BUILDING INTEGRITY SINCE 1890

The Remarkable History of Sundt Construction



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Chapter One From Small Beginnings



Mauritz Martinsen Sundt **MAURITZ MARTINSEN SUNDT**, founder of the company that bears his name, was born in Gjovik, Norway, on October 3, 1863, and grew up on the family farm near Eina, which is south of Gjovik. The farm is on a point of land on the east coast of Lake Mjosa, about 70 miles due north of the capitol city of Oslo, and has been in the Sundt family for 400 years. Lake Mjosa is Norway's largest lake and is extremely deep, one of the deepest lakes in all of Europe.

From Farmer to Ship's Carpenter

Norway has always been a hard place to earn a living off the land because less than five percent of the entire country is arable. The rest is mountains covered with snow, ice and rocks. Nothing has been written about the Sundt farm's crops but it likely was a subsistence farm, meaning everything the family raised was consumed by the family and livestock. What is known, though, is that M.M. Sundt left home very early in life. It was about 1877, when he was 12 or 13, that he left home to join the Norwegian Merchant Marine. He apparently sailed first as a cabin boy, but he was ambitious and within a short time was appointed ship's carpenter when the ship's regular carpenter died. For the next four years he sailed aboard windjammers on the North and Baltic Seas, transporting freight between England and Leningrad and ports between.

M.M. SUNDT'S ROUTE TO NORTH AMERICA



M.M. Sundt's 1881 steamship journey from Norway to America began in Oslo and ended in New York City. From there he traveled by steamboat and barge to Wisconsin before settling in Colorado. When he felt sufficiently trained, like so many Norwegians before and since, he decided to go to America. In 19th century Scandinavia, America was the place for young people. This was especially true of Norwegians because of the limited farmland available. The Northern European custom of the family farm going to the first-born son prevailed, and all subsequent sons had to strike out on their own while their sisters were expected to marry well. The first Norwegians in North America dated back to the Vikings, who apparently paid frequent visits to North America long before Columbus received the discovery credit. For whatever reason or reasons, the New World did not resonate with Northern Europeans.

Norwegians Seek New Lives in America

But this changed after the close of the American Civil War in 1865 and the beginning of the westward expansion, thanks in part to the completion of the Erie Canal in 1862. This 363-mile waterway ran from Albany, New York, to Lake Erie and quickly became the route of choice for immigrants. Norwegians in particular went as far west as the Great Lakes would take them, which meant present-day Minnesota and Wisconsin. This surge in immigration from Norway was brought about in part by the shortage of land in Norway, and in part by heavy promotion by agents, newspapers, and early settlers writing the folks back home about



M.M. Sundt's tool chest, now on display in the Legacy Room of the Sundt Tempe office

> the extremely cheap land and the personal freedoms of the New World. It wasn't only inexpensive land that attracted Norwegian men to the U.S.; the iron mines in Michigan's Upper Peninsula and in Wisconsin needed workers as well, and by Norwegian standards, the pay was excellent. Many Norwegians came to work in mines in order to save enough money to buy land and the equipment to farm it. By way of illustration, wages for laborers in Norway were \$40 to \$50 a year, while men doing the same work in the U.S. were paid \$4 to \$5 a day. In other words, they could earn more in two weeks than they could in a year in Norway. Even with the obvious inflation factors added to the formula, the differences in wages were significant.

Sundt and Steamship Crew Stranded in Ice

For M.M. Sundt, the route of his immigration was not an easy one. He left Oslo on March 4, 1881, aboard the steamship Kelso bound for Hull, England, where he would transfer to another ship bound for America. But the Kelso encountered ice about 50 miles from the mouth of Oslofjorden, the fjord from Oslo to the open ocean. Quickly the Kelso was trapped in the ice and couldn't move in any direction. Radio had not yet been invented so help could not be summoned. Unfortunately the Kelso stocked only enough food for five days, and on the fourth day of its entrapment, the captain asked for 14 volunteers to go with the first mate and five crew members to cross the ice on foot and bring back food. They were about nine miles from the coastal town of Kragero and would have to drag a lifeboat across the ice until they reached open water. M.M. Sundt, aged 17 and small of stature — no more than 5-foot-4 — was one of the volunteers.

The 20 men in the rescue party left the Kelso at about two o'clock in the afternoon into the face of a blowing, blinding snowstorm. It took them 12 hours to reach the shore and all were on the edge of complete exhaustion. While the men huddled beneath the lifeboat, the mate went to Kragero to telegraph Oslo for help. They took the lifeboat to Kragero and loaded it with food and prepared to return to the ship.

But the next day the ice pack shifted and began drifting eastward and soon the Kelso was no longer visible. The men sat on the beach for the next three days, until a rescue ship arrived from Oslo and took them aboard. The rescue ship then went in search of the Kelso, but could not find her. Finally they put in at Langesund and learned that the Kelso had made it to Kristiansand, about 80 miles further down the coast, where it picked up the necessary supplies and continued on to Hull, England. The rescue ship headed south to Oslo, and all men in the ill-fated rescue party were given free room and board until the next ship came. But as Sundt said in a letter to an uncle, he had no change of clothes for three weeks.

Nor did he have his beloved box of tools. When Sundt began working as a ship's carpenter, he built a wooden box for his tools, which he always carried with him. Fortunately, the belongings of the men who volunteered to go for help were placed in storage until men and material would be reunited. It was likely the only time M.M. Sundt was separated from his tools. Today the tool box, restored to its original appearance, resides in a place of honor in the lobby of the Sundt Construction's headquarters building in Tempe, Arizona.

New Home in Wisconsin

When Sundt was reunited with his clothing and tools, he took another ship, the S.S. Angelo, from Hull to New York and arrived in Wisconsin sometime in the late spring or early summer of 1881. Getting from New York to central Wisconsin was quite a chore in those prerailroad days. First, travelers had to take a steamboat up the Hudson River to Albany, New York, where the 370-mile Erie Canal began. There they went aboard a barge towed by draft animals – horses or oxen – and spent weeks moving steadily westward. Once they arrived at Lake Erie, they transferred to lake steamboats and continued through the chain of the Great Lakes to Lake Michigan, if they were going to Wisconsin, or on westward to Lake Superior if they were going to Minnesota. Sundt had chosen Wisconsin because he had relatives there. It wasn't long after his arrival that he became established as an excellent carpenter, mainly build-ing barns.

In a letter home mailed the next year, in 1882, he said he had been steadily employed in and around Cambridge, Wisconsin, but that he intended to go to school, even though he believed the cost of living was quite high. Three years later, on August 8, 1885, he married Berthe Maria Kjolseth, a Cambridge girl. They immediately started a family and soon had two children.

Sometime after his arrival in Wisconsin, the story goes, he grew so tired of hearing his name mispronounced that he changed it from the original Sund by adding a "t" to the end. It could easily be true for two reasons: Sund is a common name in Norway, and M.M. Sundt was a man who took action when he felt the occasion required it.

Sundt's health wasn't good because he suffered from asthma, and the heavy humidity of the Midwest took a severe toll on his stamina. Clearly they had to move to a drier climate. They chose Manitou, Colorado, which apparently is the town now known as Manitou Springs, on the Northwestern outskirts of Colorado Springs. Here their third child was born, and very soon afterward, Berthe Sundt died. She was bitten by a tick carrying Mountain Fever germs, for which there was no cure at that time.

Devastated by the loss, Sundt took her body home to Wisconsin for burial in the family plot in Cambridge. Sundt left their three small children — Cora, Bertha and son Joseph — with his late wife's family and returned to Colorado to become established before bringing the children down again.

Chapter Two A Rip-Roaring Town

SUNDT HAD NOT FOUND RELIEF for his asthma in Colorado, so he decided to try Mexico as a place to live, and bought a ticket on the Santa Fe Railroad. He had a bad cold and the conductor suggested that he get off in Las Vegas, New Mexico Territory, because the hot springs in the town might help. At that time Las Vegas was the largest city in New Mexico, thanks to the railroad, which had placed its maintenance facilities there. Sundt found that not only did the hot springs help cure his cold; he loved the climate and the town in general, in spite of its widespread lawlessness. He found a job quickly with a building contractor named J. J. Hill. Sundt became Hill's carpentry foreman when Hill won the bid to build Springer Hall, the first building on the campus of what would become New Mexico Highlands University.



M.M. Sundt Expands His Family & Business

Soon Sundt sent for his children. A young woman who had been caring for them, a recent immigrant from Norway named Thea Rosland, came to Las Vegas with the Sundt children. Mr. Sundt and Miss. Rosland soon became engaged, and married a few months later. They had an additional nine children, making the family an even dozen.

Not long after his marriage, M.M. Sundt and co-worker V.A. Henry bought out their employer and formed Henry & Sundt, Contractors and Builders.



A work crew poses in front of the Fort Stanton project.

> One of their first jobs was building a hospital at Fort Stanton in the south central part of New Mexico. Sundt supervised the job and moved his wife and children to the fort in a covered wagon.

M.M. Sundt, Builder, Founded

Within a few years, M.M. bought out his partner and began doing business as M.M. Sundt, Builder. (In the company's historical records the founding year is shown as 1890. Obviously M.M. Sundt couldn't have founded the company then, since he was still working for J.J. Hill as a carpenter. It must therefore be assumed that 1890 is the year J.J. Hill founded his company, and when M.M. Sundt and V.A. Henry bought him out they decided to keep that birthdate for their firm as well.)



The M.M. Sundt Planing Mill, circa 1910, contained a complete cabinet shop where doors, trim and other finished wood items were made for the company's projects.



Agua Pura Dam, 1910, was one of the company's first major projects.

Early Notable Projects

One of M.M. Sundt's first major contracts was constructing a dam for the Agua Pura Water Company in 1910. Documents from the project reveal the simple nature of construction in that era. Laborers were paid 15 cents per hour; carpenters got 30 cents. A mule skinner handling a double team was paid 40 cents. Concrete for the dam was bid at \$6.95 a cubic yard, in place. The dam, still in use today, was built for a total cost of \$21,800. This project and others in Las Vegas made Sundt's reputation be taken seriously.

M.M. Sundt, Contractor and Builder, constructed several other projects of note in North Central New Mexico during this period. Some of the structures, like the dam, are still in use today, such as the Las Vegas YMCA building, which still stands but is used for other purposes. Also built were a retail center known as the Romero Block, the Johnson Mortuary, the Meadows Hotel and a new Methodist Church.

The La Fonda Hotel in Santa Fe and buildings and facilities for the New Mexico National Guard at Camp Luna were typical out-of-town projects. M.M. Sundt even did a low cost housing project for the City of Las Vegas. These structures were very basic,



The YMCA building, which was built in 1905 at a cost of \$15,000

The Johnson Mortuary in Las Vegas, New Mexico, shortly before completion in 1926



The Meadows Hotel, circa 1923

with just a living room, kitchen, two bedrooms and a basement. There were no bathrooms or closets.

Perhaps the most notable project of that era was the beautiful Ilfeld Auditorium on the campus of Highlands University in Las Vegas. This is the oldest building on the campus and it is still in use today.

Sundt Becomes Prominent Businessman in New Mexico

During the early years of the 20th century, M. M. Sundt established himself as a prominent and trusted contractor in New Mexico. Many of the contracts were sealed only with a handshake.

M.M. Sundt made his home in Las Vegas for the rest of his life. He was a devout Methodist and did not believe in smoking, drinking alcohol, dancing, swearing, or going to movies. Sundays were given over to worship and family activities; certainly no working was permitted. One of the few examples of M.M. Sundt's plain, direct way of speaking is demonstrated in a speech he gave to the Rotary Club in Las Vegas, probably in the 1920s:

What the Contractor Steals From the Public

Fellow Rotarians: Speech making is not a part of my makeup and when I was asked by the chairman of the program committee to speak on the abovementioned theme, I thought the best man to throw some light on this subject would be Mr. Brindell [apparently Robert P. Brindell, a contractor charged with extortion] of New York as he seems to understand how to steal from the public and I take for granted that our fellow Rotarian Lucas had this notorious character in mind when he assigned this subject to me. For over twenty years I have been engaged in the contracting and building business in Las Vegas. And throughout our beautiful state, during this period of time I have seen contractors come and go. The old saying is a 'new broom sweeps.' I have seen some of these men get a number of contracts at a price I considered below a living wage and when they in some way would succeed in getting a substantial payment and leave town between the two suns, forgetting to pay the material man and leave the bondsmen to finish the unfinished job and pay the bills. I have been accused a number of times of trying to hold up prospective customers and the job would be let at a much less figure than I could see my way clear to do the job for, but I know of instances of this kind where the contractor lost all he had and the bondsman or the owner had to complete the job. Now we all want a fair remuneration for out labors and I can assure you that a contractor's life and work is not all sunshine.

When a housewife makes up her mind to build a house she will look over her Ladies Home Journal for a suitable plan. If she does not find one there she will probably send for or borrow a Bungalow Catalogue, as has often been the case for me, and forget to return same, or go to an architect if she can persuade her husband to go with her.

A plan is finally decided upon and a contract is made with a builder to complete the building for so much. Now the contractor's worries begin, when the material begins to climb, the mechanics demand higher wages, something is wrong with the plan, it does not work out right, the contractor has to sit up and burn the midnight oil trying to work out some way to overcome the mistake without injuring the building. The next time the housewife makes a visit she sees something she wants to change, maybe a door or a window she thinks ought to be in a different place. Now this may be repeated a dozen times before the house is completed, and if the contractor should present a bill for what these changes are really worth, the chances are the owner would think he had been robbed.

A contractor often puts in a days of hard figuring without getting a penny for same, very often the building figured is never built, quite often a contractor is imposed upon by people who have already let the contract to some other contractor, but he begins to think that perhaps they paid too much and therefore they would like to get other figures to compare. Now I think that is stealing just as much as if this same party had stolen from the contractor the equivalent in money. Fellow Rotarians I thank you for listening so patiently to these rambling remarks. I thank you.

No Fishing on Sunday, No Dancing

One of the family's favorite stories about M.M. Sundt's religion was about the time he was with his son John on a trip to Guaymas, Mexico, along with several of John's friends. They reached Guaymas on Saturday afternoon, and they knew of M.M.'s aversion to doing anything other than worshipping on Sunday, so there was some hesitation about fishing on Sunday. But



M.M. Sundt used only rod and reel to catch his 6-footlong, 200-pound sea bass.

M.M. wasn't a spoil-sport and he told them to go ahead and fish, and he even agreed to go along, but he would not fish. The fishing was very poor that day. The next day, Monday, they went out again and this time M.M. got the only fish caught that day, a 200-pound sea bass. He boasted to the crew that it was God's way of rewarding him for not fishing on Sunday.

In another similar religious crisis, one of his two sons who attended West Point was caught taking dancing lessons when his report card came home. Mother Thea was incensed because their religion forbade dancing, and she told M.M. that the boy should be forced to quit school. M.M. was more philosophical: "He's not doing very well in the [dance] class, so let's let him stay."

The dozen Sundt children were remarkable in that all were highly intelligent; all the boys became successful and all appeared to be happy and well-adjusted. Although the Sundt girls were equally intelligent and industrious, women weren't yet welcome in offices and board rooms, so little has been written about the Sundt daughters. All of the children did well in school and the boys went on to either college or to military academies. Joe, the eldest son, became an engineer on the Santa Fe railroad. John, Eugene (Gene) and Martin ran companies for their father, and Thoralf became an architect and later joined his brother John to run projects in Tucson and help out with managing the company. The two youngest sons, Harald and Dan, went to West Point and both made careers of the military. Harald served with General George Patton's famed Third Army and saw a lot of action in World War II. Dan was a teacher at West Point when the war started, and he later served in the Seventh Army and was in many battles as well.

Chapter Three Heading West

A DESIRE TO BUILD A CHURCH designed by one of his sons resulted in Sundt expanding into Arizona. M.M. had always hoped for a son who would design churches. Thoralf accepted the role and studied architecture at the University of Pennsylvania. Upon graduation he went to work for the Bureau of Architecture for the Methodist Church, designing houses of worship all over the U.S. In 1929, he designed a church for the growing town of Tucson,



Arizona. M.M. thought it would be wonderful if he could get the job of building something his son designed, so he bid on the project and dispatched another son, John, to take the documents to Tucson. Bidders were required to be licensed in the state, and when John filled out the application, he listed the company's name as "M. M. Sundt Construction Co." M.M. Sundt got the church job. John stayed in Tucson to oversee construction and began bidding on other work as well.



First United Methodist Church of Tucson, 1929

Thoralf Sundt

The 1930s and the Great Depression

The 1930s was the decade of the Great Depression in America, and all businesses suffered. However, it wasn't quite as dire for the construction business because as part of the relief efforts, the federal government pumped money into new government buildings as well as infrastructure projects such as dams, military bases, libraries and schools. The two divisions of Sundt—one in Las Vegas and the other in fast-growing Tucson—managed to survive nicely from this kind of work.



University of Arizona projects completed circa 1936, clockwise from left: R.O.T.C. Stables, Women's Building, Infirmary

Building the University of Arizona

Sundt's most significant Depression-era work came in 1936 and 1937, when the "Works Progress Administration" (WPA) funded grants to build several buildings at the University of Arizona in Tucson. (The WPA was created by the Federal Government to create jobs that would revitalize the economy.) Within a one-year period, M. M. Sundt was awarded contracts to build six projects:

ROTC Stables (torn down years later when training military	
officers to ride horses was no longer required)	\$ 24,342
Infirmary (now the Charles P. Sonett Space Sciences Building)	33,720
Women's Physical Education Building – including swimming pool	
(torn down in 2002 to make way for the new Student Union)	104,398
Chemistry – Physics Building (now called "Old Chemistry")	218,409
Auditorium (remodeled in 1986 to become Centennial Hall)	221,727
Administration Building (now called the Robert L. Nugent Building)	91,942

\$ 730,538



University of Arizona Chemistry-Physics Building, circa 1936



University of Arizona Auditorium, circa 1936

University of Arizona Administration Building, circa 1936



What a deal! Six projects for less than three-quarters of a million dollars. And four of them are still in use today—a remarkable tribute to the quality and craftsmanship of Sundt in those early years.

