PRINT PLANT LOGISTICS

Broxbourne takes shape

WHEN the equipment orders were announced – 12 triple-wide MAN Roland Colorman XXL presses; 12 Agfa/Nela computer-to-plate lines; 12 Ferag conveying and stacking lines with Mosca strappers; 12 Dan palletisers, etc – it was obvious that the Newsprinters Broxbourne operation in Hertfordshire, being built by News International to produce its own and other newspapers, was going to be large. However, it is not until you visit the site and see, for instance, the press hall disappearing into the distance that you realise just how large the facility is going to be.

In fact, the statistics are impressive. For instance, sitting in a 40 acre site, the building's floor area is 87,000 square metres, with plant rooms taking up 30 per cent of this. The facilities will have taken 2.8 million man hours to complete and will be able to produce four million copies per shift.

When you are building what is believed to be the largest newspaper printing facility in the world, many traditional concepts need a rethink as **CARYL HOLLAND** found out when she visited News International's new plant at Broxbourne

● *Brian McGee (right) and Ben Walker*

It is therefore not surprising that Brian McGee, managing director of News International's UK print operations, and Ben Walker, manufacturing manager at Broxbourne, plus their teams, have spent a considerable amount of time working on the site's design and layout. Interestingly, they have come up with some innovative solutions.

Take, for instance, the production flow through the site. Rather than it being from the front to back of the building, that is the newsprint reels delivered at one end and the finished newspapers collected from the other end, both operations occur on the same side of the building, while the production flow goes from east to west across the building.

According to McGee, there were a number of reasons for this: "Whenever you design a building, you have to take into account not only the operational but also the environmental implications. We have also designed it for improved safety and working conditions, as well as taking into account local considerations.

"For example, the layout allows the lorries to move in a uniform way around the site, exiting on the same road as they entered the site. At the same time, it enables us to keep the noisier loading activities away from the closest residential area on the east side of the site".

In fact, the company has even gone to the extent of building an internal road on the east side of the building to give more protection to the local residents in terms of noise and light pollution.

"We recognise our responsibilities and wanted to ensure that we fit in amicably with our neighbours," adds McGee.

As a result, the newsprint reels are delivered to two bays at the south west end of the building. Capable of handling between 40 to 50 deliveries a day, that is around one every 20 minutes, the system being used is similar to the one at Newsprinters' Knowsley site *(see PJ March 2007)*. In other words, it involves the lorries backing up to and being plugged into a Joloda dock, and the reels being automatically discharged.

After that, the reels are automatically transferred on their belly across the width of the building, using an automated Aurosys track system supplied by MAN-Roland, and are put into in a high bay storage system using one of the four cranes. Stretching the full length of the east side of the building, the newsprint warehouse is 30 metres high allowing 12 reels to be stored on their bellies per bay. This enables more than 3,000 reels to be stored at any one time, sufficient for three to four days of full 24 hour production.

After the newsprint warehouse, the production flow starts to move back across the building. Thus, when required, the reels are automatically called up and taken out through one of the four intersections, which have been placed along the length of the building, to the reel preparation area which has been positioned between the two press lines.

Here, there are six U-Veritas reel preparation systems. Automatically but in three separate processes, they take off the reel's end cap and belly wrap, and apply the splice tape pattern. After which, the reels are moved into one of two low bay storage systems, one on each side of the preparation area and alongside the press line. Running the length of the building, they hold the reels two deep and two high, enabling a total of just under 1,800 reels to be stored.

As the whole area is temperature and humidity controlled – there are 73 air handling units, for example – the reels can be maintained in optimum condition. Normally, the maximum stay is a couple of days. However, if for some reason, the splice tape life span is exceeded, the system will automatically recall the reel from the low bay storage area and take it back to the reel preparation area where the old splice will be manually removed and a new one applied before returning the reel to the low bay store system. In fact, the system controls all areas of reel handling including governing the order in which the reels are used.

Automation is also the order of the day when it comes to the presses. Although forming two lines of six presses each, they have been divided into three working groups, each consisting of four presses, thus making their operation more manageable. Each press has its own computer-to-plate (ctp) platesetter, plate bending and sortation line adjacent to the relevant press desk, there being three press desks per folder.

The Nela system will sort the plates according to the press unit and print couple position. The plates will then be taken and manually placed in the correct position on the press. Using MAN Roland's Powerplate loading system, it is reckoned that it will take around 1.5 hours to fully plate up a press although, as McGee admits: "When you take on new technology no matter what, whether it is ctp, a press or a particular operation, it is going to take time to obtain the maximum from it. We are at the very early stages of the game even with our presses at Eurocentral in Glasgow, the first ones to be installed.

