



## **International Design Competition – « Young designers, looking into the future »**

**2010 Edition**

### **COMPETITOR'S GUIDE**

#### **« A frames' life »**

As a further part of its investigation into the role of the designer in our product-rich society, 5.5 Designers challenges you to design a pair of frames whilst making an in-depth examination of the entire product life cycle. Think outside the box and don't just concentrate on the stylistic approach. Tell the frame's story: anticipate the high points of its existence, from its gestation (when it is designed), birth (the manufacturing process), childhood (how it is marketed), the highlights of its life (its usage) until its death, and after... This new edition will focus on the coherence and comprehensiveness of the overall approach to the life cycle of the proposed eyewear.

**[www.design-jura.com](http://www.design-jura.com)**

# Contents

	Page
<b>Eyewear:</b>	
Manufacturing materials and processes	3
Recommendations concerning the design	9
Artificial reference head	10
<b>Your project</b>	11
<b>Les Lunetiers du Jura</b>	16
<b>Useful addresses</b>	18
Document sources and organisations	

## **Eyewear: materials and manufacturing processes**

# Eyewear: a technical product

## Frames

### ▪ **Types**

Three families: Metal, plastic and natural materials Classification is according to the basic type of frame. The designation "combination" is a mixture of the two first families.

The lenses may be held in place by:

- plastic or metal rims: the lens being bevelled, assembly is by opening up the rim or extension, in the case of plastic, by use of heat.
- rim with retaining wire: the lens is grooved, and assembly is by extension of a nylon wire (semi-rimless frames).
- surface-mounted: the lens is drilled or notched and set against the frame or its components (rimless).

### ▪ **Components**

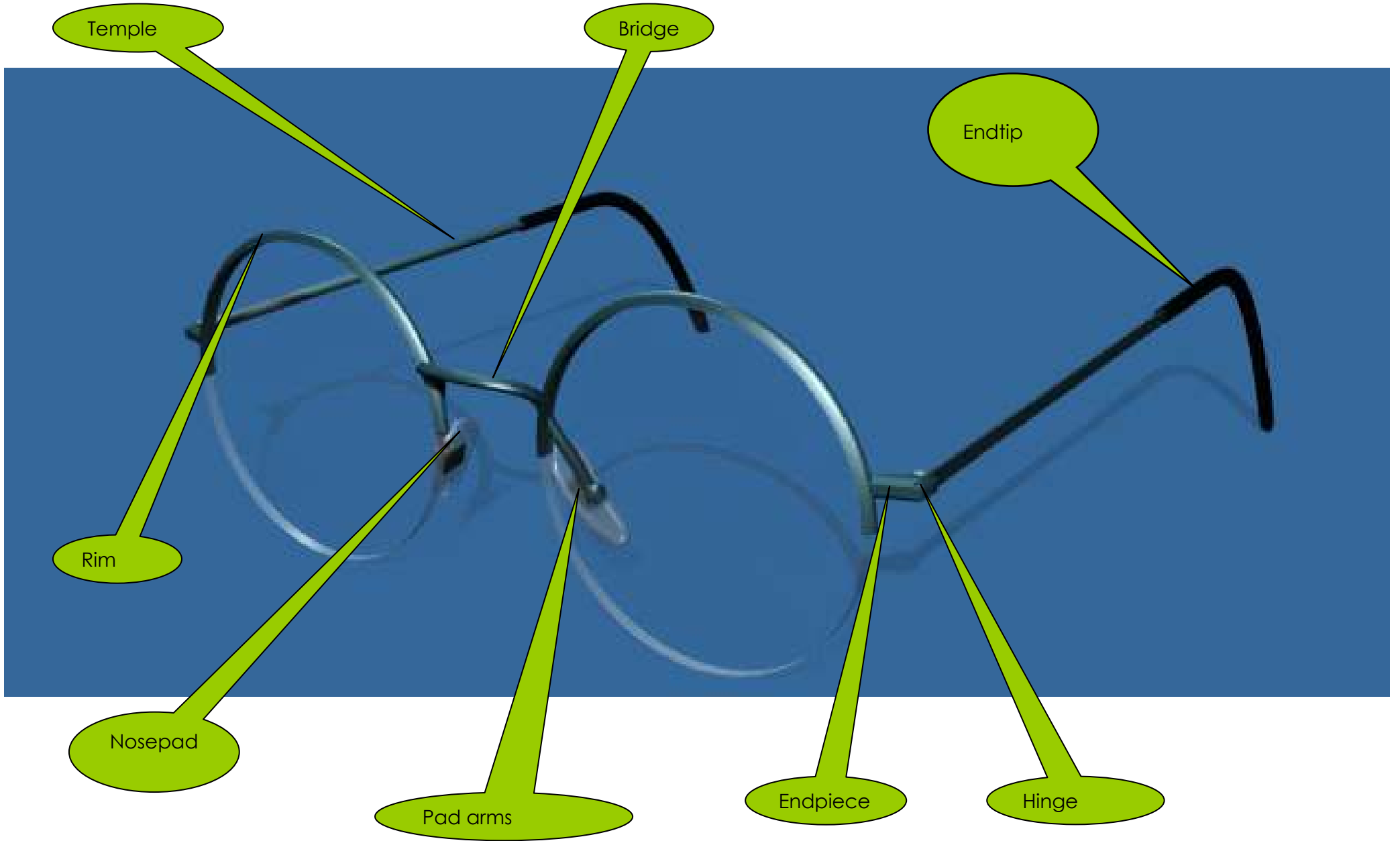
A frame consists of a front supporting the lenses and two hinged temples holding the frame in place.

