

St. Mary's is ready to have beams and lifting materials installed to raise the church.

A success story:

St. Mary's Church lifted and lowered

by Christy Mader

Can a church that weighs almost one million pounds be lifted and then lowered five feet? This might sound like a ridiculous question, but it actually became a reality this summer for the members of St. Mary's Catholic Church in Armstrong, Iowa.

The church built in 1920 hasn't had a major renovation until this year when it was lowered to make it more accessible to everyone. According to Dave Rezac, a member of the building and grounds committee, the idea for the project started when they began researching different ways to make the church accessible. The committee "toyed with the idea of a ramp and elevator, but it just didn't appeal to a wide variety of people," explained Rezac. He said, the ramp, which needed to be at least 48-feet long to meet Iowa accessibility laws, would not have looked right and the elevator would have been expensive, required continual maintenance and they didn't think many would use it. In addition, by lowering the church, the 12 steep stairs would be eliminated.

The final answer came from Paul Maurer from Architects Collaborative in Spencer. Maurer was hired to oversee the project, and was the first to suggest lowering the church. Eight professional house and building movers were notified and Heartland Building Moving from West Bend was selected as the lowest bidder.

beam weighed more than 15,000 pounds. "They even made my big shop look small," said Bernie Rezac.

After all the equipment was ready, the Heartland crew began knocking holes in the foundation and then engineered the beams into the basement of the church. Twenty cribbing piles were used under the beams to support the load. Approximately 1200 pieces of four foot cribbing was used to form the piles. Once the cribbing was in, the church was underpinned with about 700 oak tapered shims and more than 3000 other shims.

One of the most critical moments of the project was the initial lift. The church had to be raised approximately one inch before the basement wall could be removed. Mader emphasized that this involved close calibration of the unified pump. He said, "The church lifted beautifully off its 81-year old basement foundation at 98 percent of estimated load. It was exciting to see daylight peeping in all around."

Removal of the foundation was time consuming. A majority of the foundation had to be broken by hammers and removed by hand. There was no room for machinery because of the tight quarters and because of this it took about two weeks to haul clay block out from underneath the church. More than 10 gravel truckloads of block were removed.

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Tom Mader, owner of Heartland Building Moving, then began the lengthy process of preparing for the project. There was a long list of equipment that had to be purchased or designed. Mader designed most of his equipment, including a 12 unit unified hydraulic pump system. The pump was built in West Bend at Dahlhauser Machine Shop. Mader also had Mertz Engineering from Webster City, build 18 3-ton hydraulic lift jacks. Fifty-six tons of steel was ordered to complete the job. Included in the steel were materials for the two 84-foot main, double webbed beams. The beams were fabricated at Rezac Welding, a shop seven miles from the church. Bernie Rezac, shop owner, and Mader designed and welded the beams with 15 jack inserts. Each

After a subcontractor laid new block work, the church could then start on its downward journey of five feet one inch. The lowering involved six separate stages, each averaging 10 inches and in-between each stage, cribbing was removed. Each stage became more difficult to work under. During the last stage, the crew had to work on hands and knees, and sometimes their bellies, to pull the last of the cribbing out from under the church.

The church lowered at a rate of 7/8 of an inch per minute. Mader said he loved the sound as the church lowered. "I was intrigued by the hissing sound the oil made through the relief valve of the pump as the church lowered." He said the sound reminded him of the "the good ole days when his mom would turn on the cream separator to separate the

cream from the milk before school."

Mader liked the challenges of the project, but he also enjoyed the human interest. "I loved watching people's amazement who thought it couldn't be done. It was also fun meeting people from all over who stopped to view the work in progress, including house movers from a 200-mile radius." In addition, Mader appreciated the warm welcome from the parish that prepared several meals for the crew.

