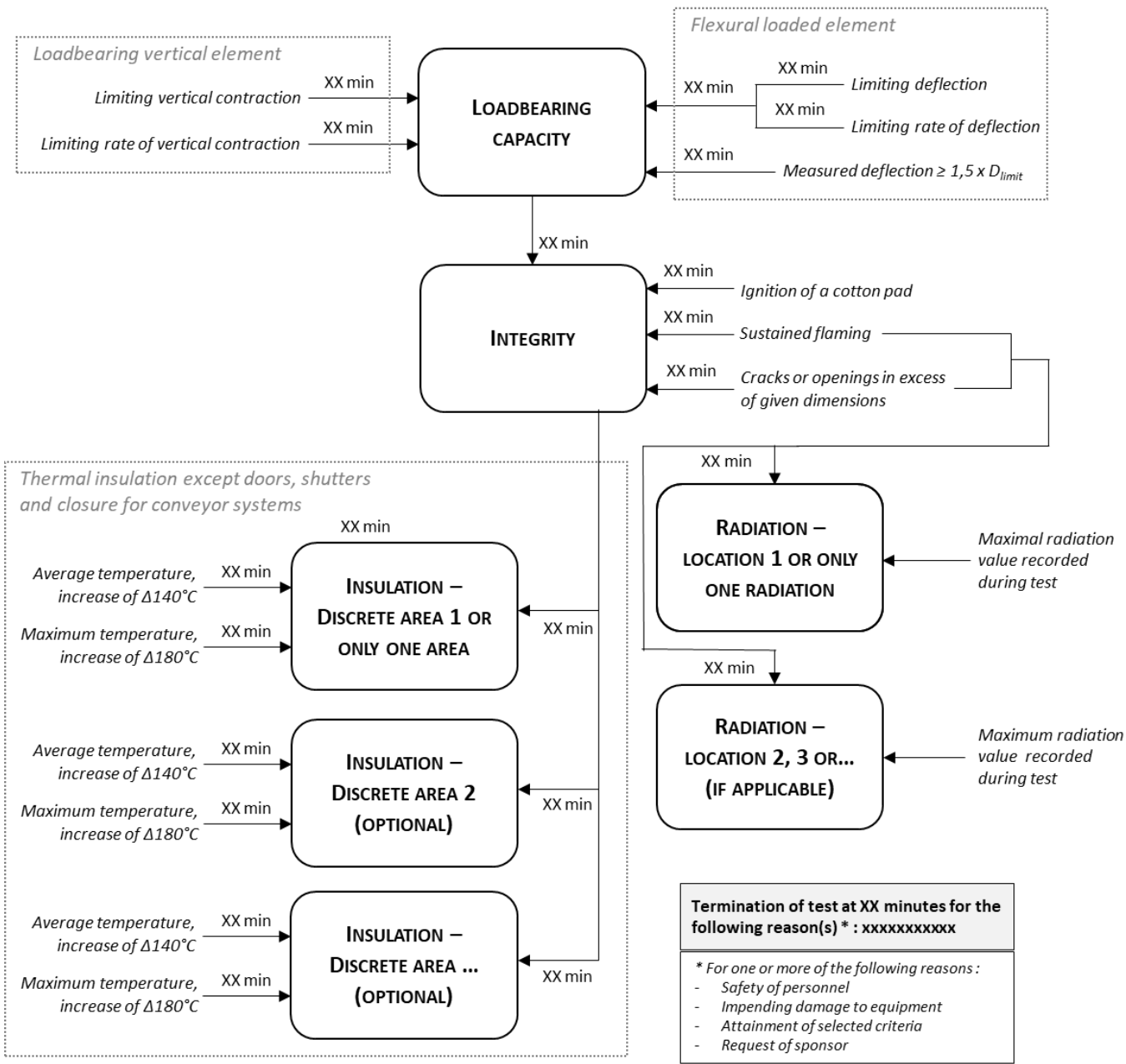
| PERFORMANCES   |   | CRITERIA  | Time<br>(completed<br>minute) | Failure?<br>(time min and sec<br>or no) |
|--|---|---|-------------------------------|---|
| LOADBEARING CAPACITY   | Loadbearing vertical element  | Limiting vertical contraction                                 | XXX                           | Time min and sec<br>or No               |
|  |   | Limiting rate of vertical contraction                         | XXX                           | Time min and sec<br>or No               |
|  | Flexural loaded element   | Limiting deflection   | XXX                           | Time min and sec<br>or No               |
|  |   | Limiting rate of deflection                                   | XXX                           | Time min and sec<br>or No               |
|  |   | Measured deflection $\geq 1,5 \times D_{limit}$               | XXX                           | Time min and sec<br>or No               |
| INTEGRITY  |   | Ignition of a cotton pad                                      | XXX                           | Time min and sec<br>or No               |
|  |   | Sustained flaming   | XXX                           | Time min and sec<br>or No               |
|  |   | Cracks or openings in excess of given dimensions              | XXX                           | Time min and sec<br>or No               |
| THERMAL INSULATION EXCEPT DOORS, SHUTTERS AND CLOSURE FOR CONVEYOR SYSTEMS | INSULATION – DISCRETE AREA 1 OR ONLY ONE AREA. LOCATION OF DISCRETE AREA  | Average temperature, increase of $\Delta 140^{\circ}\text{C}$ | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum temperature, Increase of $\Delta 180^{\circ}\text{C}$ | XXX                           | Time min and sec<br>or No               |