In the case of plastic frames, the front consists of a single piece.

Metal frames differ. These consist of the following:

- 1 pair of meniscal rims (spherical cap) made from grooved wire (V shaped) that can be opened by means of a closing block and a screw.
- 1 bridge linking the two rims giving space for the nose.
- 1 pair of endpieces linking the temple to the front. These are called:
  - . French if they are in two parts and if they have two screws to hold the temple and the closing block.
  - . decorative if they are independent on the closing block.
  - . monoblock if they help to provide a seat for the closing block.
- 2 pads or one bridge or a saddle bridge holding the frame in place on the nose set onto the frame by pad arms.
- 1 pair of Golf temples, hook.
- 2 endtips on the temples make for comfortable contact with the ears.
- Link with the front by a standard or spring-hinge.

On the frames, decorative elements may be added: browbars, trims, etc..



## **Materials and processes**

- **Materials for metal eyewear**

TRILAM or MONEL (cupro-nickel alloys) are generally used for hard, strong rims. They do not deform, limiting the effects of torsion that lenses might be subject to during everyday use of the glasses.

Special copper alloys such as BRONZE (copper, zinc, tin and nickel) are used for the connecting elements on the front such as bridges, bars, pad arms, endpieces and temples.

Work-hardened only slightly to allow cold forming, they harden during the die stamping process. Structural hardening alloys are used today (Nicalfor for example) which are easy to work during the shaping stage and are then heat hardened to obtain the required finished rigidity.

Other copper alloys (NICKEL SILVER) created for improved machinability (bar turning, milling) from profiles enabling more compact components to be obtained with excellent screw functioning; this is the material for monoblock endpieces and closing blocks as well as temples.

There are other metals used in the manufacture of eyewear frames, such as stainless steel (316L, 404, 440, ..), titanium alloys (T40 or preferably beta-titanium), aluminium alloys 2017, 5086), magnesium (AZ31B) or shape memory (nitinol or copper-aluminium-beryllium)

- **Materials for plastic eyewear**

Cellulose acetate and polyamide enables the manufacture of cutout eyewear. From sheet acetate pre-cut into a rectangle of the appropriate size, the fronts are created by milling on programmable machines (multi-axial machining stations) using CAD/CAM software. Plastic temples are also created by milling. They are often solidified with the insertion of a metal core (bronze or nickel silver).