John needed help in completing these jobs and he asked his architect brother Thoralf to help him. Thoralf had never really liked being an architect, so giving up his drafting table and moving to Tucson was an easy decision to make. Thoralf's son Robert later made note of the closeness of the Sundt family:

"In the fall of 1936 my family lived in one unit of a four-unit apartment building a half block north of 6th Street on Tyndall Avenue...(O)ur family [was] on the ground floor on the north side. John Sundt and his family on the south side ground floor unit; and on the second floor level my cousin Gene Sundt and his bride Ruth were on the north side while the Sundt Company offices were on the south side. All the Sundts in Tucson were certainly together at that time."

Sundt Expands Building in Tucson, Launches Custom Home Building

Other notable Tucson projects during this period included a mansion for Florence L. Pond, which became the El Dorado Resort and is now home to the Mountain Oyster Club. There was also the Stone Avenue Underpass, which became known as "Lake Elmira" because its poorly designed drainage system (not Sundt's fault) could not keep up with heavy runoff after a monsoon thunderstorm. (Elmira was a free-spirited artist who liked to go skinnydipping in the underpass when it flooded). Also, Phelps Dodge, the giant copper-mining consortium, hired Sundt to build hospitals at Douglas and Morenci, plus a home for nurses and a remodeled superintendent's residence at Clifton.



John Sundt's first effort at custom home building became the family home for John and his wife, Marion

> In spite of the Great Depression's toll on business in general and home sales in particular, John Sundt decided in 1936 to start building custom homes in Tucson. His first effort, which would be a show home, was called El Encanto, Spanish for The Charm or Charmer. The home did not sell, though, so John and his wife, Marion, moved into the home, loved it, and stayed in it the rest of their lives.

Tucson Becomes Sundt Headquarters in Late 1930s

The two M.M. Sundt Construction Co. divisions, one in Tucson and the other in Las Vegas, worked autonomously for a few years and Mauritz often divided his time between Las Vegas, where he built business and private buildings as well as many homes, and Tucson, where he came to help John because Tucson was quickly outgrowing the Las Vegas branch. In the late 1930s John bought out his father's interest in the company. Tucson became the headquarters for M.M. Sundt Construction Co. The operation in Las Vegas became the firm's New Mexico Division.

In the booklet *From Small Beginnings*... Gene Sundt told about his grandfather working with the crew on the Colishaw ranch house in southern Arizona:

"One afternoon a thundershower sent us all running for the cover of the tool shed all but Grandpa. About half an hour later Grandpa, aged 71, came into the tool shed soaked to the skin and said, 'What is the matter with you fellows? Do you think you're made of sugar and are you afraid you'll melt if you get wet?'

"We all went back to work, but the rain soon stopped so we didn't melt."

World War II Brings More Growth

With the clouds of the coming war becoming apparent, Sundt won bids on several military jobs, including expansion of the Davis-Monthan Army Air Corps Base in Tucson and housing at Fort Huachuca in southeast Arizona. When Japan attacked Pearl Harbor on December 7, 1941, and the U.S. went to war against Japan, Germany and Italy, the company's business expanded dramatically.

Shortly after World War II broke out, M.M. Sundt passed away at the age of 78. The Norwegian immigrant, who came to America with simple ship's carpenter skills and a determination to succeed, had founded a construction company that would grow and prosper for many years to come.



This early photo shows some of the many buildings built by Sundt in 1943 at Los Alamos, N. M. It was in these facilities that scientists with the Manhattan Projcet developed the first atomic bomb.





ONE OF SUNDT'S SIGNATURE JOBS came when World War II was almost a year old. The company had been very busy building military projects all across Arizona and New Mexico — hospitals, training barracks, and expanding runways at airfields.

While Gene Sundt was working on a new installation for the Army Air Force Ferry Command at Fort Luna, New Mexico, he received a message,

on November 30, 1942, to be in the Army Corps of Engineers' Albuquerque District Engineer's office at 8 a.m. the following morning. In the booklet *From Small Beginnings*... he recalled the events of that fateful day.

"A few minutes before 8 on the morning of Tuesday, December 1, 1942, I walked up the steps of the old brown sandstone Simms Building at Fourth and Gold and told the receptionist that Tommy Hightower was expecting me," Gene said.

"As I entered Tommy's office, I asked him 'What's up?' He said, 'Let's go for a ride.' "I followed him out of the building, got into the back seat of a government car and he told the driver to get going. I asked where we were going and what it was all about, but Tommy just grinned and said I would find out when we got there."

Gene Sundt



Bird's eye view of the Los Alamos project, formerly the Los Alamos Ranch School for Boys

Original entrance to the Los Alamos project 'There,' in this case, was at the end of a two-hour drive at an isolated area in the Jemez Mountains, about 35 miles northwest of Santa Fe. Gene soon learned that he was at the exclusive Los Alamos Ranch School for Boys. They were joined by two Army officers, Major Elmo Morgan and Captain Carl Lovett, and they



said that M.M. Sundt Construction Co. had been selected to build a super-secret project. They told Gene he could not be told what, or why, the project was going to be built, and Gene could not discuss the project with anyone except the top managers in his company and members of the Corps of Engineers.

Sundt Awarded Top Secret Government Contract

Later, Gene telephoned John Sundt in Tucson to tell him the company had been awarded another government contract that would run around \$300,000, which was quite a bit of money in those days. The project was so super-secret that it was labeled simply "Job 444" in the company's records.

The project was urgent, and speed of construction was essential. No plans were available

yet, but Gene was given a list of the buildings they had to get started on first. The list indicated to Gene that the project was a small military post to house about 200 men.



Sundt housing projects at Los Alamos

Left: Interior of a Los Alamos Scientists' Apartment Right: One-bedroom duplex built by Sundt

Sundt's contract called for a scientists' enclave, complete with housing and laboratories, fenced and ready for occupancy by May 1943. The contract came with a host of mixed blessings. For starters, the schedule was incredibly tight. As Gene Sundt noted in his memoir, *Job 444*, scientists and engineers were notoriously adept at creating confusion and bending rules as the Sundt crews worked feverishly to meet deadlines amid ever-changing orders.

To quote from Job 444:

"Lt. Col. Whitney Ashbridge was not happy in his original living quarters and wanted something better. General Groves' directive of June 27 under item 2-E authorized converting the Arts and Crafts building of the school into two apartments. Ashbridge decided to take one for himself and assigned the other one to Dr. Hughes. After the school moved out in February, \$32,091 had been spent remodeling the buildings including \$150,000 on the Arts and Crafts building. July 7, W.C. Kruger received instruction and we got the Arts and Crafts remodeling plans on July 14th."

Ashbridge was not pleased with Kruger's plans and went directly to a Sundt project superintendent, who found him hard to please. The foremen had pulled some of his best men off of



Looking toward the Sundt housing area from atop the Los Alamos water tower



Map of the Los Alamos project

more important work to satisfy Ashbridge. Ashbridge's complaints varied from major structural changes necessary for safety standards to the utterly ridiculous changing of glass in china cabinet doors. For instance, in his letter of August 30, 1943, which reads, in part:

"At the time the preliminary sketches were made for the china closet in the south apartment of the former Arts and Crafts Building, it was intended that there be glass doors for the upper part. However, somewhere along the line the original rough sketches were apparently mislaid and the china closet as constructed does not have the glass doors. I have requested Contractor furnish these, and this confirms and makes a matter of record the request that the glass doors be installed as originally contemplated. "The glass lights in the top of the entry doors and in the Dutch door between bedrooms turned out to be rather larger than originally anticipated, and with a child in the house who is apt to toss toys through the glass it is considered wise from a safety standpoint to put wood grills over these doors of the type now on the center door from the entry into the hall leading to the bathroom and bedrooms. As in the case of the china closet doors, the Contractor has been requested to furnish and install these, and this confirms . . ."

"One wonders at this late date," Sundt wrote, "who needed the fancy china cabinet: the Commanding Officer of the Corps of Engineers, Lt. Col. Whitney Ashbridge, or the other occupant of that duo apartment, Dr. Hughes."

Squabbles, Problems Plagued Job 444

There were so many squabbles, some resulting in charges and counter charges of disloyalty and outright treason, it is a wonder the project went ahead and was successfully completed. Sundt came in for its share of accusations, which obviously annoyed Gene Sundt.

"We Sundts have been accused in print of being outspoken, often blunt, sometimes difficult, but generous and efficient," Sundt wrote. "The fact that we were often, in those early days of Los Alamos, caught between a three-way tug-of-war didn't add to our good nature. The scientists thought they knew best what ought to be provided, would plan more efficiently, and above all draft construction [orders] far beyond the professionals brought in for doing that particular job, [and this] ruffled the reserve of those highly trained specialists more than just a little. The military demanded their way and were vociferous, sometimes vindictive, and usually decisive. The Corps of Engineers manfully tried to follow their orders, valiantly attempted to keep the construction moving along so as to meet the deadlines. We were often caught in the melee, so often forced to make our own decisions as to how something was feasible to accomplish. Sure we were blunt, outspoken and quite often critical.

"It is somewhat ironical – nonetheless an irony that we were later to enjoy – that our early 'Sundt Apartments' so vehemently castigated for their primitiveness in the beginning were to become the community of the elite and to be referred to later as 'snob hollow' due to the comfort and luxury that those lucky ones who lived there enjoyed."

The problems between the various groups living at Los Alamos were enormous. None of the groups seemed to be able to get along, and according to Gene Sundt, nobody was harder to deal with than the scientists. While Col. Ashbridge was not one of Gene Sundt's favorite people, he was still able to commiserate with Ashbridge because Ashbridge was so obviously out of his element.

"The gentlemen's code [that Ashbridge lived by] did not envisage name callers, mischief makers, and housewives who flung hamburger on his desk, shrieking 'dog *meat*!" Gene Sundt wrote. "On a trip back to Washington, he collapsed at the Amarillo airport with a damaged heart."

Job 444 Finished by Two El Paso Firms

These problems became moot for Sundt because when Major Frank N. Newell was sent to Los Alamos from Tulsa to replace the hapless Ashbridge, his first decision was to try and import an Oklahoma firm to replace Sundt. Newell was outranked by a Col. Cole, and he vetoed Newell's request. But ideas once floated are often hard to sink; Col. Cole instead brought in two companies from El Paso to replace Sundt.

In the official history by the Corps of Engineers, *Construction in the United States: Under the Quartermaster General and the Chief of Engineers*, by Lenore Fine and Jesse A. Remington, the authors' version is very similar to that of Gene Sundt. They wrote that

"Maj. Frank M. Newell, whom Groves had brought from the Tulsa District to head the Area office, wished to import an Oklahoma firm to replace the capable, but outspoken Sundts. Colonel Cole, who felt the Tucson outfit had done a splendid job, agreed that new blood might be beneficial; after months of 14- to 16-hour days and 7-day weeks, Sundt's men seemed near exhaustion."

The \$300,000 contract negotiated by Gene Sundt, with the help of his uncles John and Thoralf, was modified 70 times and eventually totaled \$7,112,397. In 2012 dollars that would be equivalent to over \$125 million!



Left: Fat Man bomb testing at Los Alamos Right: One of the work areas at Los Alamos



Sundt Learns Job 444 Is Part of Manhattan Project

About 18 months after their project was completed, Sundt officials learned that Los Alamos was part of the Manhattan Project, and its sole purpose was to build an atomic bomb.

"Just imagine," Gene Sundt said in a speech 30 years later, to the Newcomen Society. *"We marched up the hill on a road barely able to accommodate a pickup truck, to* a beautiful mesa occupied by a handful of log buildings, and 12 months later we marched away and left a city, complete with schools, a hospital, water supply and sewage treatment facilities, complicated technical facilities that produced the first atomic bomb and a testing area wherein the scientists could hopefully come as near as possible to being sure [the bomb would work]."

A year after the war ended, John Sundt was called to New York to receive a special award for his military construction projects, given by the McGraw-Hill Publishing Company. Although he kept about 6,500 employees on payroll during the war, and built between \$35 to \$40 million worth of military installations, Sundt as usual played down his role and emphasized that of his employees.

"We didn't know what it was all about," Sundt said in a newspaper interview in 1946, "except that probably the Army was working on explosives, because of the required power plant output.

"We had to start from scratch up there in the mountains and snow. There were no roads, and we had to build roads at the same time that we used them to move in great quantities of building equipment and set up a permanent camp for 3,000 men who had to be quartered and fed there for a year, for we didn't finish our work until December 1943. That 3,000 represented only part of the men because many others lived at Santa Fe and surrounding towns.

"We had to put in a great water system, piping that water across several mountain ranges. It was really rough stuff, working up there in the cold and in the mountains under almost impossible conditions. But we got it done, even if it was a nightmare, more complicated and with more heartache that any other military job we handled during the war."



Consolidated-Vultee Aircraft Plant

Other War-related Construction Jobs

In the same interview, John Sundt talked about the war-related construction jobs Sundt took on. They included:

Left:

The Marana airfield (1942-1945) was the largest pilottraining center in the world during WWII, training some 10,000 flyers.

Right: Bombardier and air gunners school at Marine Corps Air Station, El Centro, Calif.



Most of the work at Davis-Monthan air base; the Consolidated-Vultee Aircraft Plant (now part of the Tucson International Airport) and Marana air base (all located in southern Arizona); Japanese-American relocation camps at Lordsburg, N.M., and Sacaton, Arizona; the Navy Indoctrination School at the University of Arizona; an air base at Alamogordo N.M.; a railroad battalion engineers air base at Fort Sumner, N.M.; air transport command base at Las Vegas, Nevada; Sandia and Kirkland fields at Albuquerque, N.M., and the Marine Corps Air Station at El Centro, California.



This map shows the layout of Camp Lordsburg which was a U.S. Army Internment camp from 1942-1944 in Lordsburg, N.M. The site is now a national park.

Left inset: Ruins at the site

Right inset: Concrete blocks used for the retaining wall northwest of the camp



Kirkland field, Albuquerque, N.M.



Air base at Alamogordo, N.M.

> Of interest to those familiar with the University of Arizona is the fact that the Navy Indoctrination School was located within "Old Main," the school's first structure, which was completed in 1891. By 1938 it was in such poor condition that the Tucson Building Inspector declared it unsafe. For the next four years it remained unoccupied, and under threat of demolition, until Sundt's project for the Navy saved it from the wrecking ball. Today it remains a functional, and much revered, part of the campus.



Workers remove the original tin from the center section of Old Main's roof during Sundt's refurbishing of the building for the Navy Indoctrination School.

War's End Brings Uncertainty

The war's end brought uncertainty to Sundt, as Gene Sundt noted in his speech to the Newcomen Society in 1974:

"Thus, in early 1944, we found ourselves rather exhausted but in a position of having completed all of our major war effort work except the Marine Corps Air Station at El Centro, California, and certainly at a loss to be able to determine what the future would be. Our work force was at a minimum. A very few highly specialized government jobs were let, of which we got our share, but our record shows no public work projects otherwise and no private work, in that part of 1944 and 1945.

"One of the most vivid recollections of this period is when a Government Renegotiation Board, grateful for our supreme effort at Los Alamos, decided that because these contracts were negotiated, we had no risk even though we had full responsibility for completion under bond. Accordingly, it was their first judgment that no risk, no entitlement to profit. These renegotiation hearings were really a revelation as to the quality and efficiency of a thoroughly misinformed and incapable bureaucracy, even then growing in size and scope."

One can almost hear the sigh of relief when Gene uttered these words:

"But truth and right prevailed and in the final decision we were allowed to retain the modest profit realized from our effort."

New Leadership Joins Sundt

Shortly before the United States entered World War II, two future leaders of the company were hired. Duane Anderson came to Sundt as a timekeeper in 1938. He had a Business degree from the University of Colorado and soon became a cost accountant and the business manager for the company. In 1940 Bill Naumann came on board and managed a brick plant that the company owned at the time. He then became the manager of the Underground Utilities Department and a Vice President.

Chapter Five Building the Old Pueblo

SHORTLY AFTER WORLD WAR II CONCLUDED, John Sundt decided to close down the New Mexico division. He felt the state was more in need of a good supplier of sand, gravel and ready-mixed concrete. He acquired an industrial site in Albuquerque, leased a gravel pit nearby, and purchased the equipment needed for a concrete batch plant.



Soon Albuquerque Gravel Products, Inc. (AGP) was in operation. Over the ensuing four decades the company, with Gene Sundt at the helm, grew to be the leading supplier of readymixed concrete and construction aggregates in New Mexico.

Sundt also became active in the materials business in Arizona, starting with acquisition of a brick manufacturing company. Since its incorporation in 1908, Tucson Pressed Brick had been the main supplier of bricks for many of the city's homes and businesses. John Sundt acquired the firm in 1935, and under his leadership it continued to be the city's leading brick supplier.

Sundt Expands Materials Operations

In late 1952 and early 1953, Sundt prospected for and located 20 gravel supply claims on state land east of Tucson. Shortly thereafter, a portable crushing and screening operation was established at that location, which was the forerunner for a permanent installation that became M.M. Sundt Materials Plant No. 1. A short time later the company installed an asphalt mixing and batch plant on another Tucson property, which gave Sundt a strong presence in the asphalt paving business as well. In 1964, Sundt's materials business expanded again



M.M. Sundt Materials Plant No. 1. was located on state land east of Tucson.



St. Mary's Hospital (today Carondelet St. Mary's Hospital) underwent major expansion by Sundt as shown in this photo apparently taken in the 1950s.

> through acquisition of the Tucson Rock and Sand Company. All of these operations were sold in 1971 so the company could concentrate on its growing construction operations.

> M.M. Sundt Construction Co. built a wide variety of buildings in Tucson (nicknamed the Old Pueblo) during the two decades after World War II, including major expansions of three hospitals in the Tucson area—the Tucson Medical Center, St. Mary's and St. Joseph's



UA Arizona-Sonora Dormitory



UA Science Library



UA Civil Engineering



UA Fine Arts

Hospitals. The company also put its name on many of the new buildings erected on the University of Arizona campus, including Aeronautics, Liberal Arts, the Student Union, Fine Arts, Biological Sciences, Geology, Anthropology, Science Library, Agricultural Sciences, Civil Engineering, and eight dormitories.



UA Mohave Dormitory



UA Geology

UA Liberal Arts



UA Student Union



Rincon High School

Several Tucson public schools were built by Sundt during this time, including Rose, Rincon High and the remodeling of the Drachman School.

In 1948, Robert S. Sundt, Thoralf's oldest son, went to work for the company as a timekeeper and laborer during his summer break from the University of Arizona. Upon graduation two years later he joined the company full time. Over the ensuing years he would rise quickly through the ranks to become one of the key executives shaping the company's future as a construction industry leader. His younger brother, Wilson, came on board in 1957 as a carpenter apprentice and estimator. Also a graduate of the University of Arizona, Wilson undertook post-graduate studies in civil engineering as further preparation for his career in construction. He also would rise through the ranks, eventually holding the position of chief executive officer.

Custom Home Headache

One of Bob Sundt's early projects became a gigantic headache. The company was hired to build a beautiful home for the William Joffroy family in Nogales. Joffroy was a tomato broker, and his home cost more than \$100,000, a considerable amount for a home in the 1950s. It was built on the side of a hill, but the architect, William Wilde, and Bob Sundt, who was serving as the construction superintendent, didn't know that at one time the lot had been a dumping area. Bob Sundt was present when the structural engineer thumped his heel into the earth a few times and told them to go ahead and pour the concrete.

That was a big mistake. When the summer monsoons arrived, the rain compacted the soil in the holes dug for footings, and the foundation wall separated from the wall above. Attorneys entered the resulting battle over who was to blame and who must pay. Sundt did all the corrective work required even though nobody involved thought Sundt was to blame.

"The reason we got named in all the litigation was the fact that they didn't think anyone else had any money to correct the problem," Bob Sundt said. "The one thing I could never quite understand was that Bill Joffroy kept talking about building a swimming pool in his backyard during the course of all this corrective work."

Chapter Six Growth and Diversification

DURING THE 1950S AND '60S, Sundt also began to diversify its operations. In 1953 the company entered the heavy construction field with two projects. The first was a joint venture contract to build a runway at Tucson's Davis-Monthan Air Force Base. The 11,500-foot-long, 200-foot-wide runway was needed for the Air Force's first jet bomber, the B-47 Stratojet. The second project was a highway near McNary, Arizona.



Davis-Monthan Air Force Base Runway, Tucson, Ariz.



Sundt's first highway project near McNary, Ariz.



One of the Titan II missile silos at Vandenberg Air Force Base, Calif.

Over the ensuing years, the company would become one of the West's leading heavy construction contractors. In addition to roads and runways, Sundt would build major freeways, bridges, dams, and underground utilities across Arizona and in several neighboring states.

Cold War Construction Includes Missile Launch Facilties

The company became one of the country's major contractors for missile launch facilities in the late 1950s, when it was the low bidder on Phase 1 of the Titan II construction work at Vandenberg Air Force Base in California. This project, which consisted of three silos, was a prototype for all the following Titan II construction work that would be done in other parts of the U.S. The Titan II silo design partly came about because of problems with the Titan I that showed up when a missile in the first silo that Sundt had built at Vandenberg exploded halfway in the silo and halfway out. No one was sure whether it was going up or coming down at the time it exploded. Fingers were being pointed by other contractors (who were involved with the Titan I program) as to who was responsible for the failure. Parts of the structure were never found, and in the end no determination of fault was ever made.

The Titan II program was on a crash schedule because of the Cold War politics. In his memoir, Bob Sundt wrote that this caused the project to move faster than the paperwork could be generated.

"The hard-dollar part of the project that was done by M.M. Sundt on the concrete structure was one the government was able to design and put out for bid," he wrote. "However, when you got into the next phase of the work, which started to get into all the controls, cryogenic piping, electrical, and items of that type for the missile silo it was a much different story. The LA District of the U.S. Army Corps of Engineers decided they needed a general contractor to step in as the construction manager for the Titan II Phase II and Phase IIA work. The District had a very high respect for M.M. Sundt Construction Company and Matich Brothers, and selected the joint venture team to follow on as the construction manager."

Another of Sundt's signature missile jobs came in November 1963, when a joint venture between Sundt and Blount Construction paid off. It was to build Launch Pad 39-A at Cape Canaveral, Florida. Their winning bid was \$19.1 million. The closest bid to this was from Morris-Knudsen Company, whose bid was \$3.5 million higher.

Launch Pad 39-A at Cape Canaveral, Fla.

> "To say the least, the difference between our bid and that of MK really caught everyone's attention," Bob Sundt said. "However, on further analysis the estimators felt that the bid would be okay and we accepted award of the project from the Corps of Engineers."

> The Cape Canaveral job was one that Sundt would not have tried for alone, he recalled, but Blount Construction asked Sundt to join them because the contract documents required the bidder to have experience with cryogenic piping. Blount did not have that experience, but thanks to its work on the Titan jobs at Vandenberg, Sundt did.

Tucson Federal Savings Tower, Tucson, Ariz.

Landmark Tucson High Rise

Another major project during this period was a landmark Tucson high-rise. In February 1964, Sundt was told it was going to get the job of building the Tucson Federal Savings Building, which would be Tucson's first skyscraper at 20 stories. But shortly after the contract was signed,







smelter at Hayden, Ariz., was Sundt's first venture into construction for the mining industry.

The ASARCO copper

20-story building, with a major design change: The building went up four stories, and then was cantilevered out and over the Walgreens building. In addition to this change, there was a fire-protection problem. The new building would certainly meet fire protection standards, but the much older Walgreens building did not. Construction was well along before this problem was discovered, and it caused much consternation in Sundt headquarters before they found that fire-protection requirements could be met by installing a sprinkler system and special high-fire-rating material in the Walgreens building.

Mining Spurs More Sundt Diversification

until the lease expired. Work proceeded on the

During the 1960s there was a surge in copper usage, and if Arizona has an abundance of anything other than sand and saguaro cactus, it is copper ore. Open-pit copper mines are found in nearly all parts of the state. Seeing this trend, Sundt decided to diversify again, this time into projects for Arizona's mines and later its electric utilities as well.

The impetus for this was the company's initial success in obtaining maintenance work for ASARCO's copper smelter at Hayden. This was the start of a long and successful relationship with ASARCO, and led to additional work opportunities with other mining operations in Arizona and elsewhere in the region.
Chapter Seven Changing of the Guard

THE YEAR 1965 BROUGHT MORE WORK, and everything was going well for the company. John Sundt loved to hunt, and in March he flew to Nairobi, Kenya, with an old friend to hunt for four animals: a leopard, an elephant, a lion and a water buffalo. They were hunting in a place that had only recently been reopened to hunting, and they were surrounded by thousands of animals, including the four John wanted. He joked that he needed five leopards in order to make a coat for his wife, Marion, and that he would play poker for them if he had to.

After successfully killing a tiger and an elephant, he shot a water buffalo that did not go down but disappeared in some thick bushes. When Sundt started tracking the wounded buffalo, he suddenly slumped, sat down and rolled over. He was dead of a heart attack. Apparently he did not utter a sound. His friend said he died with a half-smile on his face.

He was mourned by Tucson, and the newspapers were filled with long obituaries and editorials praising him. Here is one example:

John Sundt Is Missed

It is just a week today since the saddening news came from deep in Kenya, Africa, that Tucsonian John Sundt had suffered a fatal heart attack while on a hunting expedition there. And with each passing day it becomes harder to adjust to the immutable fact that he will not be coming back to take his long accustomed role in this community.

For 35 years, John Sundt was one of a handful of men who would qualify as real builders of this city. He qualified both literally and figuratively.

His construction firm built many of Tucson's public, private and military structures and the Sundt name on any project always has been a hallmark of excellence.

Less obvious but with at least equally enduring values were the many organizations and activities of the community which John Sundt (and his good wife Marion) helped build through dedicated support and unheralded generosity.

John Sundt was a modest, unassuming man. He performed his many personal good works and his acts of kindness and encouragement in a quiet manner. The full length of his shadow is therefore not immediately measurable.

Some estimate of the broad impact of his life had on this community and its people was afforded by the memorial service conducted Sunday in the First Methodist Church. The 700-seat sanctuary was filled by fellow citizens from every phase of Tucson's civic, business, political and social life.

The void created by John Sundt's untimely passing will not easily, or immediately, be filled.

John Sundt 1900-1965



From left: Bill Naumann, Duane Anderson, Wilson Sundt, Bob Sundt

New Leadership for Sundt

Before the family and employees were really over the shock of John Sundt's death, the board had to meet and decide who would lead the company.

Bill Naumann moved up from vice president to chairman of the board of directors; Duane Anderson moved from vice president to president and chief executive officer; H. Wilson Sundt to executive vice president; and Robert (Bob) Sundt to vice president and manager of the Building Division.

"Naumann was a good selection as chairman of the board," Bob Sundt wrote. "But he could not have been a good fit as the acting CEO and manager of the business. [Duane] "Andy" Anderson did not make any waves. He was able to keep things on a firm base. He had been the financial manager for the corporation. Although Andy was not a participant in any of the construction activities, he did keep the corporation itself on an even keel during his tenure as president and CEO."

In something of an understatement, Sundt added that "Andy was also respected by the bankers, the bonding company and community leaders." These were actually the main reasons Anderson and Naumann were promoted into their jobs. The Sundt board knew it needed to present a professional front to these entities now that John Sundt had died.

This top management team remained in place for the next 15 years and did a good job of keeping the company on an even keel.



From 1937 to 1974, M.M. Sundt Construction Co. was headquartered at 440 S. Park Ave. in Tucson.



The Williams Air Force Base Hospital in Chandler, Ariz., was one of four projects Sundt built for the base in the mid-'60s.

Chapter Eight **Phoenix Rises**

SUNDT FIRST VENTURED INTO PHOENIX during the 1964-65 timeframe, but the project was less than auspicious. The company's leadership became involved with a man whom they met when he was the steel supplier on the Titan II project at Vandenberg Air Force Base. He hired Sundt to do the construction work on an apartment complex, called the Bougainvillea Apartments. But it turned out that he didn't have enough money to pay all of the bills, so Sundt ended up owning some of the units and used them to house its traveling personnel.

Phoenix Area Work Expands

About that time, Sundt started to actively pursue work opportunities in the metropolitan Phoenix area. In late 1965 the company got a job from the Long Lines Division of AT&T to build a microwave relay station near Apache Junction. Then in early 1966 Sundt was successful in obtaining the concrete work for the new Western Electric cable plant. The project was very successful for the company. In 1967 Sundt built four buildings at Williams Air Force Base and a small structural concrete project for Spreckels Sugar Company in Chandler.

Throughout this period, the bids for all projects were prepared in the Tucson office. For Phoenix projects, the final bid documents were assembled in Phoenix, either in a jobsite



Sundt's Phoenix office on South 23rd Place opened in the fall of 1968, an event highlighted in the news as in this clipping from the Arizona Republic.

Jim Normand (far right) was named manager of the new Phoenix office.

> office or in a hotel room. In early 1968, the decision was made to set up an office in Phoenix. Jim Normand was hired to be the manager. Jim had many years of experience with a major Phoenix contractor, and his contacts with the subcontractor community were invaluable in getting Sundt's new office up and running quickly. Another early Phoenix-office employee was J. Doug Pruitt, an estimator who moved up from the Tucson office. Doug would rise through the ranks to eventually become Sundt's Chairman and CEO.

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First Phoenix Office Opens

A temporary office trailer was set up, and a short time later the company completed its first "real" office on South 23rd Place just west of the Phoenix airport. It opened on October 31, 1968, to much fanfare. But the Phoenix office didn't stay put for very long. Six years later the City of Phoenix condemned the property for expansion of the Sky Harbor International Airport. At that time the staff moved to a new office on South 20th Place. (The Phoenix office was headquartered there for approximately 30 years. Sundt still owns the property. The office



Bureau of Indian Affairs Hospital, Phoenix, Ariz.



Empire Machinery, Mesa, Ariz.

building today houses the employment office, and adjacent to it are the company's warehouse and equipment yards.)

Phoenix Success Is Launched

After setting up the Phoenix office, success came very quickly. Within a few months, Sundt was awarded the Bureau of Indian Affairs Hospital. That was the first project that was bid entirely out of the Phoenix office. On the day the company opened its new office it was awarded a design-build contract by Empire Machinery to construct its new facilities at Baseline and Arizona Avenue, between Mesa and Chandler.



Sundt's first job for Arizona State University in Tempe included new locker rooms and bleacher foundations at the football stadium.



The American Express data processing center in Phoenix, Ariz.

In 1969, Sundt got its first job at Arizona State University (ASU). The project consisted of new locker rooms and foundations for bleachers at the football stadium. Sundt also built a data processing center for American Express.



London Bridge relocated to Lake Havasu, Ariz.

Local officials and

Sundt executives posed for this photo

as construction of the London

Bridge was getting

underway. Second from the left is

Tedd Jones, who managed the

Division. To his left is Wilson Sundt,

who was the company's Executive

Vice President at

the time.

Heavy Construction

Chapter Nine Historic Undertakings

WHILE IT WAS DIVERSIFYING AND EXPANDING its operations, Sundt was also putting its name in history books with unusual and challenging projects, one of them in the tiny town of Lake Havasu City, Arizona.

Relocation of the London Bridge

Lake Havasu City would be virtually unknown today if it weren't for an enterprising businessman named Robert McCulloch. In the early 1960s, the city's site was a barren, WWII auxiliary airfield with no population to speak of. But McCulloch, who was both an industrialist and a developer, thought it was the ideal place to relocate his large chainsaw company while creating a new community in the desert.

About the same time that McCulloch was planning the development of Lake Havasu City, it was determined that the London Bridge in England was literally sinking into the River Thames. The bridge had been dedicated in 1831 and was in a state of disrepair. Because refurbishment was no longer practical, the City of London decided to auction the bridge to



raise funds to build a replacement. The bridge, which had survived machine gun attacks from enemy warplanes during World War II, was to be removed.

A storage yard in Lake Havasu City, Ariz., held 10,000 tons of granite from the original London Bridge. When McCulloch learned that the London Bridge was for sale, he thought of somehow making it the centerpiece of his new development at Lake Havasu City. In 1968, he was



successful in his bid to the City of London to buy the well-known landmark. News of the sale of the London Bridge and plans to re-erect it in the Arizona desert caused somewhat of a furor in England, especially since it came on the heels of the permanent relocation of the venerable cruise ship Queen Mary to Long Beach, Calif.



In 1969, M.M. Sundt's Heavy Construction Division was already working in the Lake Havasu area on a project to improve Arizona State Route 95, so the company bid on the London Bridge job and was successful. A new concrete structure, clad in stones from the original London Bridge, would soon be built in the Arizona desert.

Crews used the soffit fill technique to build the new Lake Havasu structure before cladding it with the original stone.

> The five-span reinforced concrete bridge was built entirely on dry land, using a technique called soffit fill. Basically, soffit fill involves building up a pile of earth so



that the mound is as high as the bottom of the bridge to be constructed. Crews form and place a concrete waste slab on top of the mound, and then the entire bridge is built on top of it. When the bridge is finished, the mound, including the waste slab, is removed.

Although there were 130,000 tons of granite in the original bridge, McCulloch only bought 10,000 tons of the outer facing blocks. Most of these blocks were cut down to form a skin, or cladding, for the new structure. The pier footing design and use of soffit fill were cost saving proposals Sundt made to McCulloch after the bid. When the bridge structure was completed, Sundt received a separate contract to apply the facing stone, which had been match-marked so they could be placed in their original relative locations on the bridge. The stones weighed between 1,000 to 8,000 pounds. In addition, Sundt was contracted to construct the one-mile-long channel that cuts across the peninsula to place a watercourse under the bridge.

The New London Bridge and an adjacent English Village were dedicated in 1971, with the Lord Mayor of London in attendance. The ceremony, which closely matched the decor and menu of the original 1831 dedication, attracted 50,000 spectators. Time has shown that McCulloch's vision for the London Bridge attraction in Arizona was correct. Today, Lake Havasu City draws over one million visitors annually, and the London Bridge is considered by many to be one of the seven wonders of Arizona.



Kitt Peak Observatory

The Mayall Telescope is the largest optical telescope at Kitt Peak, a world-renowned facility located on a mountaintop southwest of Tucson. Sundt began building the Mayall Telescope structure in 1968 and completed the project in 1970. A number of unique challenges were encountered along the way, primarily due to the project's remote location and difficult site access via a winding mountain road. Because of the altitude and unprotected

location, the site was subjected to cold weather and high winds. These factors, coupled with a

very tight site, made scheduling the arrival and storage of material and equipment a critical activity.