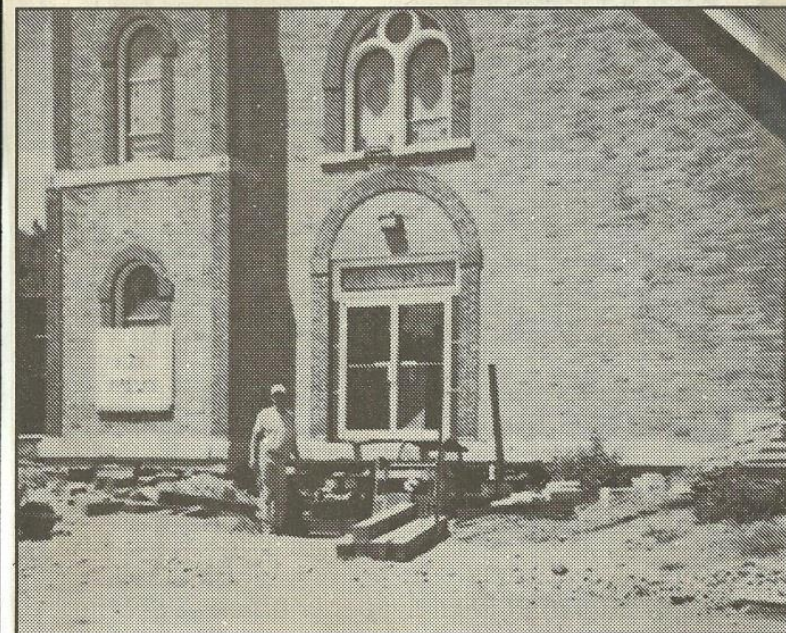
The actual physical work on the church was started in March and Mader's work was basically finished in August. The raising and lowering of the church is the first phase in a major renovation plan. Eventually St. Mary's Catholic Church will connect on the west side with the Parish Center which was built in 1966. The altar will also be moved from the north of the church to the

east and the pews will be realigned to face the altar. Two sacristies have been removed and there will be small jobs like painting and carpeting before the church reopens. Plans are to hold mass in the church again during the Christmas season or early winter.

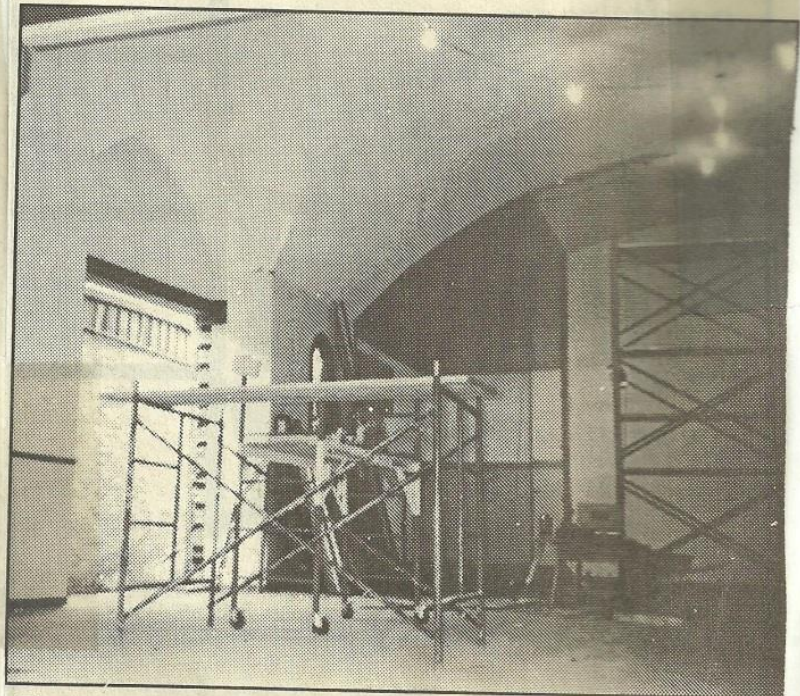
One would think that St. Mary's is a large parish to tackle such a massive-almost unthinkable-project, but it actually isn't. St. Mary's has approximately 140 families from the communities of Armstrong, Ringsted, Swea City, Fenton, Maple Hill and Dolliver. Dave Rezac said, "I think as long as a church stays involved you will only help yourself in the future. We're not just sitting back as a parish and doing nothing." St. Mary's definitely isn't doing nothing. Most would say they've already accomplished the impossible!!



This is the front of St. Mary's with the lifting beams in place and before the building was raised.



Tom Mader, the owner of Heartland Building Moving, stands in front of St. Mary's after the church was lowered.



The inside of the structure is now undergoing a vast remodeling project. In the photo above, you can see the opening on the west wall of the sanctuary which will become a passage way to St. Mary's Center.