Other polymer materials can also be used, for example the most recent addition NXT (PUR).

For injection-moulded components, fronts and temples are obtained by plastic compression moulding. They may be made from cellulose acetate, propionate, polypropylene, and polyamide (which may be carbon-fibre reinforced, for example, to obtain frames that are ever slimmer and stronger).

Moulded frames are obtained by polymerisation reaction of the resin (methyl methacrylate) in batteries of moulds that are themselves made with glass-fibre reinforced resin with a coating that enables easy demoulding. In contrast with the injection technique, moulding is by gravity only.

The over-moulding technique is also widely used. It enables the covering of a plastic or metal core with elastomer (santoprene for example) to make it more pleasant to the touch or with a plastic covering (polypropylene, PMMA ...) to obtain an aesthetic transparent finish.

- **Natural materials**

Several natural materials may be used in the manufacture of a frame.

Wood: it is necessary to use a coating for esthetic reasons but also to limit risks allergy. For ecologically developed product, it is advised to use wood from local forests.

Horn can be used without any particular coating. Indeed, horn is made of keratin and thus does not represent any risk of discomfort.

Leather is also used in the eyewear industry even if it may cause difficulty regarding casing and sticking. Leather may not be in contact with people's skin.

Other materials may be used but it is not frequent: rock, slate or galalithe which is obtained by solidification of milk proteins. It is more commonly used in the outerwear industry.

Plastics with natural fibers also exist. It is polyamide, polypropylene or any common plastic reinforced with natural fibers such as wood, wood meal, hemp, etc. These are injected plastics.

- **Frame decoration**

This final stage enables the customisation of frames. A galvanic coating is often necessary on metal frames (nickel or copper is deposited on the metal to even out all the assembled components and therefore obtain a uniform surface for the final decoration). The finishing can be carried out by electrodeposit of a gold alloy or palladium or the use of organic coatings (varnish, lacquer or paint).

Organic coatings are applied to the metal or plastic (rarely) frames using a syringe or airbrush. The frames' components may be decorated with different colours. Once applied, the coatings are heat hardened.

Other specific applications are also used: PVD coating, anodization, screen-printing, sublimation ....

## **Lenses**

An artificial filter consists of:

- A mineral or organic material
- Coatings: colour, mirror, scratch-resistant, anti-fog, non-reflective etc.
- Solution-dyed (sunglass lenses): brown, green, grey, blue etc.

## **Recommendations (extracts from ISO 12870 standard) 2004 (F)**

### **Design**

It is important that the frame be designed to enable safe lens positioning, as well as lens retention in the prescribed position in relation to the eyes. It is also important that the frame be comfortable to wear for long periods of time.

### **Materials**

Materials used, as well as being strong and stable enough must enable final adjustments by a professional and maintain their shape and position for the period they are worn. Materials must be sufficiently resistant to wear and tear and be comfortable to wear for a reasonable length of time.

### **Weight**

It is recommended that the frames' weight, before insertion of the lenses, does not exceed 32g.

### **Contact zones**

It is recommended the areas of the frame that, due to their design or encrusted motifs, may come into contact with the wearer, be smooth, without any prominent protrusions, and that all angles be rounded.

Surfaces of the frame that are designed to assist the holding of the frame on the face should generally be as wide as possible. When a frame requires nose pads or nose holding elements it is advisable that the surface of these elements:

a) Be at least equal to 200 mm<sup>2</sup> in the event that the frame weighs less than 25 grams.

Be at least equal to 250mm<sup>2</sup> in the event that the frame weighs more than 25 grams

The frame can be securely held in place using side pressure on the head, the elasticity of the front and the temples are long lasting and the contact surface area as wide as possible.

### **Frame symmetry**

When designing a mirror symmetry frame the eyewear frames should have identical opening angles and slants as well as the same length temples on both sides.

