

## Approval & Reception Procedure

<b>DEE- Departamento de Estruturas e Edifícios</b>							
<b>Flat Tempered Glass</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Document no.</td> <td style="text-align: right; padding: 2px;"><b>ARP/DEE/008</b></td> </tr> <tr> <td style="padding: 2px;">Date:</td> <td style="text-align: right; padding: 2px;"><b>2010/07/05</b></td> </tr> <tr> <td style="padding: 2px;">Page no.</td> <td style="text-align: right; padding: 2px;"><b>1 of 3</b></td> </tr> </table>	Document no.	<b>ARP/DEE/008</b>	Date:	<b>2010/07/05</b>	Page no.	<b>1 of 3</b>
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### 1 Reference standard

The Reference Standards are the following:

ASTM C 1048 -2004	Standard Specification for Heat- Treated Flat Glass- Kind HS, Kind FT Coated and Uncoated Glass
EN 12150-1 – 2000	Glass in Building – thermally Toughened Soda Lime Silicate Safety Glass- Part 1 : Definition and Description
GB 15763.2-2005	Safety Glazing Materials in Building – Part 2: Tempered Glass

### 2 Approval procedures

The following document should be submitted for approval:

	Document	Requirements
a)	Design Specification	<ul style="list-style-type: none"> <li>Standard (e.g. ASTM, GB etc)</li> <li>Type (e.g. Tempered, Laminated, Insulated, Low E)</li> <li>Thickness</li> <li>Heat soak treatment requirement for spontaneous breakage control</li> </ul>
b)	Manufacturer Catalogue	<ul style="list-style-type: none"> <li>The catalogue should include the information about the spontaneous breakage guarantee percentage, or to be clarified formally by the manufacturer.</li> </ul>
c)	Recent Manufacturer Auto Control Test Reports	<ul style="list-style-type: none"> <li>Test Items should include, at least, surface stress measurement, impact test, heat soak test.</li> <li>Test reports should be the last reports within 1 year.</li> </ul>

**Remark :** Factory visit(s) may be required depends on the actual situation. In case of doubt, LECM has right to collect sample(s) from the factory for testing(s).

### 3 Reception procedure

#### 3.1 Delivery Notes

When materials arrived on site, delivery notes should be submitted for verification. At least, the following information should be included in the delivery notes. Moreover, if heat soak treatment is required, manufacturer's certificates of the delivered lot should be submitted.

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- A) *Manufacturer*
- B) *Project*
- C) *Product Specification*
- D) *Quantity*
- E) *Production lot identification*
- F) *Compliance Declaration*

### 3.2 Reception Testing

When Materials arrived on site, reception tests should be performed to verify the properties of tempered glass as stated in Table 1. In principle, it is enough to adopt surface stress measurement (NDT method). However, if surface stress measurement is not applicable, or if the test results are in doubt, fragmentation tests should be adopted for judgment.

**Table 1 - Reception Test Items**

Testing Item	Test Standards	Minimum Requirements <sup>(a)</sup>	
Surface Stress Measurement (NDT)	ASTM C1279-05	<ul style="list-style-type: none"> <li>● GB 15763.2-2005: <math>\geq 90\text{MPa}</math> (for those glasses manufactured according to GB15763.2-2005)</li> <li>● ASTM C1048 -04 : <math>\geq 69\text{MPa}</math> (for those glasses manufactured according to ASTM C1048-04)</li> </ul>	
Fragmentation Test <sup>(b)</sup>	GB 15763.2-2005	<b>Thickness</b>	<b>Min Fragments</b>
		3mm	30
		4 ~ 12mm	40
		$\geq 15\text{mm}$	30
		Fragment size $\leq 75\text{mm}$	

**Remark:**

- (a) In case of more strict specification required in a project, the stricter specification should be followed.
- (b) The test specimens should be those glass pieces to be supplied to the project.

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### 3.3 Lot size

The lot should be the glass of same brand, type and thickness which is to be delivered at the same delivery period for this reception on site.

In each lot, 3 specimens should be selected for surface stress measurement. In case of fragmentation test, 2 specimens should be selected.

## 4 Acceptance criteria

### For Surface Stress Measurement

- In case of all 3 specimens pass, the lot can be considered as acceptable.
- In case of only 1 specimen fails, another 3 specimens should be tested. The lot can be declared as acceptable only if all the 3 additional specimens pass. Otherwise, the lot should be rejected.
- In case of more than 1 specimen fail, the lot should be rejected.
- In any case, fragmentation tests could be performed for judgement purpose.

### For Fragmentation Test

- In case of all 2 specimens pass, the lot can be considered as acceptable.
- In case of only 1 specimen fails, another 2 specimens should be tested. The lot can be declared as acceptable only if all the 2 additional specimens pass. Otherwise, the lot should be rejected.