

| NORA® NTX



nora®

| AGENDA

1 What are the benefits of nora[®] nTx?

2 How will nora[®] nTx be installed?

3 Do you have questions?

nora[®]

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| What is nora[®] nTx?

- nora[®] nTx consists of our noraplan[®] standard floor coverings fitted with an adhesive backing
- This adhesive backing is lined with a protective film
- Like our noraplan[®] floor coverings, this adhesive is also based on rubber and is free from health hazards
- nora[®] nTx is currently available for our product line noraplan[®]



noraplan[®] sheets

+



Adhesive

+



Protective film

=



nora[®] ... nTx

| Benefits of nora® nTx for the installer

Mistakes during installation, putting the floor too early into the adhesive, taking the wrong trowel for the levelling compound, insufficient waiting time before usage...

Less steps – less sources of errors.

Brilliantly simple. Simply brilliant.

Did I make a mistake or was something wrong with the adhesive? Where was the levelling compound from? And who is liable now?

Everything from a single source. One contact with warranty on the entire system.

nora® – Your systems partner.

The customer exerts pressure, but the residual moisture in the subfloor is still too high. Epoxy? Too expensive.

Don't worry about high residual moisture in the subfloor.

With nora® nTx components you are on the safe side.

How can I finish all jobs in time?

With nora® nTx the installation is easy and fast.

More area output in less time.



| Benefits of nora® nTx for the operator/user

The floor should be replaced urgently. Our hospital cannot afford a downtime of one week.

The existing floor covering is still securely bonded to the subfloor, but it is not looking good anymore. We need something new urgently, but the operation has to go on.

As general contractor I have to meet the scheduled timetable until the opening. Otherwise it is getting expensive. There have already been several delays and now there is still high residual moisture in the subfloor.

nora® nTx can be installed in a few steps and saves time.

nora® nTx – no drying time – no waiting time.

nora® nTx can be installed on top of existing floor coverings.

Fast, during ongoing operation, ready to walk on immediately.

nora® nTx can be used even on subfloors with high levels of residual moisture.

With nora® nTx components you regain lost time.



| What's the positioning of nora® nTx?

nora® nTx is not a new product, it is a further system solution of nora®. A quick installation system for our existing and future product lines.

nora® nTx is easy and fast, saves time and costs.

Fast



- Quick
- Easy
- Few steps
- No waiting time

Efficient



- Installation on existing floor coverings
- Also on subfloors with high residual moisture
- Can be used immediately

Economical

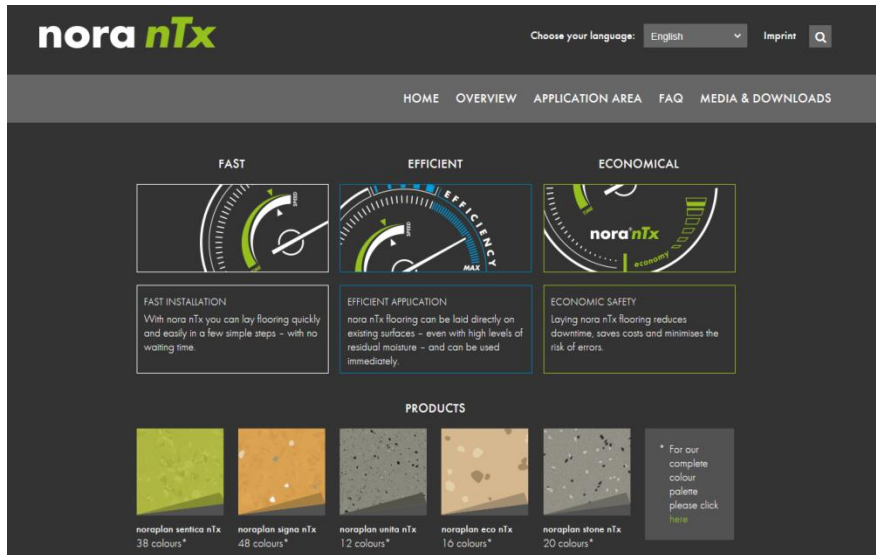


- Reduces downtime
- Saves time and costs
- Minimises the risk of errors
- Provides security

| The communication symbol



| Our nora® nTx microsite



www.ntx.nora.com

| AGENDA

1 What are the benefits of nora[®] nTx?

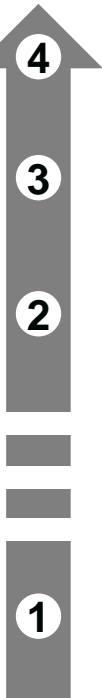
2 How will nora[®] nTx be installed?

3 Do you have questions?

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| How will nora® nTx be installed?

Option 1: Sanding disc + Primer



| | | | | | |
|----------|---|--|--|--|--|
| 4 | Fixing | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application |
| 3 | Processing the primer | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine |
| 2 | Priming (with a short pile roller) | nora® nTx 020 Two coats must be applied to subfloors with high residual moisture (drying time approx. 60 min) | nora® nTx 020 (drying time approx. 60 min) | nora® nTx 020 Two coats must be applied to subfloors with high residual moisture (drying time approx. 60 min) | nora® nTx 020 (drying time approx. 60 min) |

| | | | | | |
|----------|--------------------------------|--------------------------------------|-------------------------|--------------------------|-------------------------------------|
| 1 | Processing the subfloor | nora® nTx sanding disc | nora® nTx sanding disc | nora® nTx sanding disc | Grinding with a single disk machine |
| | Residual moisture | No threshold | < 0.5 CM-% (unheated) | No threshold | - |
| | Subfloor | Cement screed Quick cement screed | Calcium sulphate screed | Vacuum concrete/Concrete | Existing, smooth floor coverings |

| How will nora® nTx be installed?

Option 2: Sanding disc + Partial levelling + Primer

| | | | | | |
|---|---|--|--|--|--|
| <div>4</div> <div>3</div> <div>2</div> <div></div> <div></div> <div>1</div> | Fixing | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application |
| | Processing the primer | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine |
| | Priming (with a short pile roller) | nora® nTx 020 Two coats must be applied to subfloors with high residual moisture (drying time approx. 60 min) | nora® nTx 020 (drying time approx. 60 min) | nora® nTx 020 Two coats must be applied to subfloors with high residual moisture (drying time approx. 60 min) | nora® nTx 020 (drying time approx. 60 min) |
| | Levelling compound | *nora® nTx 010 | *nora® nTx 010 | *nora® nTx 010 | *nora® nTx 010 |
| | Processing the subfloor | nora® nTx sanding disc | nora® nTx sanding disc | nora® nTx sanding disc | Grinding with a single disk machine |
| | Residual moisture | No threshold | < 0.5 CM-% (unheated) | No threshold | - |
| | Subfloor | Cement screed Quick cement screed | Calcium sulphate screed | Vacuum concrete/Concrete | Existing, smooth floor coverings |

| How will nora® nTx be installed?

Option 3: Sanding disc + Complete levelling + Primer

| | | | | |
|---|---|--|--|--|
| 4 | Fixing | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application | noraplan® nTx See installation recommendation for application |
| 3 | Processing the primer | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine | Intermediate grinding with a single disk machine |
| 2 | Priming (with a short pile roller) | nora® nTx 020 Two coats must be applied to subfloors with high residual moisture (drying time approx. 60 min) | nora® nTx 020 (drying time approx. 60 min) | nora® nTx 020 Two coats must be applied to subfloors with high residual moisture (drying time approx. 60 min) |
| | Levelling compound | **nora® nTx 015 | **nora® nTx 015 | **nora® nTx 015 |
| 1 | Processing the subfloor | nora® nTx sanding disc | nora® nTx sanding disc | nora® nTx sanding disc |
| | Residual moisture | No threshold | < 0.5 CM-% (unheated) | No threshold |
| | Subfloor | Cement screed Quick cement screed | Calcium sulphate screed | Vacuum concrete/Concrete |

| Easy and fast nora[®] nTx installation



Subfloor preparation with nora[®] nTx sanding disc



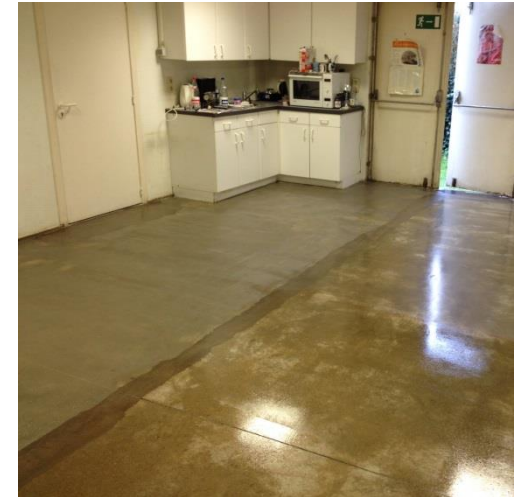
| Easy and fast nora® nTx installation



Any unevenness is levelled partially with nora® nTx 010.
If necessary, level the whole subfloor with nora® nTx 015.



| Easy and fast nora® nTx installation



Apply primer nora® nTx 020 with a short pile roller



| Easy and fast nora[®] nTx installation



Sanding of primer with a sanding machine



| Easy and fast nora[®] nTx installation



Installation of nora[®] nTx



| Easy and fast nora[®] nTx installation



Installation of nora[®] nTx



| Easy and fast nora[®] nTx installation



Installation of nora[®] nTx



| How will the markup influence the installation costs?

Cost calculation: 100 m² object







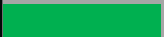
| | Costs | | Time | |
|--|-----------------------------------|-----------------------------------|------------|-----------|
| | Wet method | nora® nTx | Wet method | nora® nTx |
| Grind subfloor and vacuum clean | <div><div></div><div></div></div> | <div><div></div><div></div></div> | 0.5 days | 1 day |
| Primer | <div><div></div><div></div></div> | <div><div></div><div></div></div> | 1 day | 0.5 days |
| Levelling compound incl. grinding and vacuum cleaning | <div><div></div><div></div></div> | <div><div></div><div></div></div> | | - |
| Drying time (levelling compound) | <div><div></div><div></div></div> | <div><div></div><div></div></div> | 1 day | - |
| Installation of floor covering (incl. gluing) | <div><div></div><div></div></div> | <div><div></div><div></div></div> | 1 day | 0.5 days |
| Drying time (adhesive) | <div><div></div><div></div></div> | <div><div></div><div></div></div> | 3 days | - |
| Total installation | <div><div></div><div></div></div> | <div><div></div><div></div></div> | 6.5 days | 2.0 days |

Difference costs: **3%**

Difference time: **-70% !!**

| How will the markup influence the installation costs?

Cost calculation: 100 m² object (high moisture)









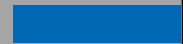
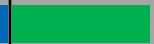
| | Costs | | Time | |
|--|--|--|-----------------|-----------------------|
| | Wet method | nora [®] nTx | Wet method | nora [®] nTx |
| Grind subfloor and vacuum clean |  | | 0.5 days | 1 day |
| Epoxy ground barrier |  | | 2 days | - |
| Primer | |  | - | 0.5 days |
| Levelling compound incl. grinding and vacuum cleaning |  | | 1 day | - |
| Drying time (levelling compound) | | | 1 day | - |
| Installation of floor covering (incl. gluing) |  | | 1 day | 0.5 days |
| Drying time (adhesive) | | | 3 days | - |
| Total installation |  |  | 8.5 days | 2.0 days |

Difference costs: **-15%**

Difference time: **-75% !!**

| How will the markup influence the installation costs?

Cost calculation: 100 m² object (existing floor covering)

| | Costs | | Time | |
|---|---|--|-----------------|------------------|
| | Wet method | nora® nTx | Wet method | nora® nTx |
| Remove old floor covering |  | | 1 day | - |
| Grind subfloor and vacuum clean |  |  | | 0.25 days |
| Primer |  |  | 1 day | 0.5 days |
| Levelling compound incl. grinding and vacuum cleaning |  | | | - |
| Drying time (levelling compound) | | | 1 day | - |
| Installation of floor covering (incl. gluing) |  |  | 1 day | 0.5 days |
| Drying time (adhesive) | | | 3 days | - |
| Total installation |  |  | 7.0 days | 1.25 days |
| <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> | | | | |
| <div>Difference costs: -17%</div> <div>Difference time: -82% !!</div> | | | | |

| How will the markup influence the installation costs?

Cost calculation: 100 m² object

| | Time | | Residual moisture | | Existing floor covering | |
|--|------------|-----------|-------------------|-----------|-------------------------|-----------|
| | Wet method | nora® nTx | Wet method | nora® nTx | Wet method | nora® nTx |
| Grind subfloor and vacuum clean | 0.5 days | 1 day | 0.5 days | 1 day | *1 day | 0.25 days |
| Epoxy ground barrier | - | - | 2 days | - | - | - |
| Primer | 1 day | 0.5 days | - | 0.5 days | 1 day | 0.5 days |
| Levelling compound incl. grinding and vacuum cleaning | | - | 1 day | - | | - |
| Drying time (levelling compound) | 1 day | - | 1 day | - | 1 day | - |
| Installation of floor covering (incl. gluing) | 1 day | 0.5 days | 1 day | 0.5 days | 1 day | 0.5 days |
| Drying time (adhesive) | 3 days | - | 3 days | - | 3 days | - |
| Total installation | 6.5 days | 2.0 days | 8.5 days | 2.0 days | 7.0 days | 1.25 days |

Difference time: **-70%**

Difference time: **-75%**

Difference time: **-82%**

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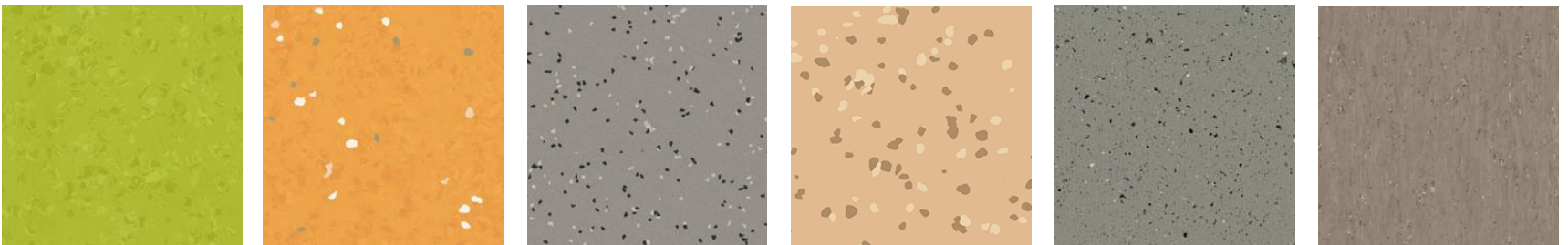
nora[®]

What are the variants?

nora[®] nTx is available as sheetware 2.1 mm and 3.1 mm thick. The following designs are available at present:

noraplan[®] sentica, signa, stone, eco, unita and valua.

noraplan[®] valua nTx is also available as planks.



Are there application areas where nora[®] nTx cannot be used?

nora[®] nTx cannot be used in dissipative and conductive areas, because the adhesive is unsuitable. Moreover acoustic floor coverings are not possible with nora[®] nTx.

What's the technicians part in case of nora[®] nTx installations?

The responsible application engineer has to be involved in each nTx project.

Can nora[®] nTx be installed on all subfloors?

nora[®] nTx can be used on all conventional screed/concrete subfloors. These include cement screed, quick cement screed, calcium sulphate screed, vacuum concrete and concrete.

nora[®] nTx can also be installed on existing, smooth floor coverings (e.g. rubber, linoleum, PVC) and on other subfloors (e.g. wood, aluminium). These, however, must be permanently and securely bonded to the subfloor and must not have any cavities.

nora[®] nTx may not be installed on heated subfloor structures.

Why can nora[®] nTx not be installed on heated subfloor constructions?

Excessive residual moisture in heated subfloor constructions leads to vapor pressure, which causes damages on the bonded joint.

Under specific circumstances and after discussion with the responsible application engineer, the proceeding can differ from this guideline.

Do I have to measure the residual moisture?

No, unless it is calcium sulphate screed. Owing to their properties, plaster based screeds require a maximum residual moisture of $< 0.5 \text{ CM\%}$ (unheated). If excessive moisture is trapped in a plaster based construction, the screed will decay.

What is going to happen to the ,trapped‘ moisture?

nora® nTx is working similar to an expoxy sealing. The moisture remains in the subfloor construction. There is a chemical reaction called mineral hydration that adds the water to the crystal structure of the subfloor.

The entire nTx-system is moisture-resistant.

How is nora[®] nTx cleaned?

nora[®] nTx is cleaned exactly like the noraplan[®] floorings. There are no differences in cleaning.

| nora[®] nTx – a matter of time



Fast. Efficient. Economical.