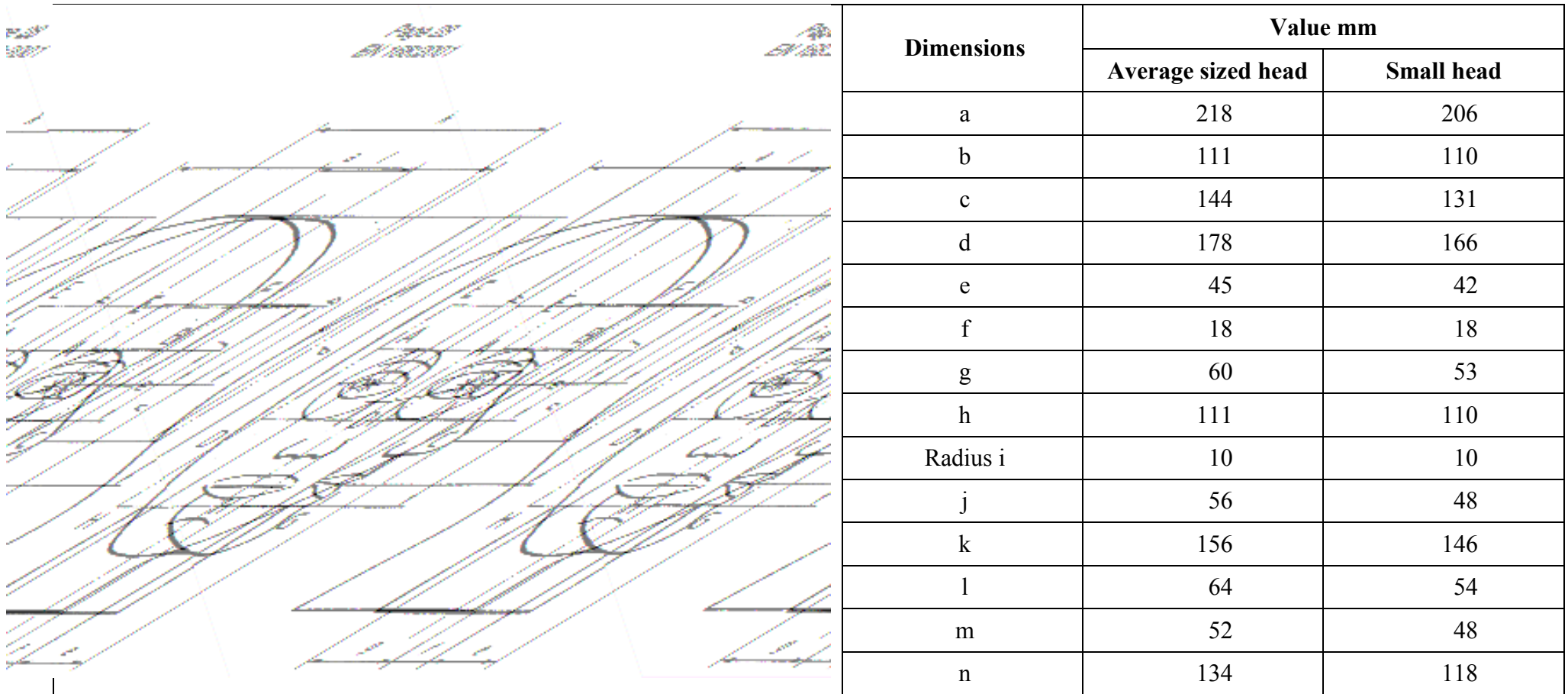


Figure 11 – Artificial reference head

## **Your project – Practical information**

## Who?

### Entrants:

- Design students enrolled in a course of higher education in France or abroad (on presentation of a certificate of attendance in higher education) not exercising any professional activity relating to eyewear, in other words :
- Not receiving an income (and not having received an income for the past three years) from a company operating in any capacity in the eyewear sector.
- Not involved (or not having been involved for the past three years) in any project (or contract) with any company operating in any capacity in the eyewear sector, which may have led to one or more products or communication media being created.