|  | INSULATION – DISCRETE AREA 2 (IF APPLICABLE). LOCATION OF DISCRETE AREA   | Average temperature, increase of $\Delta 140^{\circ}\text{C}$ | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum temperature, Increase of $\Delta 180^{\circ}\text{C}$ | XXX                           | Time min and sec<br>or No               |
|  | INSULATION – DISCRETE AREA ... (IF APPLICABLE). LOCATION OF DISCRETE AREA | Average temperature, increase of $\Delta 140^{\circ}\text{C}$ | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum temperature, Increase of $\Delta 180^{\circ}\text{C}$ | XXX                           | Time min and sec<br>or No               |
| RADIATION  | LOCATION 1 OR ONLY ONE LOCATION   | Maximum or average radiation value $> 5 \text{ kW/m}^2$       | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum or average radiation value $> 10 \text{ kW/m}^2$      | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum or average radiation value $> 15 \text{ kW/m}^2$      | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum or average radiation value $> 20 \text{ kW/m}^2$      | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum or average radiation value $> 25 \text{ kW/m}^2$      | XXX                           | Time min and sec<br>or No               |
|  | LOCATION 2, 3 OR ... (IF APPLICABLE)                                      | Maximum or average radiation value $> 5 \text{ kW/m}^2$       | XXX                           | Time min and sec<br>or No               |
|  |   | Maximum or average radiation value $> 10 \text{ kW/m}^2$      | XXX                           | Time min and sec                        |