The outer structure of the observatory was constructed using 10 hexahedron (6-sided) structural steel units, each 96 feet long, 33 feet wide, and weighing 35 tons. They were set in place vertically and connected to form a 108-foot-diameter circle. The units were fabricated in Phoenix, but were too large to bring to the jobsite using major highways. Instead, they were transported, one at a time, over back roads and then through the Indian Reservation, to the construction site.



Mayall Telescope under construction at Kitt Peak southwest of Tucson, Ariz.

Winding mountain roads and limited space made construction at Kitt Peak near Tucson, Ariz., particularly challenging. A ring beam was placed on the top of the hexahedrons to support a rail for the observatory trolley wheels, and then the domewas erected on top of the rail. The dome, which moves with the telescope, was designed to withstand winds of up to 120 miles per hour. It weighs nearly 500 tons and stands 187 feet above the ground at its highest point.



Arizona Portland Cement, Rillito, Ariz.

Slip Forming

Slip form construction is frequently referred to as "sliding form" construction. Fresh concrete is placed in the forms, and the forms, acting as moving dies, shape the concrete. The process is very similar to an extrusion process. Vertical slip forming is used to form walls. Horizontal slip forming is used for highway paving, culverts and curbs. Sundt has used both of these slip form applications on its projects.

Sundt first used vertical slip forming to construct underground missile silos at Vandenberg Air Force Base in California and Shilling Air Force Base in Kansas.

In 1960, Sundt slip formed nine cement storage silos for the Arizona Portland Cement Co. at Rillito, Ariz. Ten years later, two coke storage silos were slip formed for Great Lakes Carbon at Long Beach, Calif. Then in 1972, four coal storage silos were slip formed for Peabody Coal at Kayenta, Ariz. After that, the company slip formed other storage silos, underground silos and special-use structures at various locations.

In the '70s and '80s, Sundt built upon its experience with slip form silo construction to become a leading contractor in the niche market of slip formed reinforced concrete cores for



At 725 feet tall, the IBM Tower in Atlanta, Ga., was the tallest slip formed building core in the U.S. when it was completed in 1986.



The landmark Reunion Tower is a dramatic feature of the Dallas, Texas, skyline. high-rise buildings. The cores were designed to house the building's elevator shafts, stairwells and other service areas. A structural steel frame was constructed around the core to complete the structure for the building. Slip formed building cores were often the most economical structural system for high rises due to the speed with which they could be constructed.

Landmark Slip Form Projects

During this period, Sundt constructed 16 slip formed core projects in Atlanta, Dallas, Denver, Kansas City, Phoenix and Tucson. Several of the projects had multiple cores. There were seven projects alone in Denver. Several of the cores were over 500 feet tall. The slip form for the IBM Tower in Atlanta, Georgia is approximately 725 feet tall, and at the time it was completed it was the tallest slip formed building core in the United States. Sundt's most unusual slip form building project was part of the Hyatt Regency Hotel in Dallas. Completed in 1976, the Reunion Tower consisted of a 562-foot-tall primary core surrounded by three service cores. Atop the structure sits a restaurant with spectacular views of the entire city. Today Reunion Tower is a defining feature of the Dallas skyline.

Slip Form Presents High-Risk Challenges

Slip forming building cores is highrisk, high-margin work, which is a perfect fit for Sundt. But many of them presented special challenges for the project team. For example, the Columbia Place slip form in Denver started off with a large form that cast the low- and mid- and high-rise elevator shafts as a single effort. When crews reached the point where the shorter shafts stopped and the high-rise shafts were to continue upwards, the unneeded portion of the form was cut loose and left for a short time atop the concrete walls.

The plan was to dismantle and remove that section of the form over the upcoming weekend when slip forming wouldn't be going on and the tower crane would be free. But before that could happen there was a fire on the disconnected section caused by sparks from a welder's torch. Fortunately the fire was extinguished quickly, and there were no injuries or significant property damage. After that incident Sundt made sure that all future slip form designs included a fire line up to the core. It was a simple thing to do, but something nobody thought we needed until after the fire on Columbia Place.

There were challenges of a different sort on the IBM Tower, the company's tallest slip form project. The form was pretty much square, and that made it hard to keep straight as the core is jacked upwards. This one was really giving the project team fits staying within tolerance, until one night they figured out that welding units that had been attached below the middle deck for use by the structural steel subcontractor (who was installing elevator beams) had made the form rigid. After those units were removed, the form was much easier to control.

Because slip forming wasn't done very



often, the process itself was somewhat of a learning experience. On the Denver slip forms that were in operation during the freezing winters, the three-story form had to be completely

in Denver, Colo., shown here under constrution and completed, provided a valuable slip form learning experience for Sundt.

Columbia Place

enclosed and insulated so that the concrete would stay warm enough to set up properly. All perimeter block-outs were sealed, and insulation was sprayed on the freshly formed concrete as soon as the form rose above it. Inside the core, the heat of hydration kept it so warm that workers wore tee shirts and regular work pants instead of winter clothing, while outside, the temperature was below freezing. During these cold weather slip forming operations, the crews embedded temperature monitors in the concrete as it was placed to make sure the proper cure temperature was maintained.



Sundt used horizontal slip forming to build a new taxiway, parking apron and runway extension for the Michael Army Airfield at Dugway Proving Grounds, Utah.

Horizontal Slip Forming Remains Popular Today

The "golden era" of slip formed building cores slowly faded away in the late 1980s when other structural systems became more economical to construct. Horizontal slip forming, however, remains very popular. Its biggest use is to construct airport runways, taxiways and aprons; major streets and highways; and for culverts and curbs. Slip forming requires special skills and equipment, and Sundt has always prided itself in being able to perform this critical type of construction.



Wilson Sundt (left) and Bob Sundt

Chapter Ten In Family Hands Again

AFTER SEVERAL YEARS OF GROWTH AND STABILITY, there was another changing of the guard in 1978. Both Duane Anderson and Bill Naumann retired, and Wilson Sundt was named chairman of the board and also chief executive officer. His brother Bob moved up to replace Wilson as the president of Sundt. Once again, direct descendants of M.M. Sundt were in command of their namesake company. Under their leadership, the company would continue to grow and diversify.

Bob was very innovative. When he became the President of Sundt, he was also a community and industry leader. He was the Chairman of the Tucson Chamber of Commerce and served on the Arizona State Retirement Board, the Southwest Gas Board and the Phoenix Chamber of Commerce. As an industry leader, he was very active with the Associated General Contractors of America (AGC), both locally and nationally. Bob had a great understanding of marketing and business development practices.

Wilson Sundt had an adventuresome spirit, and was very active in the management of the Sundt subsidiaries and international activities. He also had a fondness for heavy civil work, especially the heavy equipment operations. He always talked about part of the company having to be "travelers." His theory was that when work got scarce at home, the company needed to have the capability of generating work in other locations. Wilson was a leader outside of the company as well. He was a longtime member of the Tucson Airport Authority board. He also had a long tenure on the Tucson Electric Power Company (TEP) board. The utility recognized his lengthy service by renaming its Irvington Road Power Plant the "H. Wilson Sundt Generating Station" upon his retirement from the board in 2003. Wilson also served on the boards of Magma Copper, Western Savings and Loan, Schuff Steel, and The University of Arizona Foundation. He passed away in 2008 after a long battle with cancer.

Bob and Wilson Sundt's tenure saw some of Sundt's most valuable ventures, particularly in joint ventures, partnerships and outright purchases of other companies. But it was the expansion of work overseas, particularly in Saudi Arabia, that many see as their crowning achievement.



An aerial view of the work at Arima wastewater treatment plant in Trinidad and the pumping station house at Port of Spain, Trinidad (inset)

Chapter Eleven International Work

SUNDT'S FIRST WORK OUTSIDE THE UNITED STATES occurred in 1962. The company, in joint venture with the Infilco Company, built wastewater treatment and pumping plants in the Caribbean islands of Trinidad and Tobago. Infilco manufactured wastewater treatment equipment and at the time was headquartered in Tucson.

Sundt stayed close to home for the following decade, but declining work opportunities in the U.S. soon had officials looking overseas again. In January 1975 Sundt learned of a relocatable school project in Saudi Arabia. After studying the plans, Sundt realized that what the Saudis were looking for was very similar to some re-locatable buildings the company had built a few years earlier for the Flowing Wells School District. The building system they used was called Dyna-Strux.

Dyna-Strux Subsidiary Builds Prefab Panels

It was Bob Sundt's idea in the late 1960s to create a subsidiary called Dyna-Strux to build prefabricated housing, using a polyurethane insulated sandwich panel structurally designed

to be used as a wall panel or a roof panel. For exterior applications it was coated on one side with fiberglass. The product proved to be too expensive (and perhaps too innovative) for its time, and the company was eventually sold. But, before that happened, Dyna-Strux was used very successfully on the Flowing Wells School project.

Sundt Pursues Work in Saudi Arabia

Sundt was confident that it had an innovative solution for the Saudi school project, so it submitted a bid, but the contract went to a competitor. However this experience whetted Sundt's appetite, and the company got very serious about pursuing work in Saudi Arabia. Thus began one of Sundt's largest and most interesting projects. And it all started because of a product Sundt could hardly sell in the U.S.

The next opportunity Sundt learned about was a large project for the Royal Saudi Navy. It submitted a bid, but lost again. Bob Sundt was determined not to let that happen a third time, so he committed several employees and a considerable amount of money to pursue work in the Kingdom.

During this time Sundt sent two executives to Saudi Arabia to see what kind of work was available there and if they thought Sundt would be able to do it. The men were accompanied by representatives of the University Mechanical Company and Foley Electric. In that period, visitors to Saudi Arabia had to first go to Beirut to get a visa to enter Saudi Arabia.

There the four were met by a Saudi attorney named Saud Shawwaf. "I also met Saud on my first trip to the Kingdom when I stopped in Beirut to get my visa," Bob Sundt recalled. "He told me to be sure to meet his brother, Tarek, which helped set the table for our later success." Bob and Tarek became friends instantly and their friendship endured for many years.



Housing for Arabian American Oil Company executives, Saudi Arabia

Housing Project Was Sundt's First Saudi Job

Sundt was successful in obtaining the next job, which was a housing project for the Arabian American Oil Company (Aramco) to build Western-style housing designed to U.S. standards. The houses were to be built in the Eastern Province in the towns of Abquaiq, Dhahran and Ras Tanura.

Sundt learned later that their winning bid had not been the low bid after all. But it was the most complete and was the best approach to the work. To those who knew the Sundt way of doing things, their bid was characteristic.



Bob Sundt (left) signs agreements establishing Arabian Sundt, Ltd.



First shipment of supplies arrives at the port of Damman. Sundt gave the Saudi's a quote of \$35,447,000 for the Aramco housing project. One of the changes they had to make on the bid was an increase in delivery costs, because in order to complete it on the shortened timeline the Saudi's called for, they knew they couldn't rely on delivery by ship. That's because the port facilities were limited, and ships were always stacked up in the harbor, waiting their turn. So the new bid called for at least 35 trips by Boeing 747s.



Forming Arabian-Sundt, Ltd.

Bob Sundt determined that the best way to do business in Saudi Arabia was to have Arabian partners. Sundt's good friend, Tarek Shawwaf felt the same way, but he could not become Sundt's partner due to conflict of interest issues. But his brother, Khalid, was free to form a partnership. Also, the



Wastewater treatment plant in Saudi Arabia



Saudi elementary school, one of several schools built by Arabian Sundt

> brothers Shawwaf felt they should have a third partner, a member of the royal family.

> Sundt and Tarek were taken to the home of Prince Khalid bin Saud bin Mohammed, who did not speak English. They met in an anti-chamber separate from the main house, where the women and children would be. It was a good meeting and the prince became the third partner.



Single family residence



"Floating hotels" in Saudi Arabia housed 1,500 construction workers.



Bob Sundt visiting a job site in Saudi Arabia Sundt said he assumed that Aramco would make an award almost instantly, but that was not the case. The project manager, an American named Ed Bullard, called Sundt at his hotel and said he had just as well go home because the award would not be made for some time. Sundt refused. "We came over here to either get the job or not to get it," Bob Sundt told Bullard. "So we are prepared to stay until that can be worked out."

This direct approach worked. A few minutes later Bullard called back and said that they had a meeting that afternoon in the contracts department of Aramco. In the meeting they were told that nobody was trying to get them to lower their price. More importantly, they were told that Sundt was going to get the contract as soon as they could close things out. Bob Sundt repeated that they would stay until the contracts were signed.

Actually, Sundt had already invested heavily in Saudi Arabia without having a signed contract. They had begun building an office building and had begun pouring concrete while waiting for the contract. It was a gamble, but a good one.

"The key to our successful start in Saudi Arabia was the fact that we had a game plan worked out before we received the award of the contract," Bob Sundt wrote. "Our mobilization was very quick and very complete. Our Heavy Equipment Shop immediately started purchasing equipment to run the project." Of course everything did not always work out as planned. Where you have dozens, then hundreds of workers in a foreign land with a very different culture and in a climate with temperatures even higher than back home in Arizona, problems will almost certainly come up. It didn't take long for some of the American workers to become unhappy with the living conditions and the strict cultural differences. Some left almost immediately after arrival, and the turnover was so severe that Sundt set up meetings between potential new hires and a psychiatrist, who told them what to expect in Saudi Arabia and how to survive.

Sundt's presence in Saudi Arabia lasted 11 years and has always been an adventure that made everyone proud. After the contracts ended and the workers went home, the ties Sundt made with the Saudis remained. Not long before the Los Angeles Olympics in 1984, the Saudis came to Sundt again and asked them to build an expensive home for their ambassador on some property they bought in the Los Angeles area.

Sundt Acquires Australian Contractor Thorby Bros.

Saudi Arabia was Sundt's largest international project, but a few others are worth noting. In 1980, Sundt acquired ownership of Thorby Bros., a small Australian general contractor located in Canberra. Sundt's relationship with Thorby Bros. began in the late '60s, when it provided Dyna-Strux panels to them for construction of an observatory in Australia.

When Sundt acquired Thorby Bros. they were finishing train washing facilities for the public transportation system in Sydney and for the Hamersley Mine in Western Australia. Thorby Bros. went on to build schools and perform work for the Royal Australian Navy. The company also pursued mining projects. The work that was done was successful, but the economy went into a down turn. Eventually the operation became so small that it was not practical for Sundt to own, so Sundt sold its interest back to the Thorby family.

Subsidiary Formed in Chile Pursues Mining Work

In 1982, Sundt entered the construction market in Chile through formation of Sundt Chile Ltda. This new subsidiary joined with two established mining and industrial contractors in Chile to form Brotec Delta Sundt Ltda. (BDS). The first project that BDS acquired was at the Chuquicamata open pit mine in northern Chile, the largest open pit copper mine in the world. BDS's work included installation of a large primary crusher inside the pit and a two-kilometerlong conveyor belt to bring the crushed ore out of the pit for processing. Shortly thereafter, BDS constructed a solvent extraction/electro-winning plant at the El Teniente mine in central Chile, which at the time had the largest underground mining operation in the world. BDS also installed a large primary crusher at the La Disputada mine, located in the Andes Mountains near Santiago. While Sundt was operating in Chile, it also pursued mining work in Columbia and in Peru. During the early '80s, Sundt pursued U.S. Military work in Micronesia, which is in the Pacific Ocean west and south of Hawaii. Sundt did a school project for the U.S. Army Corps of Engineers on the Kwajalein Atoll, approximately 2,500 miles west of Hawaii. At the same time the company also obtained work with the U.S. Navy on Moen Island (now known as Weno Island) in the Truk Atoll (now known as the Chuuk Lagoon), about 500 miles southeast of Guam. That project was for the installation of a two-million-gallon water storage tank, water and sewage distribution lines, and pumping stations.

Sundt's International Division Becomes Special Projects Division

In 1986, Sundt decided to exit the international construction marketplace. There were several reasons for this decision: The opportunity for additional work in Saudi Arabia appeared limited, the international marketplace had become very competitive, and company leaders felt it was best to concentrate their business development efforts on the domestic market, where there were many profitable projects to pursue. Sundt sold its interest in BDS to the other partners and stopped pursuing work in foreign lands. It also changed the name of the International Division to the Special Projects Division. However, the company soon found itself working overseas again—this time for the United States Government.

Sundt Takes on U.S. Navy Contracts in the Philippines

As the Special Projects Division was looking around for projects to pursue, it came upon an opportunity to build military family housing at Clark Air Base in the Philippines. Sundt

was awarded several contracts by the Navy. (The Navy is the construction agent in the Pacific for all Department of Defense operations.) The two phases of military family housing at Clark totaled over 1,000 homes, and that was followed by a contract to build a 10,500-foot runway at Clark.

The housing work was unusual in many ways. First, because wood could not be used on the first floor of any structure due to termite problems in the area, the homes were all built with metal framing. Sundt set up a shop in Seattle to prefabricate the wall frame panels and other structural components, shipped them in containers to Clark, and assembled them on site.



Aerial view of military family housing at Clark Air Base, Philippines



Clark Air Base runway, Philippines

Since the cost of labor in the Philippines was dramatically lower than it was in the mainland U.S., Sundt chose to use stucco on the exterior walls and cement plaster on wire lath instead of drywall for all of the interior walls and ceilings. The "lath and plaster" technique is similar to how homes in the U.S. were built up until the 1930s, when drywall became popular. The finished product was attractive, durable, and kept the homes at an even temperature in the hot tropical environment.

Construction of the runway faced many of its own challenges. The first was the unavailability of cement from local suppliers. The project team was able to identify a source in Indonesia, but had many difficulties getting it shipped to Clark Air Base. Also, cement in this part of the world comes only in bags. A warehouse was built to house the 1.2 million bags of cement needed for the runway project, and an around-the-clock operation was set up just to break the bags and transport the cement through an air system to six storage silos.

Another major obstacle was the rain, which began in May and continued almost uninterrupted for the next six months. There was also a 7.7 magnitude earthquake, which fortunately didn't cause any damage except for some minor cracking in the concrete that had just been placed.

Volcanic Eruption Destroys Just-Completed Construction

However, shortly after Sundt completed the runway and last few homes at Clark and turned them over to the military, a natural disaster of unprecedented proportions occurred. On June 15th, 1991, Mount Pinatubo erupted. This was the second-largest volcanic eruption of the 20th century and by far the largest eruption to affect a densely populated area. The eruption caused high-speed avalanches of hot ash and gas, giant mudflows, and a cloud of volcanic ash hundreds of miles across. The impact to Sundt's just-completed construction work was devastating and required extensive repairs. This coincided with the negotiations between the Philippine and U.S. governments regarding continuing use of Clark Air Base. The deciding factor was the devastation caused by the volcano's eruption. The U.S. backed away and prepared to move the military out of the country entirely. Sundt was the last U.S contractor working at Clark when the American flag was brought down for the last time.



But that wasn't the end for Sundt, because a Philippine developer named Mondragon asked the company to stay at Clark and create a resort called Mimosa Resort from the abandoned air base facilities. Sundt remodeled the four-story Bachelor Officers Quarters into an upscale Holiday Inn, and the Officer's Club became a casino. Sundt remained in the Philippines on assorted projects until 2001.



Mimosa Resort guest villas at Clark Air Base

Fuel oil storage tank at Diego Garcia

U.S. Government Work on Remote Diego Garcia Military Base

Other foreign work for the U.S. government was performed on Diego Garcia, an atoll in the Indian Ocean about 1,200 miles south of India that is part of the British Indian Ocean Territory (BIOT) and one of the most remote places on earth. Diego Garcia and its territorial waters are restricted from public access without permission and are exclusively used as a military base. The U.S. operates a large naval ship and submarine support base, military air base, communications and space tracking facilities, and an anchorage for pre-positioned military supplies for regional operations aboard Military Sealift Command ships in the lagoon. Sundt and a joint venture partner were tasked with building and renovating various facilities on the island, including erection of a 150,000-barrel fuel storage tank. The total value of the work was \$13 million.



The Adflex factory in Agua Prieta, Sonora, Mexico, was used for assembling electronic connectors.

Projects in Mexico

The company pursued work in Mexico during the 1990s, but completed only a handful of projects. Part of the reason was a devaluation of the peso, which brought a halt to a partially completed Wal-Mart Super Center in Morelia, Michoacán. Another project that ran into financing problems and was never completed was a dairy pasteurization and processing plant in the town of Tepic, Nayarit. One building project that did end successfully was the renovation of a 160,000-square-foot factory in Agua Prieta, Sonora, so it could be used for assembling electronic connectors.

The largest completed contract in Mexico was Camino Mina Pilares, a \$9 million, 37.5-mile-long access road to a wollastonite mine near Hermosillo. It was performed in joint venture with two Mexican construction firms.

Sundt's largest completed contract in Mexico was Camino Mina Pilares, an access road to a wollastonite mine near Hermosillo.

Perhaps the most interesting undertaking was an attempt to introduce metal frame construction to Mexico's housing industry. Sundt





Metal framed model homes in Ciudad Obregón, Sonora, Mexico

> and a joint venture partner built three model homes in Ciudad Obregón, Sonora, using this technique, which is commonly found on commercial projects in the United States. The interior and exterior walls of homes in Mexico are generally constructed of earthen brick covered with plaster, because wood is very expensive and most areas have severe termite problems. From Sundt's view, building homes in Mexico with metal studs would be quicker, less expensive, and would give the homes better insulation. Unfortunately the idea didn't catch on, because Mexican homeowners, as it turned out, still preferred the solid feel of brick walls, and Sundt's foray into the Mexico housing market was confined to just those three model homes.

Rebuilding the U.S. Embassy in Moscow

One of the more intriguing projects Sundt ever undertook overseas was its last in the 20th century—rebuilding the U.S. Embassy in Moscow.

In the 1980s the U.S. government hired a Russian contractor to build an eight-story office building in the embassy compound. But as it was nearing completion, American embassy workers found that the material they had been using was riddled with listening devices.

The embassy staff never occupied the building, and it sat for several years unfinished while the U.S. debated what to do with it. Eventually the embassy staff went in and began stripping the building from the inside. They took out partitions, flooring, ceilings, piping — nearly everything, in fact. Once it was stripped down to the skeleton of basic structure with exterior walls, they found that antennas for some of the listening devices ran up through the columns and shear walls. They even sliced across some of the shear walls and found listening devices—bugs—there as well. It was a mess.



The completed U.S. Embassy Executive Office building in Moscow, Russia (left) and under construction (right)

Eventually the U.S. government selected HOK Architects to design major modifications to the building and put the plan out for competitive bids to a group of U.S. contractors. Part of the criteria was that the bidders must be U.S. firms and it was also stipulated that everyone involved in any way had to have a top secret security clearance.

Sundt pursued the work in joint venture with two other firms, H.B. Zachary Construction of San Antonio, and Ralph M. Parsons Engineering of Pasadena, Calif. The joint venture was called ZPS, and Zachary was the sponsoring partner.

ZPS had to set up a secured facility on Zachary's property. It was fenced, had coded locks, and was secured so that only authorized personnel could get inside.

The joint venture also had a secured warehouse at the Port of Houston, where equipment and materials that had been purchased for the embassy project "in the blind" (no project identified) could be stored. All of this was done in the U.S. because the contract stipulated that nothing could be purchased overseas. All materials delivered to the warehouse at the Port of Houston—including minor items such as nails, cement, doors, windows and carpet—were inspected and placed in shipping containers.

The containers were shipped to Helsinki, Finland, and placed in another warehouse that was secured and managed by ZPS. The containers were frequently checked for any signs that

they had been tampered with or breeched. If there was a breech, the containers were sent back. If they were not breeched, they were stored in the warehouse.

Then the supplies were trucked across Russia to another secured warehouse in Moscow. When the shipments arrived at the Moscow warehouse, they were again checked for tampering, and if there was none, they were taken into the warehouse, opened, inventoried and stored.

The Russians were in the building right next door, filming everything that was going on at the job site. And they were pretty open about it.

At the job site, Sundt removed some existing structures and built a camp to house 300 people. The workers were restricted for the distance they could go from the job site without getting a special visa. The camp was like a dormitory and there were private rooms for each individual. On the top floor there were about a dozen residences for people with families. They had an infirmary, an exercise facility, a shop almost like a convenience store, where you could buy deodorant and toothpaste, bread and potato chips, Coke and beer. There was a little bar and a TV area, and a library.

The crews began work on the building by first removing the penthouse and top two floors, then the exterior walls all the way to the ground. Next, scaffolding was installed around the building and wrapped with tarps. This was done to stymie the Russians, who were busy filming and eavesdropping on the construction activities.

The building itself wasn't that difficult to build, but the need for top secret clearances, the challenging logistics and very tight security conditions were all huge challenges.



Pima County Administration building, Tucson, Ariz.

Chapter Twelve Growing with Arizona

ARIZONA CONTINUED TO GROW RAPIDLY during the latter part of the 20th Century, and so did Sundt.

Tucson Building

During this time the face of Tucson's central core changed dramatically. Significant downtown redevelopment projects, high-rises in and around midtown, and a new west side community college campus were built. As the only large regional contractor headquartered in Tucson, Sundt was there to make it happen.

Much of this growth stemmed from the City of Tucson's initiation of a far-reaching urban renewal program. Several city blocks in the old downtown area were razed to make room for new development. In 1967, Sundt built the 11-story Pima County Administration building in the newly emerging Pima County Complex on West Congress Street. The project also incorporated parking under the building and underground parking at the adjacent Health & Welfare Building. A short time later, just to the north, the three-level El Presidio Underground Parking Garage was built. Situated between City Hall and the Old Pima County Courthouse, it is covered by the El Presidio Park and is the center of the City-County Complex. Sundt then built pedestrian bridges on the north and south side of the County Complex.



Right and inset: Tucson Convention Center, Tucson, Ariz.

> In 1969, the Tucson Community Center (now known as the Tucson Convention Center) got underway. It is located south of the City-County Complex, on Church Avenue. Built for \$13.6 million, the project included an Exhibition Hall/Arena, Music Hall and small performing arts theater. Just to the east of the Convention Center, the new Tucson Police Department Headquarters and new Central Fire Station were built. Then, in 1972, the La Placita Shops and Offices were constructed just to the northeast and adjacent to the Convention Center. The nearby six-story La Placita Parking Garage was constructed at the same time.

Kelly-Walker-Hogue Office Building, now known as "The 4400 E. Broadway Building," Tucson, Ariz.

Two apartment complexes were built on the east side of downtown: the four-





story Martin Luther King Apartments and the six-story Armory Park Apartments, located adjacent to Armory Park. Also, Sundt built a \$4.25 million, four-story addition to the Mountain Bell (Telephone) Building.

In midtown, Sundt built the first high-rise to be constructed outside of the downtown area. The eight-story Kelly-Walker-Hogue Office Building, today known as "The 4400 Building" (in reference to its address on Broadway Blvd.) was built. It also had the distinction of being the first project on which Sundt used a tower crane. Two years later, in 1970, the 10-story Plaza International Hotel was built at Speedway and Campbell, near the University of Arizona. Today, the hotel is still a well-known local landmark with a new name, the Aloft Hotel.

Across the Santa Cruz River, to the west of downtown, the new Pima Community College West Campus was constructed. The \$11.5 million project is comprised of nine buildings, which include classrooms, laboratory space, administrative offices, and a gymnasium. Like the Tucson Convention Center, it was a large concrete project, and because of this Sundt purchased its first truck-mounted concrete pump.



Pima Community College West Campus, Tucson, Ariz.

Hughes Missile Systems Company

had been a major Tucson employer since its first facility was established in 1951. In 1993 Sundt was contracted to conduct a major expansion of its facilities in just 13 months—a very challenging task according to most industry experts. The work included the design, demolition and reconstruction of space in eleven buildings on two sites, a total of 132 separate "projects within a project." At the peak of construction there were 93 design professionals, 65 project management personnel and 868 craft works involved in the project. The largest new structure was Building 843, the RF Simfax facility. It was constructed with special foundations and structural requirements to support a three-story anechoic chamber, which is a special room designed to stop reflections of either sound or electromagnetic waves.





Hughes Missile Systems Company (now Raytheon), Tucson, Ariz.

Phoenix Building

By the early 1970s, Sundt was a wellestablished general contractor in Phoenix. The city and its surroundings were growing rapidly, which presented the company with many opportunities to build for a variety of institutional, industrial and private sector customers, as well as the U.S. military. Sundt developed innovative concrete formwork systems and concrete placement methods (called "New Approaches") for which it won



its first Build America award, and used these systems and methods to its competitive advantage.

Phoenix's explosive growth also provided many opportunities for the Heavy-Highway Division to construct new freeways, surface streets, flood control and many other types of infrastructure projects.

Notable projects of the 1970s include the American Express Operations Center, the Tempe Municipal Building (The Inverted Pyramid), and the Life Sciences Building at Arizona State University (ASU). Sundt also built the Trevor G. Browne High School as well as a new academic building on the Phoenix Union High School campus.

In 1973 and 1974 there were three projects of note, starting with the four-story, concreteframe Thorco Shopping Mall in Glendale. Next was the 32-story Arizona Bank Building,



Tempe Municipal Building, Tempe, Ariz.

Bob Sundt (left)

accepts Sundt's first Build America

Award for develop-

ment of innovative concrete formwork

systems and place-

ment methods.



Arizona Biltmore Hotel, Paradise Wing addition, Phoenix, Ariz.

> which has a unique reinforced concrete design that uses pre-cast concrete structural elements. At the time it was one of the tallest buildings in the United States constructed with precast concrete structural elements, all of which were cast in Sundt's Phoenix yard. Then the Val Vista Water Treatment Plant in Mesa was constructed.

> In 1976, Sundt completed the 107,000-square-foot Paradise Wing addition at the Arizona Biltmore Resort, using pre-cast concrete panels to duplicate the patterned-concrete-block construction employed on the main structure. The Arizona Biltmore is the only existing hotel in the world with a Frank Lloyd Wright-influenced design. The American Concrete Institute (ACI) honored the project with its "Excellence in Concrete Formation Award."

> That same year Sundt completed several other major projects, including the Hartford Office Park and a nine-story addition to the Arizona State Capitol's West Wing, which



Arizona State Capitol's West Wing addition, Phoenix, Ariz.



Right and inset: 91st Avenue Wastewater Treatment Plant, Phoenix, Ariz.

> incorporated two slip formed building cores. Other notable accomplishments were a major addition to the 91st Avenue Wastewater Treatment Plant, the Sentry Insurance Center West – Western Regional Headquarters, and two subsequent additions to the Sentry Insurance complex.

> The following year, Sundt completed the \$19.5 million Maricopa County Complex. The structural-steel-frame building has a 250-foot-tall reinforced concrete elevator shaft/building core that Sundt slip formed. Over the next two years the company completed the Best Western Headquarters, North Phoenix Baptist Church, Biltmore Plaza Shopping Mall and a classroom building at ASU.

FINOVA Corporate Center, Scottsdale, Ariz., was one of Sundt's largest office building projects during the 1990s.

During the 1990s, Sundt office building work in the Phoenix area remained strong. One of its biggest projects was the FINOVA Corporate Center in Scottsdale that had a







Desert Schools Federal Credit Union, Phoenix, Ariz.



Chase Bank Credit Card Processing Facility, Tempe, Ariz.

> contract value of \$50 million. Other large office buildings included a new headquarters for Desert Schools Federal Credit Union, two large office buildings for Prudential Insurance in Scottsdale, and the massive Chase Bank Credit Card Processing Facility in Tempe.

American Sky Broadcasting facility, Gilbert, Ariz.

In 1996, the Phoenix Building group found education work outside of Arizona.



It built three school projects (two elementary schools and a high school) in Colorado's central mountains with a joint venture partner. The contracts totaled \$40 million and were completed ahead of schedule.

In Gilbert, Ariz., Sundt built its first large broadcast facility, for American Sky Broadcasting. "ASkyB" was designed to provide up to 300 channels of digital satellite television programming to homes and businesses across the United States.



Superstition Freeway (U.S. 60), Phoenix, Ariz.

Heavy Civil Construction

In addition to buildings, the company was busy with Phoenix-area heavy construction. From 1974 through 1979, Sundt built six separate sections of the Superstition Freeway (U.S. 60) and two sections of Interstate 10, one near Buckeye and the other near Goodyear/Avondale.

In 1976, Sundt built a major section of the Central Arizona Project canal near Salome for the U.S. Bureau of Reclamation. Throughout the 1970s the company also performed more work for the U.S. Army Corps of Engineers. In 1978 it completed the Indian Bend Flood Control Project in Scottsdale and the Adobe Dam Flood Control Project in northwest Phoenix.

Sundt also constructed three major heavy civil projects for Maricopa County during this time frame: flood control levees in Buckeye, channeling the Salt River near the ASU campus in Tempe, and the Alma School Road Bridge over the Salt River. The company also built several major projects for the City of Phoenix, including the Sky Harbor Access Road and a section of Shea Blvd., from 32nd Street to Scottsdale Road.

The company's largest single heavy civil project during the 1990s was Reach Four of the Arizona Canal Diversion Channel (ACDC). The ACDC was a flood control project in north central Phoenix. Sundt's \$52 million contract was to construct a 4.6-mile-long segment of the channel that runs along the north bank of the canal between 12th and 40th Streets. The channel is 22 feet deep and ranges in width from 36 to 50 feet. At times, Sundt crews were excavating within a few feet of backyards in upscale neighborhoods, including exclusive areas near the Arizona Biltmore Hotel. For its work on Reach Four of the ACDC, Sundt won a prestigious
Build America award from the Associated General Contractors of America in 1994.

Another major project for the Heavy Civil Division during this timeframe was revamping the closed Bergstrom Air Force Base in Austin, Texas, into the city's new commercial airport. Sundt's \$46.5 million contract included extensive demolition to make way for new aprons, taxiways and a new 9,000-foot east runway.

Industrial Construction

Reach 4 of the Arizona Canal Diversion Channel, a flood control project in Phoenix, Ariz., earned Sundt a Build America award.

From the 1950s until the end of the century, Sundt performed several expansion projects for the Arizona Portland Cement Company (now CalPortland Cement), north of Tucson, Ariz.

For most of its history, Sundt has performed a variety of projects that could be considered "industrial" in nature, from power plant work to mine expansions. One of its longtime industrial customers was the Arizona Portland Cement Company north of Tucson. During a period that began in the late 1950s, Sundt carried out several expansions for Arizona Portland, which included a number of industry "firsts" for large and state-of-the-art equipment installations. Sundt was called back in 1972 for two more record-breakers—a preheater that was at the time was the largest of its type ever installed in the United States, and also the largest kiln installed to date. In 1999, Sundt undertook its largest ever contract for the cement plant-installation of a new raw material handling system. The heart of the two-phase, \$60 million project was a 510-ton-per-hour vertical roll mill. Manufactured in Germany, the mill was the first and largest of its type in existence at the time.



Chapter Thirteen Expansion to California

BEGINNING IN THE EARLY 1970s, SUNDT'S EXPANSION into California led to the acquisition of several large contractors in the state.

C.R. Fedrick, Inc., Joins Sundt

Not content to remain solely an Arizona contractor, Sundt expanded into California, beginning in 1972 with the acquisition of C.R. Fedrick, Inc., (CRF) based in Novato, which is just north of San Francisco. The decision to make CRF a wholly owned subsidiary of Sundt



came after the two firms had several successful joint ventures together. CRF was operated by C.R. "Dick" Fedrick. He and his father founded the firm as Action Electric in 1948. In 1959, Dick bought his father's interest in the company and renamed it C.R. Fedrick, Inc.

During its 37 years as part of the Sundt family of companies, CRF did almost \$1 billion of construction (measured in un-indexed contract amounts). Many of the projects were some of the most difficult and challenging

ever completed by Sundt. The office specialized in large-diameter pipeline work for water and sewerage systems. It also did associated pumping facilities, storage tanks, fuel and petroleum piping. And during the 1990s, when fiber optics systems were being installed nationwide,

CRF did many projects throughout the West, mainly in California, but also in Arizona, New Mexico, Texas, Utah, Colorado, Nebraska, Hawaii and Guam. It did many water conveyance projects for the U.S. Bureau of Reclamation and worked for the U.S. Army Corps of Engineers and the U.S. Navy. Other clients included many municipalities, county and state governments. Other than highly specialized items of work, most of the work was self performed.

CRF's largest contract was for the Mohave siphon for the California Department of Water Resources. The \$46.2 million project, which provides water for thirsty Southern California, consisted of three 12-foot-diameter steel pipes, each 11,400



C.R. "Dick" Fedrick

C.R. Fedrick's

largest project was the \$46.2 million

California Aqueduct Mohave Siphon feet long, set side-by-side in a trench. Each section of pipe was 60 feet long and weighed 61,000 pounds.

Throughout most of its history, the Novato operation was led by Dick Fedrick. Dick had a rich and colorful career in construction. Dick and the Novato office were always the masters of innovation. What appeared, at times, as risky work to others always spurred the creation of innovative construction means, methods and techniques that proved to be very profitable for Sundt. When Dick retired in 2007, he had been in the construction industry for 65 years, having started out working on the Los Alamos project in New Mexico during World War II, which coincidentally was built by Sundt. He passed away in 2009, just about the time Sundt closed C.R. Fedrick, Inc. due to a shortage of water resource project opportunities in California.

Northern California Expansion

In 1982 Sundt broke into the Northern California building scene through a joint venture with Nielson Vasko Earl (NVE) to build the Public Employees Retirement System Building in Sacramento. The \$60 million building of reinforced concrete has more than 1 million square feet of office space, in addition to a large parking garage. The building was named the "Best Architectural Concrete Project of the Year" by the California State AGC Building Chapter. Soon after this, Sundt and NVE joint ventured the \$33 million Clark County Detention Center in Las Vegas, Nevada.

When NVE formed an open shop subsidiary, called New Merit Construction, in 1984, Earl became its leader. Several years later this company broke away from its parent, becoming Earl Construction Company. Earl and Sundt then became joint venture partners to build the 400 R Street office building and the 500 R Street parking garage in Sacramento, the Spring House Apartments in Pleasanton, and the Reflections Apartments in Fresno.

When NVE went out of business in 1989, Sundt moved into the vacuum by opening an office of its own in Sacramento. Its first major project was construction of Engineering Unit #2 on the campus of the University of California, Davis. The \$26 million project included a 10,000-square-foot clean room and over 30 laboratories. Several more projects soon followed, including jobs on the University of California, Davis campus and the medical school in Sacramento.

Sundt Acquires Earl Construction



In 1995 Sundt acquired Earl Construction Company and Bob Earl stayed on to manage the subsidiary until he retired in 2004. Under his leadership Sundt's presence in Northern California continued to grow. It became a major player in the assisted living market, which provides facilities for elderly citizens who are no longer able to live on their own. The company also ventured into the construction of facilities for wineries

Bob Earl



Ferrari-Carano Winery, Healdsburg, Calif. located north of San Francisco. The largest of these was a major project for the wellknown Ferrari-Carano Winery in Healdsburg. Sundt's crews expanded the crushing facility on an extremely tight schedule so as not to disrupt the winery's operations. Earl also helped the R.H. Phillips Winery in Esparto increase its capacity by adding fermentation tanks and expanding its bottle storage facilities.

As the new century began, Earl successfully secured two large retail projects, Plaza Escuela and Olympia Place, both in Walnut Creek. Earl was renamed Sundt Construction, Northern California at this time to draw the Sundt business units into a more close-knit family.



Plaza Escuela, Walnut Creek, Calif.



Olympia Place, Walnut Creek, Calif.

Southern California's Ninteman Construction Joins Sundt

San Diego-based Ninteman Construction Co. traces its roots back to 1947, when Lambert J. Ninteman established the company in Riverside. In 1954, he received a contract from the Catholic Diocese of San Diego to construct the Immaculata Chapel and other structures for the College for Men at the University of San Diego (USD). Lambert asked his younger brother, Vincent, to join him as a partner because of his experience with managing multi-million-dollar projects. Because of this work, the company relocated to San Diego a few years later.

San Diego was a growing city at the time, and Ninteman Construction played an important role in its development. In addition to the USD work, which lasted 13 years, the company built



many churches, schools and other buildings. In 1970, Dean Ninteman joined
the firm. He was Lambert and Vincent's nephew, and when they retired
a few years later he became president and ran the company very successfully for many years. Under his leadership Ninteman built several projects
for American Assets, as well as the McMahan Corporate Headquarters,
Great American Bank parking structure, Fifth and Laurel office building,

and several major retail projects, including Del Mar Plaza and Plaza Bonita.

During the early 1980s Sundt unsuccessfully pursued several projects with Ninteman as a joint venture partner. In 1989, when Dean was nearing retirement age, he



approached Sundt about a buyout. Sundt was agreeable, and shortly thereafter Ninteman Construction Co. became a wholly owned subsidiary of Sundt. Dean Ninteman stayed on until the early 1990s to help with the transition.

The company continued to grow along with San Diego, building such well known projects as a \$21 million addition to the Malcolm A. Love Library on the campus of San Diego State



Malcolm A. Love Library, San Diego State University

Dean Ninteman



Nicholson Commons was one of several new buildings Ninteman built for Point Loma Nazarene University.

> University, a 975-space parking garage for the University of San Diego, the \$14 million headquarters building for Insurance Company of the West in Del Mar, and several new buildings at Point Loma Nazarene University. Ninteman Construction also built the Neurosciences Institute at the Scripps Research Institute in La Jolla. The \$16 million project was completed in 1995. It involved very complex concrete work and the work of over 100 subcontractors. It won three awards for construction excellence. Notable medical projects during the 1990s included the Mary Birch Hospital for Women and the Sharp Rees-Stealy Medical Office Building.

> Other significant contracts included the two-building General Instrument project, completed in 1997. The \$32 million contract was Ninteman's largest to date. The company also



Mary Birch Hospital, San Diego, Calif. built the Balboa Naval Hospital for the U.S. Navy, as well as buildings at Camp Pendleton and on Coronado Island.

At the turn of the century, Ninteman transformed the landmark Hotel El Cortez into apartments. Originally constructed in 1927, the 16-story hotel underwent a massive modernization in the 1950s, but fell onto hard times and was vacant two decades before the conversion project was undertaken. Ninteman completely restored the historic landmark to its original design, a process that involved salvaging many building components and recreating elaborate exterior ornamentation that was stripped from the El Cortez during its modernization. Another major project during this era was Treo@Kettner, a 26-story, 328-unit condominium tower in the heart of San Diego. Ninteman was the construction manager for this \$57 million development, which covers a full city block and includes parking for 441 vehicles.

Like Earl Construction, its sister company in Northern California, Ninteman was renamed Sundt Construction in 2000 to bring all of the Sundt business units together under one brand. Military housing projects, from left: Fort Lewis south of Tacoma, Wash.; Bayview, San Diego, Calif.; and Fort Drum, upstate New York



Chapter Fourteen Federal Projects

SUNDT HAD ALWAYS BEEN QUITE AGILE IN FINDING WORK and trying new techniques, and this was especially true with the federal government.

Military Family Housing

One of Sundt's most successful areas of federal work has been building homes, and often entire neighborhoods, for service members and their families.

Because of the country's switch to an all-volunteer military, government officials during the Reagan administration were focusing a lot of attention on recruiting and retaining service men and women. While this was happening, some significant shifts in demographics were also taking place: more military members were getting married earlier in their careers; competition for better-educated personnel, engineers and computer technicians was increasing; and the families of Army, Navy, Air Force and Marine personnel were becoming more involved in the decision to volunteer. Increasingly these families wanted to live just as the rest of American society was living.

What they encountered instead was base family housing that was full most of the time, and waiting lists to get a home assigned sometimes stretched over a year. Most of the available homes were post WWII structures built in the late '50s and early '60s. Many were in need of substantial repairs and were not at all like civilian homes "outside the gate."

This situation led to a push to improve the quality of life for the service members' families, and resulted in programs that built or renovated thousands of homes and upgraded aging neighborhoods across the country.

The military determined early they could not use low bid to procure their new housing, since many of the existing structures had asbestos and lead paint that would need to be abated, and in some cases infrastructure that would need to be replaced. To get the biggest bang for the buck, as well as designs that were market-driven, most Department of Defense agencies used a negotiated best value approach in their procurement. This meant the proposers took the basic requirements (number of units, site area, amenities, etc.), added the most enhance-



Altus Air Force Base housing in southwest Oklahoma

ments they could from the government's wish list and developed a proposal that offered the most home for the money.

What made these contracts unique was that the budget amount, or funds available, was often published along with the project requirements. This meant the proposers were all working with the same cost target, but their products, approach and amenities could end up being quite different.

These proposals were often quite lengthy and detailed, so the cost to compete for them limited the competition. Sundt, together with Actus Corporation as a joint venture partner, excelled in this area and developed a reputation across the Department of Defense as one of the best military family housing providers.

As the program grew in size, the military determined they could get even more value for its money by creating bundles of projects that a select group of contractors could pre-qualify for. This narrowed the competitive field even further and allowed the end-user to be even more specific about the project requirements, knowing that the contractor selected would be very familiar with all aspects of their program.

Sundt was selected to participate in many of these short list programs. In one instance, the company received five separate contracts for housing at the same Air Force base. Being selected more than once on a particular base was not unusual for Sundt. Its military family housing team was called back by 19 different installations to construct neighborhood after neighborhood of housing.

Sundt's first military family housing project was located at Naval Weapons Station Earle in Colts Neck, New Jersey. Sundt and a joint venture partner had just started construction when the Navy put the project on hold because the site encroached on a wetlands area. The site was basically abandoned throughout the harsh winter that followed, and when crews returned in the spring they found their initial work had been heavily damaged by the snow and freezing temperatures. A great deal of re-work had to be done before the homes could be completed.



Federal housing project, Guam

At a project at Altus Air Force Base in southwest Oklahoma, a neighborhood of 184 homes was about half-way finished when a massive storm hit. No one was hurt, but large hail and high winds caused considerable damage, which Sundt repaired while it was finishing the remainder of the homes so they would be ready for Air Force families on schedule.

Military Housing for High-Risk Environments

In the San Francisco Bay Area, Sundt was awarded three separate Navy housing contracts which required designs that would meet the area's stringent seismic codes. Not long after one of these projects at the Concord Naval Air Station got underway, a major earthquake hit, causing damage to most of the older structures in the area. However, since Sundt's houses had post tensioned "raft" foundations, which tend to move as a solid piece during an earthquake, they sustained only minor damage.

In addition to the housing at Clark Air Base in the Philippines (discussed in the chapter on international work) Sundt also worked on the Pacific island of Guam, building a 300-unit housing project that had to withstand the high winds of super typhoons that occur frequently in that part of the world. To meet this and other requirements, Sundt choose concrete for the walls and roofs. Because the climate on Guam is very hot, energy efficiency is also a great concern. To address the structural requirements, along with the need for insulation, Sundt used an expanded polystyrene (EPS) block forming system for the reinforced concrete walls. Over 260,000 EPS blocks were manufactured for the project on the island. These blocks were stacked like LEGOs and filled with concrete. The final product was a sturdy home that was well insulated and quite sound proof.

Shortly after Sundt completed this project, super typhoon Paka hit the island. The winds, which were in excess of 230 miles per hour, were the strongest ever recorded there and resulted



Fort Drum in upstate New York was one of Sundt's largest military housing projects.

in extensive damage all over the island. Sundt's houses suffered some exterior damage but remained intact throughout the storm.

'Mega' Housing Projects

Sundt worked on several "mega" housing projects for the military. One of the largest was at Fort Drum in upstate New York, and it was a significant job in many ways. Over 1,000 homes were constructed over three building seasons. Winters in this part of New York are extremely challenging, and the Lake Effect snowfall is often measured in feet rather than inches. Innovative production techniques were needed to construct the homes' exteriors during the good weather so crews could stay busy inside during the extremely cold winters.

A sprawling 812-unit community of homes was built in the San Diego area under a quality of life program the Navy called Neighborhoods of Excellence. Sundt's winning proposal for this project contained a comprehensive recycling program for the 723 existing 1950s-era row-houses that were to be torn down. Long before it became the fashionable thing to do, Sundt and the Navy took a "green" approach to this project, which resulted in the recycling of over 80 percent of the 124,000 tons of material that resulted from the demolition process. This also produced significant cost savings for the Navy, because the debris didn't have to be hauled to a landfill.



Bayview in San Diego, Calif., was one of Sundt's "mega" housing projects for the military.



Joint Base McGuire-Dix-Lakehurst housing project, New Jersey

> Bayview, as the new neighborhood is called today, looks nothing like its predecessor. Its three- and four-bedroom townhomes have all the amenities of a modern San Diego neighborhood, including spectacular views of the harbor.

> Another notable project was built for a private developer as part of the Air Force and Army's consolidation into what are now called Super Bases. At Joint Base McGuire-Dix-Lakehurst, located in New Jersey northeast of Philadelphia, Sundt constructed over 1,600 new homes and neighborhood amenities. This project was a unique collaboration with the development group, which provided most of the materials through a special purchasing arrangement that saved a significant amount of money.



Military housing project at Super Base Fort Lewis, south of Tacoma, Wash., included new homes and renovation of existing homes. Fort Lewis, located south of Tacoma, Washington, is another Super Base, serving the Army and Air Force (McCord AFB). Sundt was chosen as the design/assist contractor by two national developers as part of a team to propose, win and construct more that 450 new homes and renovate over 1,000 existing homes. The renovation phase was a unique challenge for Sundt's workers, because the housing at Fort Lewis was almost always fully occupied. This meant that work on these units was often done when the service member was on deployment and the family could be placed in temporary housing. Sundt's crews became very adept at adapting to shifting timeframes and locations, all while working in an occupied neighborhood. The Fort Lewis project was spread over 12 different sites that the development group called villages, with each bearing a significant name in Army history.

Another notable project was at 29 Palms California for the U.S. Marines. This 600-unit project was built under what was called the 801 privatization program. A joint venture called Sundt/Actus/Bland created a development company to pursue this program's opportunities and won the project at 29 Palms. After completion, the development company owned the housing for almost 20 years and leased it back to the Marines.

In all, Sundt constructed over 14,000 units of military family housing during the '80s, '90s and during the first decade of the 21st century, when the program to upgrade homes for military families was at its peak.



Los Alamos Flood Control, Los Alamos, N.M.

Los Alamos Flood Control Structure Presented Multiple Challenges

One of Sundt's more unusual projects for the federal government occurred in 2000 in Los Alamos, New Mexico, the same location where the company built facilities that were used to develop the first atomic bomb 57 years earlier.

It all began with a devastating wildfire at the Los Alamos National Laboratory (LANL) that made national headlines that year. The U.S. Forest Service had started a controlled burn to clear brush, but the blaze escaped control and burned for over two weeks, devastating

48,000 acres of wilderness and destroying 400 homes. The fire encroached dangerously on the LANL, but was extinguished before inflicting damage to the facility and its nuclear reactors.

Soon it was apparent that while one crisis had been averted, another was looming on the horizon. The denuded landscape around Pajarito Canyon left the area vulnerable to flooding, because much of the vegetation that absorbs runoff and acts as a natural barrier to erosion had been destroyed. Later, inspectors surveying the damage also noted that the scorching heat of the fires had literally burned the soil, causing it become glazed over and hydrophobic, or water repellant.

Several experiments showed that the altered soil chemistry created a situation in which water simply pooled or ran off to lower ground. Factoring in these conditions, hydrologic models predicted that storm-water runoff in the area could increase by as much as 100 percent, sending a wall of water rushing down Pajarito Canyon.

In the bottom of the canyon sits Technical Area 18 (TA-18), a highly secure nuclear research facility used for training and nuclear weapons stockpile stewardship, one of very few such facilities in existence.

After evaluating the situation, the Department of Energy (DOE), the LANL and the U.S. Army Corps of Engineers determined that a serious flood at TA-18 could have disastrous results. The solution, construction of a flood control structure in the canyon one mile upstream from TA-18, became the Corps' most urgent project in the world at the time.

Sundt Construction was contacted and, utilizing an existing maintenance contract, was quickly assigned the task. But it was the demanding, fast-track schedule that became the project's biggest challenge. With the summer monsoons threatening, the project had to be completed as quickly as possible.

The research conducted at Los Alamos National Laboratory involves some of the most closely guarded secrets in the world. Background checks and security procedures for lab personnel are rigorous, and no exception could be made for Sundt's project.



A large pipe transports concrete from the canyon lip to the jobsite.

To provide access to the jobsite, Sundt bulldozed a dirt road down the side of the canyon that had a 22 percent grade. Halfway down the canyon wall, a flat area was created



Left: Sundt utilized an earth fill to form the RCC dam (side view).

Right: Downstream face of dam looking back up into the canyon.

> where articulated trucks could be loaded with concrete. The concrete was batched on the lip of the canyon and transported to the area via a large pipe. The loaded trucks then made a treacherous journey to the bottom of the canyon where they dumped the material at the dam site.

> The first step in the project was to construct a keyway, which would anchor the structure and prevent it from being pushed downstream by a powerful wall of water. The keyway extends 45 feet below the streambed, measuring 10 feet wide at the bottom and 40 feet wide at the top. Once the keyway was completed, crews continued to build the structure on top of it using a conventional mix of roller-compacted concrete (RCC), which was chosen because it sets up quickly, allowing crews to raise the structure about five feet per day.

> As the structure began to rise above the streambed, crews started work on the stilling basin, another critical element of the project. During times of heavy storm runoff, the turbulent force of water passing through the downstream gallery opening could slowly erode the base of the structure. This problem would be magnified during a 100-year flood, when the structure would be filled to capacity and water would surge over the top. The construction of an RCC stilling basin at the foot of the structure prevents churning floodwaters from scouring the

base of the structure.

The structure, which was substantially complete in 63 days, required 67,000 cubic yards of concrete. It is 390 feet wide at its crest, 115 feet tall, and 93 feet thick at its base.

Sundt's remarkable accomplishment reminded company veterans of the stories they had been told of the company's first



In this photo looking downstream at the back side of the dam, crews are removing the earth after placement of the roller-compacted concrete. experience in this rugged area 35 miles northwest of Santa Fe. It was there in 1943 that Sundt built the original Los Alamos facility under emergency wartime conditions.



Sundt built approximately 100 miles of Border Fence in Arizona and California.

Border Fence Construction Follows 9/11

After the terrorist attacks on September 11, 2001, the Federal Government stepped up security in many areas, including along the border between the United States and Mexico. Much of this vast expanse of sparsely populated land was without a fence of any kind, and the Department of Homeland Security decided to remedy the situation with sections of fence that would prevent entry by not only illegal immigrants, but also smugglers and their vehicles.

Sundt built approximately 30 miles of this fence in Arizona and California, most of it consisting of four-inch-diameter sections of pipe, filled with concrete and spaced four inches apart. The fence is approximately 15 feet tall and buried deep enough in the ground to keep vehicles from being able to topple it.

Building these border fence projects presented a number of challenges. The first was extremely short project schedules, dictated by officials desiring to remedy the "open border" problem as quickly as possible. Next was the need to fabricate the steel pipes and deliver them to the remote jobsites. Because at the time the demand for steel was at an all-time high in the southwestern United States due to the construction boom, steel fabricators were already working at full capacity. For some sections of the fence it became necessary to employ the services of several separate steel fabrication plants to achieve the level of supply that was necessary to get the project completed within the allotted schedule.

Once the time slots were reserved for the steel fence poles and contracts were negotiated with suppliers, then extensive coordination between the project management and the various



Weather extremesincluding desert temperatures often exceeding 105 degrees and monsoon rainswere some of the challenges workers faced during fence construction.

suppliers was required to maintain a constant flow of materials to the site, but only enough to complete each day's work, since no excess material could be stored on site.

Historically, the security along the U.S./Mexico border has been fraught with issues of smuggling, thefts and myriad other criminal activities. After initial meetings with the Border Patrol, Sundt was informed early-on that leaving materials or equipment at remote job site locations would be a serious mistake, not only for the company, but also its client, the Department of Homeland Security. As a result, job site security was a high priority. For many of its border fence projects, Sundt hired security specialists to guard the job site 24 hours a day, seven days a week to protect construction workers, equipment and supplies.

Weather was also challenging to the success of these projects. Temperatures in the desert Southwest often exceed 105 degrees on a daily basis. Additionally, annual monsoon rains can add high humidity to already uncomfortable working conditions. As a result, welders often worked at night so that the effects of working under extreme heat were lessened and incidents of dehydration were decreased.

On one of the Border Fence projects, survey crews revealed that several Mexican National families had built their homes directly on the border line, and in some cases the homes were built over the line. It became necessary to move homes, and in some cases, cut through existing properties to put the border fence in its proper place. By adjusting the sequence of work, Sundt worked around each of the questionable properties in order for the local authority to assist landowners with relocations and/or rebuilds.

Chapter Fifteen New Leadership and a New Century

BY THE EARLY 1990s, SUNDT WAS WELL KNOWN as a leader in the construction industry. It had diversified into many types of construction beyond general building, expanded into new geographic markets, built landmark projects, and was consistently ranked by *ENR Magazine* (the "bible" of the construction industry) as one of the 100 largest construction companies in the nation.

Doug Pruitt Named Sundt President



In 1992, Robert Sundt retired and Doug Pruitt was named to replace him as president. Pruitt joined the company in 1966 at the age of 21 and had steadily risen through the ranks, from project engineer and estimator to head of the Phoenix office and finally Building Division Manager. An Oklahoma native, Pruitt earned an associate's degree in civil technology and later graduated from the University of Phoenix with

a Bachelor of Science degree.

Pruitt's time at the helm brought increased attention to issues such as cost control, succession planning, and training. He and other members of senior management created plans that focused on these areas and put the company on a track for dramatic growth.

BHAG BIG HAIRY AUDACIOUS GOAL

A critical part of this effort was creation of Sundt's first strategic plan. Along with this came the first BHAG. (The term 'Big Hairy Audacious Goal' [BHAG] was proposed by James Collins and Jerry Porras in their 1994 book titled "Built to Last: Successful Habits of Visionary Companies.") It was set at 1-100-10, meaning \$1 billion in revenue, and \$100 million in net worth, within 10 years. Many in the company thought this goal was unachievable, but as the profit centers began to follow the strategic plan, the company's financial performance improved dramatically, and the first BHAG was achieved in just eight years. Since then the BHAG has been reset to give the company a new strategic vision to pursue.

J. Doug Pruitt

As part of this plan, Sundt started to invest a lot more in its people, providing the broadbased developmental foundation they needed to do their jobs well. By investing in employees and making sure they had the right skill-sets, Sundt was sowing the seeds for the company to prosper in future years as well.

Another key step was formal succession planning. Today the top leaders of the company identify up to three successor candidates, provide an assessment of when they will be ready, and list the specific developmental activities each successor should focus on.

Investment in Technology

Sundt also began to improve its use of technology. Senior management realized that it was critical to invest in the future by purchasing technology that would help drive productivity and improve quality. Today Sundt is known as a leader in the construction industry in the productive use of technology.

The company also conducted an evaluation of its assets, which resulted in some underutilized land and equipment being sold.

While these changes were taking place, another longtime leader retired. H. Wilson Sundt, who had spent his entire career at the firm founded by his grandfather, retired in 1998. Doug Pruitt was named to replace him as chairman of the board and chief executive officer.

Pruitt believed that Sundt's future would be bright if it continued to focus on disciplined business practices, diversification of its markets and services, and using innovation to drive success. Innovation, both in construction techniques and the way construction services are delivered, played a pivotal role in Sundt's continued growth.

Alternate Project Delivery Methods

One of the most important drivers of the company's success during this period was its focus on APDM, or Alternate Project Delivery Methods.

In the early days of construction, when the work was generally quite simple, most contracts were awarded based on the lowest price submitted on bid day. That began to change in the middle of the 20th century, as projects became larger, more complex, and often had construction schedules that were compressed to meet the owner's need for quick occupancy. Private owners were the first to embrace APDM, which ensure project success by including the contractor's qualifications and experience among the criteria for selection. Gradually the public sector began to see the value of APDM, and today many government entities also allow the use of these methods. The two most popular ones are Construction Manager at Risk, which puts the contractor on the project team early in the design phase, and design-build, which gives the owner a single point of responsibility for the entire design and construction process.

During the first decade of the 21st century, Sundt used both of these delivery methods extensively on a variety of key projects for both public and private owners.



Nighttime exterior of the Walter Cronkite School of Journalism and Mass Communitcation, Phoenix, Ariz., (right), with classroom and news studio (far right).

Walter Cronkite School of Journalism and Mass Communication

This 223,000-square-foot building in downtown Phoenix received a national award for the use of the design-build delivery method. When it accepted the \$71 million contract, Sundt had to guarantee that the project would be designed and built on a schedule that was just under two years.

The scope and timeline were enormous challenges right from the start. A building that complex, located in a dense urban environment with all of the usual site access and noise restriction issues, would normally take three to four years to design and construct.

The Cronkite building is an ultra-modern, six-story structure of glass, steel and concrete. Its features include a multi-tiered public forum; a 144-seat venue equipped with ready-forbroadcast high-definition TV cameras; and a glass-enclosed space to display artifacts about the news media, the school and the career of the school's namesake, legendary CBS News anchor Walter Cronkite.

Other building features include seven state-of-the-art professional newsrooms and media incubators, seven other digital computer labs, the Sony TV Studio, the Cronkite News-Watch Studio, two studios for KAET-TV Channel 8, one of the country's largest PBS stations, 17 fully mediated classrooms, nearly 1,000 classroom seats and 280 digital workstations for students.

Phoenix Loop 202 Widening

Sundt and a joint venture partner completed a large design-build contract for the Arizona Department of Transportation in 2010: the widening of more than 10 miles of the Loop 202 freeway that runs through Phoenix and a number of surrounding cities. The project helps



Loop 202 freeway, Phoenix, Ariz.

Renovated interior at the Tucson

International

manage increasing traffic volumes by adding general purpose lanes along ten miles of the freeway's eastbound side and approximately two miles along the westbound side.

Twenty-two bridges were widened as part of the \$188 million project, including a milelong bridge which Sundt built in the 1990s that spans the Salt River. The contract included the installation of about 500,000 square feet of various kinds of retaining and noise walls, as well as landscaping and other aesthetic treatments.

Tucson International Airport Terminal Expansion

At the Tucson International Airport, Sundt constructed a major expansion in 2002 that doubled its capacity to eight million passengers per year.

During the 30-month, \$46 million Construction Manager at Risk project, Sundt enlarged the 750-foot-long terminal by adding 70 feet to its entire north side, put in new baggage handling facilities, and renovated most of the interior spaces.

The biggest challenge facing the project team was performing the work in such a way that it did not interfere with the airport's normal operations. The first step was to break the project into two phases. Airport, Tucson, Ariz. During the first phase, the center of the



terminal was closed, and passengers entered and exited the terminal from the east and west sides of both the ticketing and baggage levels.

Once work in the center of the terminal was finished it was reopened to passenger traffic, and Sundt went to work on the east and west sections. The Tucson International Airport Expansion Project was essentially two projects, back to back. That extended the project schedule, but allowed the terminal to stay open throughout the construction work.



The reconstructed Fourth Avenue Underpass serves as a modern gateway to downtown Tucson, Ariz.

Tucson's Fourth Avenue Underpass

A major milestone in the City of Tucson's plans for downtown revitalization was reached in 2009 when Sundt used the Construction Manager at Risk delivery method to reconstruct the Fourth Avenue Underpass. The structure serves as a symbolic gateway to downtown Tucson that connects the city center with the busy Fourth Avenue business district and nearby University of Arizona campus.

The original Fourth Avenue Underpass, built in 1916, did not meet current safety or Americans with Disabilities Act standards, was subject to frequent flooding, and could not handle increasing traffic volumes. In its place is a modern underpass that features two vehicle travel lanes, raised sidewalks, dedicated bicycle lanes, landscaping, improved lighting, and room for the city's streetcar.

UC Davis Graduate School of Management

Sundt completed the \$34 million University of California, Davis Graduate School of Management, Offices and Conference Center in 2009. It was the first project ever built on the campus using the design-build method and also its first LEED-certified building.

One of the two buildings included in Sundt's contract was Gallagher Hall, a threestory, 40,000-square-foot facility that houses the university's Graduate School of Management and forms part of an attractive new main entrance to the campus. The building contains classrooms, a state-of-the-art Student Affairs and Career Services center, an outdoor garden, and a courtyard. The second building is a 43,000-square-foot conference center that houses the University Relations department on the second floor, with a ballroom, conference rooms and space for a future restaurant on the ground floor.

The buildings are cooled by a radiant system in which coiled water pipes are located 16 feet below the building pad, where the temperature is relatively constant year-round. The water is naturally chilled, then circulated in the radiant slab and floor systems to cool the building.



California, Davis Graduate School of Management and Conference Center was the school's first LEEDcertified project.

The University of

Pursuing Larger Projects

To achieve its growth goals, Sundt began to focus on acquiring larger projects, where the company's expertise could be used most effectively. This put it in direct competition with some of the country's largest general contractors, but a heightened focus on business development and excellent project performance allowed Sundt to be successful against some of its strongest competitors.

Apollo Riverpoint Center

The Apollo Riverpoint Center is a Phoenix landmark. Completed in 2007, the \$107 million, 600,000-square-foot facility is located at Interstate 10 and 32nd Street and is home to Apollo's University of Phoenix Online Campus.

The 38-acre campus includes a 10-story office building and two six-story buildings. Two parking structures, plus surface parking, can accommodate up to 4,500 vehicles. The office

KURBERSER.

Apollo Riverpoint Center, Phoenix, Ariz.

buildings are cast-in-place concrete structures clad in copper, glass and precast panels. Sundt performed the concrete and infrastructure work with its own crews.

Fountainhead Office Plaza

Just a few years after Riverpoint Center was finished, Sundt was again tapped for a major Apollo-related project in Phoenix, this time right next door to the company's Tempe headquarters.

The \$65 million Fountainhead Office Plaza is owned by USAA Real Estate Company. It occupies a 12-acre parcel of land near the corner of 55th Street and Fountainhead Parkway. The 17-month





Right and above: Fountainhead Office Plaza in Tempe, Ariz., features two buildings and a parking structure

project began in 2009 and included demolition of three existing buildings and associated parking areas, reconfiguration of a lake, and the construction of one ten-story building, one six-story building, and an above-grade parking structure that accommodates 1,800 vehicles. The University of Phoenix became Fountainhead Office Plaza's sole tenant when the project was completed in 2011.



New corporate headquarters for The Dial Corporation in Scottsdale, Ariz., exterior (right), roof garden (top inset), and corporate office (bottom inset)

Dial Corporate Headquarters

Sundt added another household name to its client list in 2008, when it completed a four-story building in Scottsdale, Ariz., that serves as the new corporate headquarters for The Dial Corporation. Dial manufactures and sells consumer products and employs more than 2,300 people worldwide. Some of the 130-year-old company's well-known brands are Dial[®] soap, Purex[®], Right Guard[®], and Soft Scrub[®].





The 335,000-square-foot building's first two floors are devoted to product research and development, which includes several pilot plants where Dial test-manufactures products being considered for full-scale production. The top two floors are the company's corporate headquarters, while a three-level subterranean parking garage provides parking for approximately 1,000 vehicles. Dial's corporate headquarters also joined the ranks of the many "green" facilities built by Sundt. Some of its environmentally friendly features include a low heat-island effect due to lack of asphalt paving, low light pollution because of the kind of outdoor lighting that was chosen, a roof garden, water-efficient landscaping, and the incorporation of recycled doors, flooring and other "used" materials into the construction of the building.



The I-10 widening project through Tucson, Ariz., was completed approximately 10 months ahead of schedule.

I-10 Widening Through Tucson

When Sundt and a joint venture partner set out to widen six miles of Interstate 10 through Tucson, they knew they had their work cut out for them. As the largest highway project ever undertaken in the State of Arizona, the \$200 million contract involved expanding the highway from six to eight lanes and adding sixteen new bridges and underpasses at seven cross streets.

As with most highway projects, the major challenge on I-10 was maintaining traffic flow while providing space for the new section of the freeway to be built. The project was complicated further by the fact that the entire roadway had to be realigned, not just expanded. In addition, all of the bridges were demolished and rebuilt to accommodate higher volumes, which meant access and exit ramps throughout the project area had to be closed for long periods of time. While through traffic was allowed on the highway, locally bound traffic was diverted to frontage roads and surface streets.

The I-10 widening project was completed in 2009, approximately ten months ahead of schedule.

Phoenix Area US 60 Widening

Many people who live in Tempe, Mesa, and other "East Valley" Phoenix suburbs depend on US 60 for their daily commute. But by the dawn of the 21st century, rapid growth in the area had made this major traffic artery heavily congested.

Sundt, in joint venture with another contractor, was awarded a \$196 million designbuild contract in 2001 to make major improvements to the aging freeway, beginning where it intersects Interstate 10 and stretching 13 miles to the east.

The main purpose of the project was to add additional general purpose lanes and a highoccupancy vehicle (HOV) lane. In doing that, many other things had to be constructed as well,



US 60 freeway widening project, Phoenix area, Ariz.

including a new "flyover" bridge for the HOV lane where it connects with I-10. Four bridges were also widened to handle the higher traffic flows.

The project involved construction of nearly a million square feet of sound barrier walls using masonry block, producing and placing 200,000 cubic yards of Portland cement concrete paving, and casting in place approximately 245,000 square feet of concrete fascia walls.

Phoenix Light Rail

The Phoenix area's first ever light rail system began operations in 2008. METRO Light Rail's 20-mile system connects Phoenix to several neighboring municipalities and will extend even further when future phases are completed.



METRO, the Phoenix area's first light rail system, began operating in 2008.



METRO Operations and Maintenance Center, Phoenix, Ariz.

Sundt and a joint venture partner built a large part of the new system under six individual contracts, which together totaled more than \$233 million. The work included construction of 14 miles of track, the system's Operations and Maintenance Center, and two park-and-ride facilities. Sundt also worked as a subcontractor to install the project's 15 traction electrification substations and six Signals and Communications buildings.