Entrants to the competition undertake to withdraw their entry if, during the course of this competition they become involved in professional work relating to the eyewear industry within the meaning of the paragraph above.

**For people wishing to enter as a team**, it is stipulated that each entry may be proposed by two or three people maximum, in which case:

- The team members complete one entry form together and,
- Each of the team members :
  - Complies with the criteria indicated in paragraph above.
  - Signs and initials two copies of the letter of agreement, subject to the conditions set out above.

Entry is limited to one project per candidate or team of candidates. Teams may be multidisciplinary.

## When?

**From November 2<sup>nd</sup> 2009 to March 15<sup>th</sup> 2010**

## How?

Fill in your entry form on our website: [www.lunetiers-du-jura.com](http://www.lunetiers-du-jura.com), print it off and send it by post to the following address:

Les Lunetiers du Jura – Design Competition  
P.O. BOX 90045  
39402 Morez Cedex – France

### Accompanied by:

- Two original copies of the letter of agreement of transfer of rights, duly initialled on each page and signed by you (one copy being then also returned to you, having been initialled and signed by the Association).
- One copy of your proof of identity
- For students, one copy of a valid student's card.

On receipt of these documents, we will confirm by mail that your entry has been validated and we will allocate a candidate's number which will enable you to access your personal file on our internet site and so follow the progress of your entry for the duration of the competition.

### Selection criteria

Generally speaking, for each project, the Jury will assess the creative and personal thinking and its compliance with the theme of the competition, the creation of an innovative design concept and the quality of the presentation (in graphical and editorial terms).

For its selections, in addition to the general criteria mentioned above, the Jury will use the following criteria:

- Consistency between the specifications supplied and the project selected.
- Presentation of all the technical aspects required for production of the prototype.
- Coherence of promotional material and the media chosen in relation to the project presented.
- The stance of the applicant with regard to major social issues.

Only those projects meeting the following conditions will be presented to the panel of judges:

- None of these documents shall contain any identifying mark. Do not forget to insert your registration number on each item in the upper right-hand corner, in black characters on a white background.

## REGISTRATIONS

**When?** Projects to be sent in **before March 15<sup>th</sup> 2010**

### **How?**

- As an e-mail attachment to [design@lunetiers-du-jura.com](mailto:design@lunetiers-du-jura.com), indicating your name and registration number in the body of the message

### **OR**

- On cd-rom by post to the address below, indicating your name and registration number on the CD-Rom:  
Les Lunetiers du Jura –Design competition- P.O. BOX 90045 - 39402 Morez Cedex – France

### **Elements to be supplied on electronic media,**

The candidates must send a file no larger than 5 slides including at least a summary of the project sales pitch, a view of the product and its life scenario in electronic format (.jpeg or .pdf – 72 dpi resolution – RVB colour – 800 x 600 pixels in landscape format – WinZip compression compatible for sending via e-mail).

## INITIAL SELECTION

### When?

Initial selection by the panel of judges on March 25<sup>th</sup> 2010

The panel of judges will select a maximum of 15 projects from those presented.

The candidates selected will be informed within a maximum of 15 days by e-mail or post. All candidates can follow the progress of their entry and update their details on the website [www.design-jura.com](http://www.design-jura.com), identifying themselves by the registration number allocated to them on registration.

### The selected candidates must submit :

Submission by the selected candidates:

- all the detailed technical **specifications** which will be used for the development of the prototype **by May 10<sup>th</sup> 2010**

Realisation of the **prototype**, if necessary, in a partner company **between the May 10<sup>th</sup> and September 3<sup>rd</sup> 2010**.