|  |  |   |     |                           |
|--|--|---|-----|---------------------------|
|  |  |   |     | or No                     |
|  |  | Maximum or average radiation value > 15 kW/m <sup>2</sup> | XXX | Time min and sec<br>or No |
|  |  | Maximum or average radiation value > 20 kW/m <sup>2</sup> | XXX | Time min and sec<br>or No |
|  |  | Maximum or average radiation value > 25 kW/m <sup>2</sup> | XXX | Time min and sec<br>or No |

If a performance or criterion has not been evaluated on the test specimen, this performance or criterion may be omitted from the table for example loadbearing capacity upon non-loadbearing elements. If not omitted from the table, you must mention not evaluated or not relevant for this performance or criterion.

It is not possible to include classification designations (R, E, I & W) within test reports.

**Flowchart of main performances interaction (to be used with EN 1363-1):**



**Other performances, table to be used with EN 1363-1:**

Note that for these performances, there is no need of a flow chart as these performances has no interaction and termination of test is obvious regarding test standards used.

| PERFORMANCES  | CRITERIA   |   | Time<br>(completed<br>minute) | Pass or fail? |
|---|--|---|-------------------------------|---------------|
| MECHANICAL ACTION (EN 1363-2)                                   | Resist the impact without prejudice  |   | XX min*                       | Pass or Fail  |
| SELF-CLOSING FOR DOORS OR WINDOWS ONLY<br>(EN 1191 OR EN 12605) | No performance determined (0 cycle)  |   | /                             | Pass or Fail  |
|   | Retained in the open position (500 cycles)                                     |   | /                             | Pass or Fail  |
|   | Low frequency of use (10000 cycles)  |   | /                             | Pass or Fail  |
|   | Medium frequency of use (50000 cycles)   |   | /                             | Pass or Fail  |
|   | High frequency of use (100000 cycles)  |   | /                             | Pass or Fail  |
|   | Subject to frequent usage (200000 cycles)                                      |   | /                             | Pass or Fail  |
| SMOKE LEAKAGE (EN 1634-3)                                       | Maximum leakage rate measured at ambient temperature                           |   | /                             | Pass or Fail  |
|   | Maximum leakage rate measured at both ambient temperature and 200°C            |   | /                             | Pass or Fail  |
| SOOT FIRE RESISTANCE FOR CHIMNEYS ONLY<br>(EN 13216-1)          | Leakage requirement at the end of the test                                     |   | /                             | Pass or Fail  |
|   | Maximum temperature of adjacent materials not exceeding 100°C (distance in mm) |   | /                             | Pass or Fail  |
| FIRE PROTECTION ABILITY<br>(EN 14135)                           | Type 1   | Increase the average temperature Δ250°C and increase the maximum temperature Δ270°C | XX min                        | Pass or Fail  |
|   |  | No burnt material, charred material, melted material or shrunk material             | XX min                        | Pass or Fail  |
|   |  | No collapse   | XX min                        | Pass or Fail  |
|   | Type 2   | Increase the average temperature Δ250°C and increase the maximum temperature Δ270°C | XX min                        | Pass or Fail  |
|   |  | No burnt material or charred material   | XX min                        | Pass or Fail  |
|   |  | No collapse   | XX min                        | Pass or Fail  |

\* = Classification time

If a performance or criterion has not been evaluated on the test specimen, this performance or criterion may be omitted from the table. If not omitted from the table, you must mention not evaluated or not relevant for this performance or criterion.

It is not possible to include classification designations (M, C, S or K) within test reports.

**Table and flow chart to be used with EN 1634-1**

| PERFORMANCES  |   |                             | CRITERIA  | Time<br>(completed<br>minute) | Failure?<br>(time min and sec<br>or no) |
|---|---|-----------------------------|---|-------------------------------|---|
| INTEGRITY   |   |                             | Ignition of a cotton pad  | XXX                           | Time min and sec<br>or No               |
|   |   |                             | Sustained flaming   | XXX                           | Time min and sec<br>or No               |
|   |   |                             | Cracks or openings in excess of given dimensions  | XXX                           | Time min and sec<br>or No               |
| THERMAL<br>INSULATION FOR<br>DOORS AND<br>SHUTTERS,<br>CLOSURE AND<br>CONVEYOR<br>SYSTEMS<br>ASSEMBLIES | INSULATION<br>– DISCRETE<br>AREA 1 OR<br>ONLY ONE<br>AREA.<br>LOCATION<br>OF DISCRETE<br>AREA | Normal<br>procedure:        | Average temperature, increase of $\Delta 140^{\circ}\text{C}$   | XXX                           | Time min and sec<br>or No               |
|   |   |                             | Maximum temperature on leaf/leaves, increase of $\Delta 180^{\circ}\text{C}$                          | XXX                           | Time min and sec<br>or No               |
|   |   |                             | Maximum temperature on the frame adjacent to leaf/leaves, increase of $\Delta 360^{\circ}\text{C}$    | XXX                           | Time min and sec<br>or No               |
|   |   |                             | Maximum temperature on frame(s) not adjacent to leaf/leaves, increase of $\Delta 180^{\circ}\text{C}$ | XXX                           | Time min and sec<br>or No               |
|   |   | Supplementary<br>procedure: | Average temperature, increase of $\Delta 140^{\circ}\text{C}$   | XXX                           | Time min and sec<br>or No               |
|   |   |                             | Maximum temperature on the leaf, increase of $\Delta 180^{\circ}\text{C}$                             | XXX                           | Time min and sec<br>or No               |

