	Work Instruction	
	Kiln Firing	
Revision: 02	Procedure No.: WI-8.2.4.30	Date Effective: 6/11/2012

For Ceramic Infrared Heaters

1. Verify heaters are dry
2. Place heaters in kiln leadwire-side down using appropriate ceramic holder(s).
Exception: large heaters (like CRL-type or anything new of similar size), fragile heaters (like CRN-type hollow body), or heaters that have been made the same day they will be placed in the kiln, should be placed face-side down, on the shelf, with aluminum oxide (or similar) powder on the shelf to prevent heaters from sticking to shelves
3. Close kiln door
4. Start appropriate firing cycle on controller
5. When kiln has finished cycle and cooled down appropriately, heaters may be removed from kiln

For VS Glow Housings – Before Glazing


1. Verify housings are dry
2. Place housings face-side down on shelves with aluminum oxide (or similar) powder on the shelf
3. Close kiln door
4. Start appropriate firing cycle on controller
5. When kiln has finished cycle and cooled down appropriately, housings may be removed from kiln

For VS Glow Housings – After Glazing

1. Verify housings are dry
2. Place housings face-side up on shelves using appropriate ceramic holder(s)
3. Close kiln door
4. Start appropriate firing cycle on controller
5. When kiln has finished cycle and cooled down appropriately, housings may be removed from kiln

For Ceramic Tape – Before Glazing

1. Place tape on shelves. Tapes may be layered on top of one another
2. Close kiln door
3. Start appropriate firing cycle on controller

	Work Instruction	
	<h1>Kiln Firing</h1>	
Revision: 02	Procedure No.: WI-8.2.4.30	Date Effective: 6/11/2012

- When kiln has finished cycle and cooled down appropriately, plates may be removed from kiln

For Ceramic Tape – After Glazing

- Place tape on shelves. Put aluminum oxide (or similar) powder on the shelf to prevent glazed tapes from sticking to shelves
- Close kiln door
- Start appropriate firing cycle on controller
- When kiln has finished cycle and cooled down appropriately, plates may be removed from kiln

Firing Schedules

Different materials need to fire with different firing schedules. Below are general guidelines for the programs used for each material to be fired. Ramp and soak times may vary from kiln to kiln, but should closely resemble the guideline. Actual temperature in kiln may vary slightly from actual temperature as a result of physical limitations on kiln construction and controller configuration. Kilns reporting Reference Only temperatures are acceptable for this firing process.

Step Number	Temperature (°C)	Time for Ramp (hours)	Time for Soak (hours)
1	200	2	1
2	600	5	1
3	1080	12	2


Table 1: Schedule used for firing typical ceramic infrared heaters and ceramic tapes after glazing

Step Number	Temperature (°C)	Time for Ramp (hours)	Time for Soak (hours)
1	1200	12	2

Table 2: Schedule used for firing typical ceramic tape before glazing

Step Number	Temperature (°C)	Time for Ramp (hours)	Time for Soak (hours)
1	600	4	0
2	1100	6	0
3	1160	4	2

Table 3: Schedule used for firing typical VS Glow housings

	Work Instruction	
	<h1>Kiln Firing</h1>	
Revision: 02	Procedure No.: WI-8.2.4.30	Date Effective: 6/11/2012

Step Number	Temperature (°C)	Time for Ramp (hours)	Time for Soak (hours)
1	500	1.5	0.5
2	825	1.5	0.5

Table 4: Schedule used for curing gold paint or preparing quartz tubes for reflective coating application

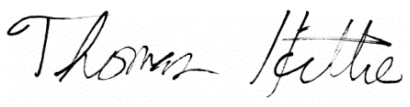
Step Number	Temperature (°C)	Time for Ramp (hours)	Time for Soak (hours)
1	500	1.5	0.5
2	925	1.5	0.5

Table 4: Schedule used for curing white reflective coating or preparing quartz tubes for reflective coating application

Revision History

Revision Level	Date of Revision	Sections	Description of Change	Initial
00	5/25/2009	All	Initial Release	-
01	2/22/2010	4.2; pages 3 & 4	Mesh size changed ~120. Also added a part number, CRM-101-141; Added the table 'Kiln Firing Program as function of the product type.'	-
02	6/11/2012	All	Complete rewrite - too much specific detail in some areas, wrong or incomplete information in others	TCH

Authorization

Position	Held By	Signature
Product Manager	Thomas Hittie	
Senior Management Representative	Abraham Joseph	