If the candidate wishes, the prototype may be produced in partnership with an eyewear company suggested by the association. An agreement signed between this company, the candidate and the Association will in such cases set the conditions of partnership and any terms of the allocation of transport and accommodation, raw materials and manpower costs. This agreement will emphasize that it is the responsibility of the candidate to supervise the execution of his or her project to obtain a result for which he or she will assume responsibility. Depending on the nature of the project, fast prototyping techniques may be used (3D printing ...)

- for more comprehensive promotion of the project using one or more media left to the choice of the applicant (plates, booklets, slides, videos, etc.) that should allow the jury to comprehend the entirety of the proposed solution (usage and life cycle scenario) **by September 3<sup>rd</sup> 2010**.

### How?

- By post to the address below, indicating your name and registration number on the CD-Rom :  
Les Lunetiers du Jura – Design competition  
P.O. BOX 90045 - 39402 Morez Cedex – France

## FINAL DECISION

### Who?

**The candidates who have been selected after the initial selection and who submit their prototypes and communication tools by September 3<sup>rd</sup> 2010.**

### When?

September 24<sup>th</sup> 2010.

Further to this final meeting of the panel of judges, the prizewinners will be announced at the award-winning ceremony scheduled for September 24<sup>th</sup> 2010.

## **Les Lunetiers du Jura**

**Companies members of the Federation of Jura eyewear manufacturers "Les Lunetiers du Jura"**  
**[www.lunetiers-du-jura.com](http://www.lunetiers-du-jura.com)**

ALBIN PAGET Groupe	<a href="http://www.albin-paget.fr">www.albin-paget.fr</a>	LIKA	<a href="http://www.lunetteslamy.com">www.lunetteslamy.com</a>
AMADEUX		LOGO Groupe	<a href="http://www.logo-sa.fr">www.logo-sa.fr</a>
AXEBO	<a href="http://www.axebo.fr">www.axebo.fr</a>	Les Fils d'Aimé Lamy	<a href="http://www.airlight.com">www.airlight.com</a>
BESANCON Sarl		Lunetterie LUCAL	
BOURGEAT	<a href="http://www.face-nord-concept.com">www.face-nord-concept.com</a>	Lunetterie COLIN	
CEMO		Lunettes YVES COGAN	<a href="http://www.yvescogan.com">www.yvescogan.com</a>
COEURDOR SAS	<a href="http://www.surfaces-synergie.com">www.surfaces-synergie.com</a>	MOREL	<a href="http://www.morel-france.com">www.morel-france.com</a>
COMOTEC	<a href="http://www.comotec.com">www.comotec.com</a>	NAJA	
COTTEZ		OXIBIS EXALTO	<a href="http://www.oxibis.com">www.oxibis.com</a>
CTS	<a href="http://www.cts-france.com">www.cts-france.com</a>	PAGET Frères	<a href="http://www.pagefreres.fr">www.pagefreres.fr</a>
ELCE-CABAUD	<a href="http://www.elce.com">www.elce.com</a>	PROST Décolletage	
FOLOMI	<a href="http://www.lunettes-laguiole.com">www.lunettes-laguiole.com</a>	SINGER Décolletage	<a href="http://www.singer-decolletage.com">www.singer-decolletage.com</a>
GOUVERNEUR-AUDIGIER		SNTS	
Henry JULLIEN	<a href="http://www.henry-jullien.com">www.henry-jullien.com</a>	THIERRY S.A	
JACQUES DURAND Lunetier		TSM	<a href="http://www.traitementdesurface.net">www.traitementdesurface.net</a>
JULBO	<a href="http://www.julbo.fr">www.julbo.fr</a>	UNT	<a href="http://www.unt.fr">www.unt.fr</a>
Léon JEANTET	<a href="http://www.aviatorgoggle.com">www.aviatorgoggle.com</a>	VUILLET VEGA	<a href="http://www.vuillet-vega.com">www.vuillet-vega.com</a>
KANGÖ BARBE	<a href="http://www.kango-polissage.fr">www.kango-polissage.fr</a>	YRIS DESIGN	<a href="http://www.yrisdesign.com">www.yrisdesign.com</a>
KARA	<a href="http://www.lunettes-kara.com">www.lunettes-kara.com</a>	ZENKA BY TAND'M	<a href="http://www.zenka.fr">www.zenka.fr</a>
L'AMY	<a href="http://www.lamygroup.com">www.lamygroup.com</a>		