"However, what we have seen at Eurocentral is that huge strides can be made in a relatively short space of time, and the presses now regularly reach the top running speed of 86,000 cph. What is also very impressive with the presses is that very good copy is being produced not long after impression has been put on and it is held until impression is taken off. Consequently, the amount of spoilage we are getting is as low as I think it can be. We are very impressed by that".

He continues by pointing out the importance of keeping on top of maintenance.

"You get back what you invest in these presses. We have dedicated press and engineering maintenance teams to keep on top of the preventative maintenance routines. When you run with automatic systems such as blanket washers and plate loading, it does mean that for everything to work efficintly they have to be kept in good condition".

Without the need for inserting, the Ferag post-press equipment is fairly straight forward. Here, like everywhere else in the plant, it is a linear manufacturing process; the copy comes off the press and goes via Ferag UTR conveyor lines into in-line MultiStackers and strappers, each line having three of each. As McGee points out: "This is a high speed printing and packaging facility. It will handle a lot of copies in a very short space of time and to great quality. Since we have not got inserting to worry about, we can expect the highest levels of performance".

Having been stacked and strapped, the copies are discharged into Apollo spiral conveyors which take them down a level to the palletising and distribution area: for this area to have been on the same level, it would have involved having an even larger building.

Apart from taking the plates to the presses, one of the other few areas where there is human intervention involved in the production process is the transfer of the copies from the palletisers to the loading bays which will be carried out by electric pallet trucks. Automating the process was considered but did not prove logistically nor economically viable.

The delivery area will have six discharge positions, each one having six delivery bays, making 36 in total. There will be three loading positions for each discharge point, two dock levellers and a scissor lift. This will enable loading on to a range of vehicles from vans to 44 tonne trucks.

As is explained by Ben Walker: "The first task I was given when I arrived here was to develop a way for distributing our products. As a result, we decided to take on an end-loading approach very similar to those found in distribution warehouses. What this basically means is that you can locate and load multiple vehicles at any one time and far in excess of what you could do if you have the vehicles side on to the building.

"Our aim was also to develop a safer operation for the personnel by not having any interaction between the pallet trucks and the delivery vehicles. We have done this by keeping all of the loading operations internally in the building, only the vehicles being outside.

"As the vehicles are locked to the bay themselves using wheel braces, there is no way that they can move away when they are being loaded. This makes it a much safer and secure operation since there is no direct interaction between the truck and van drivers and the loaders. In addition, none of our staff have to go out into the elements.

● *Broxbourne triple wide press installation*

● *CTP: the plant houses 12 Agfa/Nela lines*

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● *Above: The exterior of the loading bay. Right: The interior showing how newsprint reels will arrive*

"Another benefit of this kind of operation is that there is no waiting time. While one vehicle is being loaded in one bay, another vehicle is positioning itself in the next bay. When loading is complete in the second bay, the loaders move to the third bay by which time the first bay is free and the next vehicle can be backed on to it.

"In this way, everything is much more efficient and the maximum output is governed by the press output. This means that a pallet can be delivered to a pick-up point roughly every 2.5 minutes".

The whole operation including which vehicles are being loaded with which products and the route they will be taking will be governed by Printnet software which is currently being developed by ppi. It will be installed in the control room which will oversee the whole manufacturing process.

Interestingly, the control room has been situated so that it overlooks the vehicle loading area rather than the press hall and mailroom as is normally the case. As Walker explains: "The way I see it is that it will be very like working in the comms room of a submarine in that the systems in the control room will allow us to oversee the full production. For instance, it will be where the input from all the editorial departments will arrive and, although we will not physically be able to see the presses, we will have a system which will enable us to see what every press is doing. We will also know if there is a problem on a press or in the publishing area because the product flow will stop.

"Consequently, the fact the production manager cannot look out of his window and see whether a press is printing is immaterial. In fact, it does not really make any difference where the control room is positioned. We decided to place it overlooking the loading area because that is where production is governed. Ultimately, what we are interested in is the discharge of the products into the trucks, that is where the money is".

So much for the logistics of the plant but how are things progressing? According to McGee, progress is running according to programme, the biggest challenge so far being to co-ordinate the building work and equipment installation due to the size of the facility. However, Carillion, the main construction company, is due to hand over the site before the end of October.

So far as the equipment is concerned, eight ctp lines have been installed and the first press arrived on 8 January. By July, the first line of six presses had been installed and the first dry paper trials started. These have been followed by wet paper trials, and the plan is to have the first two presses up and running by the end of October. The remaining presses will then be gradually brought into full production up until next April/May. PJ