|  |   |                          |  |     |                        |
|--|---|--------------------------|--|-----|------------------------|
|  |   |                          | Maximum temperature on frame(s), increase of $\Delta 180^{\circ}\text{C}$            | XXX | Time min and sec or No |
|  | <b>INSULATION – DISCRETE AREA 2, 3, 4 ETC... (IF APPLICABLE).</b><br><b>LOCATION OF DISCRETE AREA</b> | Normal procedure:        | Average temperature for this discrete area, increase of $\Delta 140^{\circ}\text{C}$ | XXX | Time min and sec or No |
|  |   |                          | Maximum temperature for this discrete area increase of $\Delta 180^{\circ}\text{C}$  | XXX | Time min and sec or No |
|  |   | Supplementary procedure: | Average temperature for this discrete area, increase of $\Delta 140^{\circ}\text{C}$ | XXX | Time min and sec or No |
|  |   |                          | Maximum temperature for this discrete area, increase of $\Delta 180^{\circ}\text{C}$ | XXX | Time min and sec or No |

If a performance or criterion has not been evaluated on the test specimen, this performance or criterion could be omitted from the table for example supplementary procedure for thermal insulation or discrete area 2 etc....If not omitted from the table, you must mention not evaluated or not relevant for this performance or criterion.

It is not possible to include classification designations (R, E, I & W) within test reports.

Flowchart to be used with EN 1634-1 standard:

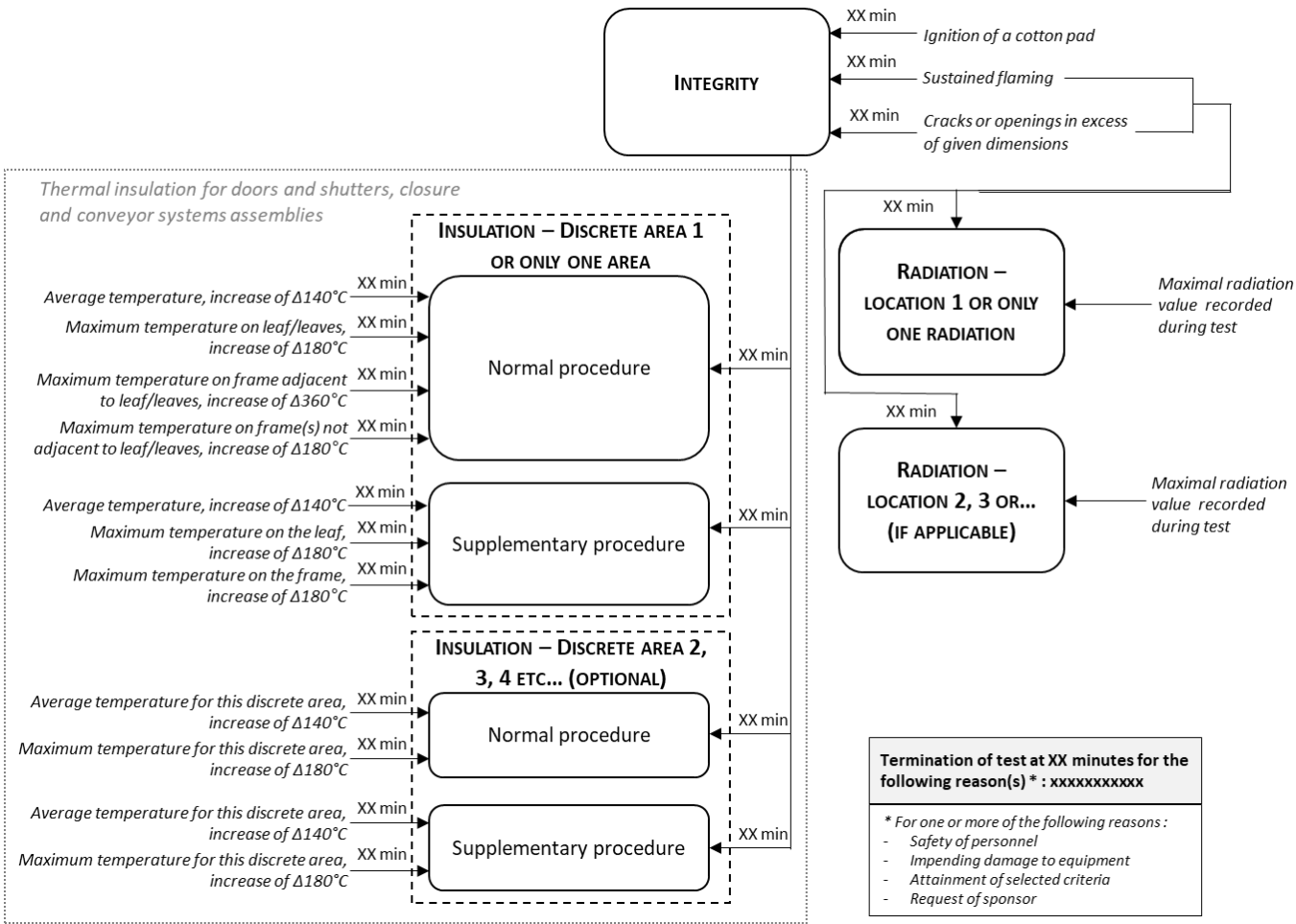


Table and flow chart to be used with EN 1366-6

EN 1366-6 test standard, which is dealing with raised floor, has a specific criteria for loadbearing capacity performance. Thus, a specific table of result and flow chart is proposed to be include in chapter 12 of EN 1366-6.

| PERFORMANCES | CRITERIA | Time (completed minute) | Failure? (time min and sec or no) |
|--------------|----------|-------------------------|-----------------------------------|
|              |          |                         |                                   |

|   |  |   |     |                               |
|---|--|---|-----|-------------------------------|
| <b>LOADBEARING CAPACITY</b>   | <b>RAISED FLOOR</b>                                  | <i>Collapsing of the floor itself or one of the supporting studs</i>                                  | XXX | <i>Time min and sec or No</i> |
| <b>INTEGRITY</b>  |  | <i>Ignition of a cotton pad</i>   | XXX | <i>Time min and sec or No</i> |
|   |  | <i>Sustained flaming</i>  | XXX | <i>Time min and sec or No</i> |
|   |  | <i>Cracks or openings in excess of given dimensions</i>   | XXX | <i>Time min and sec or No</i> |
| <b>THERMAL INSULATION EXCEPT DOORS, SHUTTERS AND CLOSURE FOR CONVEYOR SYSTEMS</b> | <b>INSULATION – DISCRETE AREA 1 OR ONLY ONE AREA</b> | <i>Average temperature of this discrete area, increase of <math>\Delta 140^{\circ}\text{C}</math></i> | XXX | <i>Time min and sec or No</i> |
|   |  | <i>Maximum temperature of this discrete area, Increase of <math>\Delta 180^{\circ}\text{C}</math></i> | XXX | <i>Time min and sec or No</i> |
|   | <b>INSULATION – DISCRETE AREA 2 (OPTIONAL)</b>       | <i>Average temperature of this discrete area, increase of <math>\Delta 140^{\circ}\text{C}</math></i> | XXX | <i>Time min and sec or No</i> |
|   |  | <i>Maximum temperature of this discrete area, Increase of <math>\Delta 180^{\circ}\text{C}</math></i> | XXX | <i>Time min and sec or No</i> |
|   | <b>INSULATION – DISCRETE AREA ... (OPTIONAL)</b>     | <i>Average temperature of this discrete area, increase of <math>\Delta 140^{\circ}\text{C}</math></i> | XXX | <i>Time min and sec or No</i> |
|   |  | <i>Maximum temperature of this discrete area, Increase of <math>\Delta 180^{\circ}\text{C}</math></i> | XXX | <i>Time min and sec or No</i> |

If a performance or criterion has not been evaluated on the test specimen, this performance or criterion may be omitted from the table for example thermal insulation. If not omitted from the table, you must mention not evaluated or not relevant for this performance or criterion.

It is not possible to include classification designations (R, E & I) within test reports.

#### Flowchart to be used with EN 1366-6 standard:

