Nova Orman Ürünleri San. Tic. A.S. (Novawood)

Thermally Modified Timber
Inspection report no 112-1-2023

Date of inspection:	18.9.2023
Date of previous inspection:	16.2.2022
Company representative(s)	Ali Güney, Nurettin Arslan, staff from production
Finotrol's representative(s):	Petteri Torniainen
Reference documents:	FC-2: Thermally Modified Timber (TMT)
Content of the inspection:	Heat treatment of timber Thermo-D (pine, ash)
Result of inspection:	No non-conformities.
Non-conformities:	Minor non-conformities (0) Non-conformities (0) Major non-conformities (0)
Further actions:	Certification decision is continued
Signature:	Petteri Torniainen, Finotrol Oy
Appendix:	Quality control report 1/2023 (samples) (when completed)

Content of inspection

The following parts according to the FC-2 were assessed

This audit was carried out on a site at Gerede plant location

The plant has a valid ISO 9001:2015 system audited by IQR covering “Production and sales of Thermowood natural timber, decks, façade cladding, massive parquet and lamb. The last certificate issuing date in February 22nd 2023. Certificate expires 18.1.2024.
ISO 14001:2015 certified. Certificate issued 22.2.2023 and expires 18.1.2024.
ISO 45001:2018 certified. Certificate issued 22.2.2023 and expires 18.1.2024.

Certificate for TSE CEN/TS 15679 Thermal Modified Timber from Turkish Standards Institution. Latest certificate issued 27.4.2023 and valid until 14.2.2024. Pine and spruce has an approval to service class 3, use classes 3 (flooring, decking, paneling and cladding). Ash and iroko has an approval to service class 3, use classes 4 (flooring, decking, paneling and cladding)

- **Handling of documents, sustenance of documents, organization**
  CEO: Dr. Nurettin Arslan, Factory manager: Ilhan Col, Production control: Bunyamin Sarikaya, Quality control: Hakan Cidem, Export: Ali Güney, Export assistant: Emrah Sarikaya. Thermowood responsible: Agah Aykas
- **Validity of personnel and training.** Individual training/education sheets.
- **Instructions.** The manufacturer of the plant has supplied the operating instructions of equipment.
- **Treatment records.** All the processes are saved on the process computer. External copies and paper copies have been taken as well and used as a part quality control.

Production control

The following things were assessed in treatment facilities:

- **Raw material, storage, preparations, wood species.**
  Nearly all the raw material (pine 70%) are supplied by Finnish sawmills. Ash (10%) is mostly coming from USA and Canada, also Tulip. Iroko, Tulip and Ayous the rest 20%. All the wood as pre-dried ~ 12…14%, ash 10…12%. Quality requirements with pine 2-exlog, sound knots, certain size of knots, knot distribution and crack free (surface/end). Reclaimed if necessary and compensated by the suppliers.
- **Dimensions.** Pine 19…50 x 100…150 mm. Most common 22 x 125 mm. Ash 26…52 x 102…203 mm.
- **Heat treatment equipment:** Two Jartek kilns and two units for kiln drying. The capacity of each Jartek kilns ~ 30…35m³/charge.

- **Production:** Total production (year 2022) 13 000 m³. Annual production of certified products (pine) 9 000 m³, (ash) 1 300 m³ and (iroko, tulip, ayous) 2 700 m^3. The budgeted production for the year 2023 roughly 11 000 m^3.
- **Treatment degree:** Pine, Thermo-D (212ºC) 95%, Thermo-S (ash 190ºC)
- **Profiling, moulding etc.** Own profiling (90%), part of the treated wood is supplied as a rough (no planed) after treatment.
- **Handling of reclaims.** According to company representatives (Güney, Arslan) no reclaims regarding treatment quality. All the reclaims are regarding packaging, profiling or mechanical damages due to transportation.
- **Handling of products and marking.** The finished packages are including the following information (TMT and FSC-logos, dimensions, number of pieces, volume, treatment degree, package number, bar code and company logo)**.** Packaging requirements usually specified by the customers.

Quality control and testing

During the visit the following procedures were carried out:

- **Quality control facilities and equipment:** Separate facilities equipped with several measuring devices. Color, MC (untreated and treated) and dimensions are checked.
  - Sensors: Kiln 1: T_{wood} 8/8 T_{air} 4/4, T_{Wet} 2/2, Fans ok
  - Sensors: Kiln 2: T_{wood} 8/8 T_{air} 4/4, T_{Wet} 2/2, Fans ok

- **Maintenance.** Annual maintenance according to scheduled plan. All the maintenance works documented kiln by kiln. Typical tasks are concerning e.g bearings, sealings, sensors and heating register.

- **Control of charges.** The following charges were checked.
  - Kiln 1. Pine 22 mm 3.9 – 5.9.2023 (43h), Wood temperature ≥ 212°C ~145 min, max 213ºC, Thermo-D
  - Kiln 1. Ash 26 mm 20.8 – 22.8.2023 (56h), Wood temperature ≥ 210°C ~135 min, max 212ºC, Thermo-D
  - Kiln 2. Pine 22 mm 12.9 – 14.9.2023 (51h), Wood temperature ≥ 212°C ~130 min, max 213ºC, Thermo-D
  - Kiln 2. Ash 32 mm 5.9 – 7.9.2023 (54h), Wood temperature ≥ 211°C ~120 min, max 212ºC, Thermo-D

  Comment: Kilns are repeating schedules very well and the difference between charges is very small. Ayous and Iroko is treated to temperature 200°C which doesn't equal with present Thermo-S (190°C) or Thermo-D (212°C) temperatures. They are treated according to the customer requirement. Classifications Thermo-S or Thermo-D is not applied.

- **Moisture content.** Measured moisture of pine and ash after treatment 5,0…7,0%. Required MC 4 - 7 %**.**
- **Colour.** Measured from each charge (10 boards) and results are recorded as required.
- **Results. (**L*a*b* and moisture content from same charges controlled)

    - Kiln 1. Pine 22 x 125 mm 3.9 – 5.9.2023 (43h) ***51,82 / 12,43 / 30,57 MC: 6,9%***
    - Kiln 1. Ash 26 x 152 mm 20.8 – 22.8.2023 (56h) ***36,11 / 8,70 / 16,41 MC: 5,2%***
    - Kiln 2. Pine 22 x 125 mm 12.9 – 14.9.2023 (51h) ***46,89 / 11,60 / 27,54 MC: 6,3%***
    - Kiln 2. Ash 32 x 178 mm 5.9 – 7.9.2023 (54h) ***32,74 / 7,20 / 16,29 MC: 4,7%***

  Requirements (Thermo-D, pine): **L* 45 – 55 (ref a* 8 - 11) b* 19 - 24**

  Comment: The measured L* values are well within the required 45 – 55 values. In the present colour meter settings D65 and 10º are used. Colour value b* (yellow) didn't correlate with L* values with colorimeter BYK. They were roughly 6…7 units more yellow. When measured with older (mouse type equipment) the values were according to the requirements. Moisture content well within the reference values 4 – 7%.

- **Samples to external control:**
  Novawood supplies 10 pcs/batch from the following charges:
  Kiln 1. Pine 22 x 125 mm 3.9 – 5.9.2023 (43h)
  Kiln 2. Ash 32 mm 5.9 – 7.9.2023 (54h),

  Comment: