



»CULLEN«

GANG-NAIL

TOOLMATIC®

Paslode

Brands for the offsite industry

# Gang-Nail Truss Frame\*

The innovative alternative to  
traditional timber frame walls

\*Patent Pending



**CONSTRUCTION  
PRODUCTS**

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## Company profile

### Illinois Toolworks Inc. (NYSE: ITW)

**ITW is a Fortune 200 global multi-industrial manufacturing leader.** The company's seven industry-leading segments leverage the unique ITW Business Model to drive solid growth in markets where highly innovative, customer-focused solutions are required.

**ITW products and solutions are at work all over the world,** in deep-sea oil rigs, aerospace technology, the spaces in which we live and work, the construction of those spaces, the cars we drive, and the mobile devices we rely on.

**ITW is committed to operational excellence** and systematic new product development that helps our customers create the products and services that make their operations run smoothly.



### ITW Construction Products Offsite

ITW Construction Products Offsite is part of the Illinois Toolworks family, an international corporation with over **100 years in the building and manufacturing industry.**

We are a **trusted partner to leading offsite component manufacturers**, allowing our customers to design, manufacture and sell the highest quality roof, floor and wall components.

Our collaborative and problem-solving approach ensures we remain a leader in technology, research and development – providing innovative solutions, support and superior service with market leading brands: **Cullen, Gang-Nail, Paslode and Toolmatic.**

#### GANG-NAIL

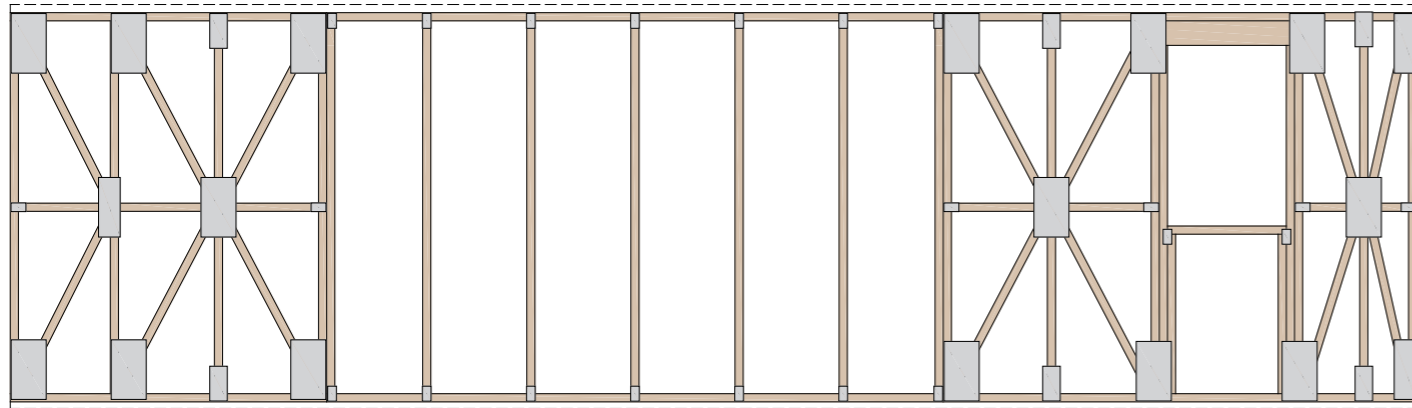
Gang-Nail is **re-defining offsite component productivity** with its metal connecting systems and software raising industry standards for the manufacture of floor, roof and wall solutions.

The Gang-Nail brand of punched metal plate connectors and metal open web; SpaceJoist and SpaceRafter, is **continuously chosen for its reliable quality and compliance.**

### Members of



# About Gang-Nail Truss Frame



## Development of Gang-Nail Truss Frame

Using our proven method of **Customer-Back Innovation and listening to market challenges**, we've created a new solution. Gang-Nail Truss Frame, the innovative alternative to traditional timber frame walls.

A system of standardised wall elements, made offsite, that combine into larger modules on-site. **The Gang-Nail Truss Frame wall elements are made up of timbers pressed together at the joints using Gang-Nail nail plates.**

This new solution has been in development in our research and development team for over 2 years. It addresses market challenges such as;

- Shortages and cost of OSB
- The shift towards offsite manufacturing
- Energy performance
- Efficiencies in manufacturing
- Complexity in design calculations

## What makes us unique

Our products have made a name for themselves by holding positions in niche markets where ITW technology can address customers' unique needs like higher global standards for safety and energy efficiency as well as the growth of offsite construction projects.

**We are a fully integrated supply partner for all things related to the offsite and prefab industry in U.K, Ireland and Nordics.**

With an experienced technical team, premium fixings and our own metalwork brand, **we are the only company that can provide a holistic service for all your truss, panel, joist and metalwork needs.**

# Features

## With the Gang-Nail Truss Frame you'll experience these features



### Low U-Values

The Gang-Nail Truss Frame structure allows a lesser amount of insulation to be wrapped around the wall panel's external face, eliminating thermal bridges and saving on material. **U-values of 0.18 W/m²K and lower is easily achievable, meeting new Part- L standards.**



### Superior Wind Load Resistance

Gang-Nail Truss Frame is made as wall elements using Gang-Nail nail plates to press the timber joints together. The structural strength achieved from this design method results in **superior resistance to wind loading compared with traditional timber frame.** This means less requirement for steel goal posts and the elimination of sheathing.



### Pre-Defined Values

Gang-Nail Truss Frame structural elements **have pre-defined values based on external testing of the panels.** This means Building Designers can rely on the published values all the way through from design to on-site construction. This also simplifies calculations in case of re-design, **saving time and reducing complexity.**



### Fire Tested

Gang-Nail Truss Frame has **achieved and exceeded 30 and 60 minutes fire tests**, making it a safe and certified alternative to traditional timber frame.



### Slimmer Width

Gang-Nail Truss Frame external walls with insulation, membranes and the frame itself are up to 60mm narrower width than a traditional timber frame panel. This potentially means a per plot saving of up to 120mm resulting in **reduced foundation footprint and the option to fit more homes on multi-site developments.**



### Factory Built-in Tolerance

Gang-Nail Truss Frame elements can be produced with **factory built in tolerance to allow adjustments on site for variations in foundations.** Tolerance can be allowed for at the end of the panels to enable for trimming to fit variations in foundations, similar to what is currently done on roof trusses e.g. 25mm horn.



### Lighter Weight

Gang-Nail Truss Frame elements **weigh approximately 20% less** than traditional timber frame wall panels as OSB is eliminated, and the panel is narrower. This makes them **easier to manually handle and reduces overall transportation loads.**

# Benefits

## With the Gang-Nail Truss Frame you'll experience these benefits



### Eliminate OSB

Gang-Nail Truss Frame gains its **structural strength and superior resistance to wind-loading from the design and the use of Gang-Nail nail plates for the joints of the timbers**. This eliminates the need for OSB, currently used to provide structural integrity to traditional timber frame walls. This means the elimination of panel nailing and OSB, and the associated use of synthetic resins and waxes.



### Time Saving

Gang-Nail Truss Frame wall elements can as open panels be insulated with minimal cutting, **reducing the on-site installation time**.



### Modular System

Gang-Nail Truss Frame is a set of standard wall panel elements (600mm, 1200mm, 1800mm, 2400mm wide and 2100-2700mm high) that can be combined multiple ways making it a modular system. It can form external, and internal load-bearing and non-loadbearing and party walls with no max span, allowing for wide open plan layouts and external apertures for large windows and doors. This offers true flexibility in design, whilst benefiting from standardisation efficiencies.



### Integrated Wall Solution

The Gang-Nail Truss Frame elements are **compatible with our Paslode and Cullen range**. Paslode structural timber screws are used to fix the frame elements together whilst Cullen wall ties fix insulation and breather membrane as an **integrated wall solution**.



MMC

### Produced Offsite

The Gang-Nail Truss Frame wall elements are **designed to be made offsite**, meaning they can be manufactured in a controlled environment. This helps **meet the government's pre-manufactured value (PMV) threshold of 55%** for the Affordable Homes Programme.



### NHBC Accepts Pending

Gang-Nail Truss Frame has been **submitted to NHBC Accepts for accreditation**. This means closed panels can quickly be inspected by NHBC in an offsite manufacturing environment and open panels equally quickly inspected on site, **providing reassurance in compliance**.



### UKCA Mark

Gang-Nail Truss Frame is made as a finished wall element using Gang-Nail nail plates to press the timber joints together. As is currently a requirement in the production of roof trusses (BS-EN 14250), this means the wall elements can be UKCA marked by the fabricator. The presence of **UKCA certification makes it easier and quicker to meet on-site quality inspections and audits** by TRADA, BBA, NHBC, etc.

# Brands for the Offsite Industry

## About Cullen

Cullen Timber Engineering Connectors have been synonymous with innovation. Chosen for the highest quality and compliance, our range of timber engineering solutions will become a mainstay of your most valued business assets.



## About Gang-Nail

Gang-Nail is re-defining offsite component productivity with its metal connecting systems and software raising industry standards for the manufacture of floor, roof and wall solutions.



The Gang-Nail brand of punched metal plate connectors and metal open web; SpaceJoist and SpaceRafter, is continuously chosen for its reliable quality and compliance.

## About Paslode Gas

Paslode premium nails are manufactured to perfectly accompany your handheld Paslode tool, providing consistent optimised fixing performance, delivering a clean, flush finish even in the toughest materials and poor weather conditions.



The 360Xi and IM350+ Framing systems provide professional users with the best in class solutions for wood to wood fixings whilst the PPNXi is the 1st positive placement nailer on the market, providing an efficient and safe way of installing hangers, brackets and straps.

## About Toolmatic

With our German engineered Toolmatic range you'll experience next level quality, productivity and service.



Known as the brand for the production of high-quality large-scale timber construction, Toolmatic automated fastenings maximises productivity, whilst eliminating the cost of unnecessary features.

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Subject to change at discretion  
of ITW Construction Products Offsite

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