## Useful addresses

## Some professional eyewear journals ...

### **L'opticien Lunetier**

105 boulevard Magenta  
75010 Paris  
France  
[www.opticien-presse.com](http://www.opticien-presse.com)

### **L'essentiel de l'optique**

69, rue de Paris  
91400 Orsay  
France  
[www.clm-com.com](http://www.clm-com.com)

### **Le Monde de L'optique**

14, avenue de Tourville  
75007 Paris  
France

### **20/20 Asia**

HK Branch  
Room 1502 Ashley Centre  
23-25 Ashley Road  
Tsim Sha Tsui  
Kowloon – Hong Kong

### **Der Schweizer Optiker**

Verlag Maihof AG -  
Postfach  
6002 Luzern  
Switzerland

### **Inform'Optique**

80, rue de Clichy  
75009 Paris  
France  
[www.inform-optique.com](http://www.inform-optique.com)

### **Bien Vu**

23 rue Edouard Béri  
06000 Nice  
France  
[www.bienvu.ws](http://www.bienvu.ws)

### **Aktuelle Optik Och Opometri**

Roslagsgatan 60  
11354 Stockholm  
Sweden

### **20/20 Usa**

Jobson Publishing Corporation  
100 avenue of the Americas  
New-York 10013  
USA

### **Euro opticien**

Verlag Bode TmbH & KG.  
Postbus 313  
9200 AH Drachten  
Netherlands

### **Optissimo**

Pieter Nollekensstraat 127  
3010 KESSEL-Lo  
Belgium  
Italy

### **20/20 Europe**

Jobson House  
Holbrooke Place Hill Rise, Richmond  
Surrey TW 10 6 UD  
United Kingdom  
[www.2020mag.com](http://www.2020mag.com)

### **Informacion Optica**

German Perez Carrasco 81  
28027 Madrid  
Espagne

### **Neues Optiker Journal**

Taney Hall – Eglington Terrace  
Turnstr.1-3  
D-75173 Pforzheim

### **Vedere international**

Edizioni Ariminum  
Via Negroli, 51  
20133 Milano

### **New Irish Optician**

Dundrum – Dublin 14  
Irlande

## Some useful addresses...

### **Lunetiers du Jura documentation centre**

Viséum

114 bis, rue de la République – P.O. BOX 45

39400 Morez - France

[gcomte@lunetiers-du-jura.com](mailto:gcomte@lunetiers-du-jura.com)

### **Eyewear Museum**

Viséum

Place Jean Jaurés

39400 Morez

France

### **Victor Bérard Optical School**

35 quai Aimé Lamy

P.O. BOX 87

39403 Morez Cedex

France

### **SILMO**

Comité des Expositions de Paris

55 Quai Alphonse Le Gallo BP 317

92107 Boulogne Cedex

France

<http://www.silmo.fr>

*You can also visit :*

### **Material library A.LU.TEC (Association Lunetière Technologique)**

Viséum

114 bis, rue de la République – P.O. BOX 45

39400 Morez - France

[dlarrue.alutec@orange.fr](mailto:dlarrue.alutec@orange.fr)

## Some websites:

[www.maison-optique.fr](http://www.maison-optique.fr)

[www.look-business.com](http://www.look-business.com)

[www.udo.org](http://www.udo.org)

[www.vision1to1.com](http://www.vision1to1.com)

[www.acuite.fr](http://www.acuite.fr)

[www.netoptic.com](http://www.netoptic.com)

[www.changezdelunettes.com](http://www.changezdelunettes.com)

[www.eyesway.com](http://www.eyesway.com)