Sony Electronics North American Headquarters, San Diego, Calif.

Sony Electronics North American Headquarters

One of the company's landmark projects was completed in San Diego in 2009. The 11-story Sony Electronics North American headquarters building was a \$170 million project constructed by Sundt and a joint venture partner.

Sony's headquarters includes 450,000 square feet of office space, plus a fitness center, dining facility, and one level of underground parking. For the foundation, Sundt's crews placed more than 4,500 cubic yards of concrete in one continuous operation, one of the largest and most logistically complex concrete placements in Sundt's history.

The building is now an attractive and efficient workplace for 1,400 Sony employees.



High School, San Diego, Calif.

Mater Dei Catholic

complex includes an administration building, library, fine-arts theater, gymnasium,

student-support center, four classroom buildings, chapel, football stadium, athletic fields and the Guadalupe Center, which provides a college preparatory curriculum for



Residential barracks at Fort Bliss Army Post, El Paso, Texas

Fort Bliss Army Post Facilities

In 2010, Sundt completed projects totaling \$360 million at Fort Bliss Army Post in El Paso, Texas, ranging from over a million square feet of residential barracks space to 12 Tactical Equipment Maintenance Facilities.



Fort Bliss Army Post Warriors in Transition Complex, El Paso, Texas

One of the most notable projects was a \$30 million barracks building for the new Warriors in Transition Complex. The three-story, 140,000-square-foot building is situated around a central courtyard with landscaped areas and covered seating to create a calm, relaxing environment. The building is equipped with a number of specialized features to provide additional assistance to the recovering soldiers.

Sundt also built two Infantry Brigade Combat Team (IBCT) projects, which essentially are large complexes that provide facilities to help the Army meet its mission of ensuring the soldiers are trained and at a high state of readiness.



Fort Bliss Army Post Unaccompanied Enlisted Personnel Housing, El Paso, Texas

Two of Sundt's design-build contracts were for the Unaccompanied Enlisted Personnel Housing (UEPH), commonly known as barracks. Combined, these contracts were valued at \$172 million. The scope of the UEPH facilities amounted to slightly more than one million square feet of barracks space spread over 24 buildings. The two-story barracks buildings are 43,000-square-foot, wood frame structures that include central activity rooms and 60 apartment-style living units to be shared by 120 soldiers.

While the barracks project was underway, Sundt was also designing and building 12 Tactical Equipment Maintenance Facilities (TEMFs) under a separate \$123 million contract. The TEMFs are used to store vehicles and other equipment. The completed TEMF structures



Exterior (right) and interior (right inset) of one of 12 Tactical Equipment Maintenance Facilities built at Fort Bliss Army Post, El Paso, Texas

> total approximately 320,000 square feet to service 3,268 vehicles. Sundt also provided 48 ancillary storage buildings on the TEMF sites that are used for gear and equipment storage, drone airplanes, fuel and other hazardous materials. Sundt self-performed



all of the site work and concrete work for the project, which included roughly four million square feet of 10-inch reinforced concrete paving, which is the equivalent of 31 miles of two-lane highway.

Another \$23 million contract involved site work for a new Community Center, which included infrastructure development of approximately 80 acres that became the core community area for the soldiers and families stationed at Fort Bliss. The infrastructure development included site grading and establishing building pads for the new facilities as well as utility installation, street grading, paving, and street lighting.

Fort Dix and McGuire Air Force Base Military Family Housing

At the combined Army/Air Force military installation of Fort Dix and McGuire Air Force Base in New Jersey, Sundt built the largest privatized housing project ever awarded by the Air Force.

In three phases, a total of 1,635 units were built, over five years, to house military personnel and their families. The last units were completed in 2011.

The homes were all outfitted with air conditioning, plentiful storage, ENERGY STAR[®] appliances, carpeted flooring, and garages. The single-family units also included upgraded tile floors, fireplaces, fenced yards, solid surface or granite countertops, and laundry rooms.



Military family housing, McGuire Air Force Base, New Jersey Because Fort Dix/McGuire Air Force Base was a privatization project, base access was limited and construction zones were isolated from the base.

Another challenging aspect of the project was the fact that the housing units are spread out – sometimes as far as 30 minutes by car – across the mega-base that serves other military facilities in the area.

Sustainability

A growing sensitivity to our environment has affected almost every aspect of modern life, even how highways, factories and bridges are designed and constructed. As the 21st century unfolded, Sundt took its place as an industry leader in the green building movement. It was an early member



of the U.S. Green Building Council (USGBC), which created Leadership in Energy and Environmental Design (LEED), the first standard for sustainable design and construction to be widely adopted. Sundt built some of the first LEED Platinum-certified buildings in the West, and over 100 of its employees completed the USGBC's rigorous exam to become LEED accredited professionals.



Building A, the first of two Biodesign Institute buildings at Arizona State University, Tempe

The Biodesign Institute at Arizona State University

Sundt and a joint venture partner built the first two buildings of the Biodesign Institute at Arizona State University in Tempe. Building A is a \$69 million, 172,000-square-foot research facility that provides lab and office space for cutting-edge research, which focuses on the life sciences, bioengineering and biotechnology.



Building B, the second of two Biodesign Institute buildings at Arizona State University, Tempe, was the first project in Arizona to receive LEED Platinum certification.

As Building A was being completed, the joint venture was also awarded Building B. The 175,000-square-foot, \$72 million structure is located adjacent to Building A.

It was completed in 2005 and serves as the Institute's main entrance. It is used to conduct research in the areas of rehabilitation neurosciences, rehabilitative engineering, brain-machine interface, and device implant development and testing. Building B was the first project in Arizona to receive LEED Platinum certification from the USGBC.

University of Arizona Student Recreation Center Expansion

Sundt has built over 50 projects for the University of Arizona in Tucson, but its first LEED Platinum project for the UA was a 55,000-square-foot addition to the Student Recreation



The Student Recreation Center Expansion project in Tucson was the first LEED Platinum project for the University of Arizona.



Workout space and a gymnasium were part of the Student Recreation Center Expansion project at the University of Arizona in Tucson.

Center. The \$22 million project included three new buildings: an expanded fitness area, a multi-purpose gymnasium, and a building dedicated to the university's outdoor travel program.

Recycled construction materials, rainwater harvesting, and an efficient heating and cooling system are just a few of the project's LEED features.

The two-story, 30,000-square-foot fitness room accommodates stationary bicycles, treadmills and other state-of-the-art exercise equipment, while the new gymnasium provides space for a range of sports and athletic activities. Outdoor Adventures, which used to be housed in a small space in the main recreation center, now has its own building for planning and deploying outdoor student trips, with ample space for storing gear and equipment.



The City Hall Complex, Chandler, Ariz., was awarded LEED Gold certification.

Chandler City Hall

Sundt completed Chandler, Arizona's \$47 million City Hall Complex in 2010, and the project's sensitivity to the environment won it LEED Gold certification from the USGBC.

It is the first time the municipality has had its own dedicated city hall facility since it was founded in the late 1800s. Previously, the city had operated its city hall from rented office



Chandler City Hall Complex (from top to bottom): Exterior view; city council chambers; outdoor staff eating area; pedestrian walkway and signage

> space. The 140,000-square-foot complex includes a six-story office tower that houses administrative offices, as well as adjacent buildings to serve as the city council chambers, a production and recording studio for the city-run television station, gallery space for the arts, the Department of Neighborhood Resources, and a threestory parking structure. Thanks in part to use of the Construction Manager at Risk delivery method, the project team was able to shave \$3.9 million from the original budget while maintaining an aggressive 16-month schedule. Chandler City Hall was recognized by ENR Magazine in 2011 as the best Government/Public Building project in the country.

Public-Private Partnerships

A severe budget crisis hit government agencies early in the 21st century, leaving many unable to fund critical projects. This accelerated the use of Public-Private Partnerships (P3), a government service funded and operated through a partnership of government and one or more private sector companies. Sundt built several P3 projects of note during this time frame.









Arizona Game and Fish Department Headquarters, Phoenix, Ariz.

Arizona Game and Fish Department Headquarters

In 2008, Sundt was selected by Arizona Wildlife Finance Corporation, a private development organization, to build the \$18 million Arizona Game and Fish Department Headquarters. An independent property developer helped secure private market financing for the project and manages the property.

The Arizona Game and Fish Department Headquarters includes an 82,000-square-foot, single-story office building and a 27,000-square-foot pre-engineered metal warehouse/ laboratory, as well as a vehicle maintenance building and 14-person bunkhouse for visiting employees. Sundt also constructed a radio dispatch room and transmission tower that operates around the clock to facilitate communication with rangers in the field.

The new department headquarters is a model for sustainability, and received LEED Platinum certification from the USGBC. Its "green" features include a high efficiency air-cooled chiller, a recycling program, several locally produced materials, LEED-certified carpet, and wood that was certified by the Forest Steward Council.



SkySong, a mixed-use project, Scottsdale, Ariz.

SkySong

On a 37-acre site that once was a regional shopping mall in Scottsdale, Ariz., Sundt built a P3 project called SkySong, a massive mixed-use project touted as "a place where business and innovation are one in the same."
Phases One and Two consisted of 320,000 square feet of office and retail space, while Phase Three involved the construction of 325 multi-family residential units wrapping around a four story parking garage, creating a true mixed-use, urban-style community.

The campus takes its name from the iconic function art shade structure called SkySong -- a series of swooping truss frames supporting a specially designed transparent tensile fabric soaring 100 feet above the plaza. The structure provides shade to pedestrians, connectivity between buildings on the central plaza, and a landmark that draws people to the project from the surrounding neighborhood. It is also visible to aircraft overhead.

New Markets

A critical part of Sundt's growth plan was expansion into markets where it saw significant future opportunities. Many of these projects were in education (K-12 schools, college and university buildings), health care, criminal justice, and industrial facilities.



Vista Grande High School, Casa Grande, Ariz.

Vista Grande High School

in central Arizona began the 2009 school year in a new, 260,000-square-foot facility, thanks to a major project that was completed by Sundt. Vista Grande High School, which

is located in the fast-growing city of Casa Grande, southeast of Phoenix, can accommodate nearly 2,000 students on a modern, 60-acre campus that features an impressive array of academic, athletics and arts facilities.

The campus is divided into four main buildings that include a two-story science laboratory and classroom facility, which also houses administrative offices and a library; an auditorium with a full performance stage and individual practice rooms for band and choir; a gymnasium with separate game and practice courts, weight room, dance studio, and wrestling room; and a Life Sciences and Culinary Arts building, which also houses the school's central plant and maintenance facility. Two smaller outbuildings provide space for concessions during sporting events.



Clark Kerr Campus modernization project, University of California, Berkeley

University of California, Berkeley - Clark Kerr Campus

Sundt completed a \$70 million modernization project for University of California, Berkeley in 2010.

The university's aging Clark Kerr Campus is a 50-acre complex located approximately one quarter mile southeast of Berkeley's central campus. The site was developed in the 1920s-1950s and is listed in its entirety on the National Register of Historic Places. The campus provides housing for more than 800 undergraduate students, as well as dining and conference facilities.

The project was challenging, since crews had to work in a very tight physical space while preserving historical features, such as the roof tiles, which had to be removed and cleaned by hand before being replaced. The same was true with the windows and door frames. Even some of the concrete was historic and had to be covered with plywood to protect it during construction. The project included renovation of seven, three-story buildings that provide student housing, along with selective upgrades to address code compliance, aging materials and utility systems, and fire and life safety requirements. Other improvements included new disabled access and safety features, improved connections to the campus computer network, new electrical wiring, and removal of hazardous materials.



Sutter Hall (right and inset below) is a mixed-use, multi-story, multistructure student housing project at California State University, Chico.

California State University, Chico Student Housing

Sundt completed an important project for California State University, Chico in 2010. The \$52 million Sutter Hall started out as a relatively straight-forward project to build a 114,000-square-foot, mixed-use dormitory, but suddenly became more challenging than anticipated when, at the onset of construction, the owner changed the pile system (foundation support) in response to neighbors' concerns about noise and vibrations. The new method solved the problem, but required significant revisions to the structural foundation design, resulting in \$1.5 million in changes and several months of delays. The changes spurred a number of additional revisions to the project, most of which had schedule and cost impacts.

Sutter Hall is a mixed-use, multi-story, multi-structure project that contains a 228-bed

student dormitory; 25,000-square-foot, high-tech cafeteria; smart classrooms; meeting rooms; offices; a below-grade basement and storage spaces. The building is constructed of concrete and block to the podium level with prefabricated metal stud wall panels and framing above. The exterior is a mixture of brick, stucco and glass.





One Miramar, a graduate student housing project at the University of California, San Diego

University of California, San Diego One Miramar

Sundt was the design-build contractor for the University of California, San Diego's 800-bed graduate student housing project, known as One Miramar. The \$66 million project was built in phases, with the last structure completed in May 2007.

The project consisted of four, four-story buildings and a parking structure. The design and exterior colors give it the appearance of an Italian hillside town. In addition to student living facilities, the project included a small retail area, study lounges, meeting rooms, and administrative offices.

Sundt performed all of the concrete work for the parking structure with its own crews.



University of California, Davis Health Systems Education Building, Sacramento

Universiity of California, Davis Health Systems Education Building

In 2006, Sundt completed the UC Davis Health Systems Education Building project in Sacramento. The \$34 million facility houses the school's teaching programs and enhances



University of California, Davis Health Systems Education Building exterior (left) and training room (right)

state-of-the-art training in the basic and clinical sciences for students throughout all four years of medical school.

The four-story, 120,000-square-foot building is located on the southeast corner of 45th and X streets on the UC Davis Medical Center campus. The building's first three floors house classrooms, multi-purpose teaching rooms, a technology center, space for virtual training and other skill assessments, as well as a library, café, and commons area for student activities. The building's fourth floor provides space for research and development.



Carondelet St. Joseph's Women's Center, Tucson, Ariz.

Carondelet St. Joseph's Women's Center

In 2008, a state-of-the-art women's center and neuroscience facility in Tucson, Ariz., were completed by Sundt and a joint venture partner. The Carondelet St. Joseph's Women's Pavilion, located on the St. Joseph's Hospital campus, totals 140,000 square feet and includes 126 patient rooms, operating rooms, a birthing center and neonatal care unit. The project was originally limited to the four-floor women's center. However, it soon grew to include a fifth floor that houses a 42-room, 24,000-square-foot neuroscience intensive care unit, plus a separate, 4,500square-foot neurosurgery center. A 450-space parking structure was also added near the



main entrance. The neurosurgery center was the first of its kind in the United States, with special equipment from Germany. All together, the additions brought the total contract amount to just over \$51 million.

Adding a fifth floor after the project was already designed and underway created some coordination and schedule issues. Plus, much of the work occurred near the main and east entrances, which are in close proximity to patients, staff and visitors. The Sundt team went out of its way to impact them as little as possible by performing temporary shut-downs after hours, when there were fewer patients, and installing temporary walkways and facilities whenever they could.



Edgemoor Skilled Nursing Facility, Santee, Calif.

Patient room, Carondelet St.

Joseph's Women's Center, Tucson, Ariz.

Edgemoor Skilled Nursing Facility

The Edgemoor Skilled Nursing Facility project in Santee, California began in 2005 as a two-year, \$66 million design-bid-build contract for the County of San Diego, but ended up stretching to four years and \$102 million, due largely to a major redesign that occurred partway through the project.

Edgemoor is an 180,000-square-foot public psychiatric hospital that serves elderly and indigent patients in the San Diego area. The two-story, 192-bed facility was designed so that individual patient rooms are clustered in "neighborhoods" and organized around private activity courtyards. The principal circulation spine of the complex, "Main Street," connects "neighborhoods" to the public and private service areas, which frame the Village Green, the primary outdoor space for patients, staff, and visitors.



Richard E.Arnason Justice Center, Pittsburg, Calif.

Richard E. Arnason Justice Center

The Richard E. Arnason Justice Center was a testament to the many benefits of alternative project delivery. The \$42 million courthouse facility included a number of challenges that Sundt was able to navigate successfully, thanks to the flexibility and innovation inherent in the Construction Manager at Risk delivery method. The three-story, 73,500-square-foot facility includes seven courtrooms, judges' chambers, administrative space, a library, conference rooms, and in-custody detention areas. The project is located in the city of Pittsburg, Calif., which is approximately 45 miles northeast of San Francisco.

Courthouse projects are challenging to build because they usually include many highend interior finishes, state-of-the art security systems, access control technology and video surveillance systems – all of which have to be coordinated with each other and with the mechanical and electrical systems. By using a digital records system – which is a way to keep track of project documents electronically – Sundt was able to manage the project's complexities and avoid delays. The project was completed in 2010.

Coronado Generating Station Environmental Upgrades

In 2009, Sundt was selected to perform a number of upgrades at the Salt River Project's (SRP) Coronado Generating Station near St. John's, Ariz. The work was needed to enable the 773-megawatt, coal-fired power plant to reduce emissions of Sulfur Dioxide, allowing the facility to meet the Environmental Protection Agency's new emissions standards. SRP is a major supplier of electricity to Arizona homes and businesses.

Sundt's contract was for mechanical upgrade work on both of the plant's generating units, which have been in operation since the early 1980s. This included two, 130-foot-high, 85,000-square-foot absorber buildings, plus fabrication and installation of over 1,600 tons of



Coronado Generating Station near St. John's, Ariz.

flue gas duct. Sundt also installed four induced draft fans, 2,000 lineal feet of pipe rack structure, 51,000 lineal feet of piping, and performed associated demolition work. Sundt's own crews performed the project's concrete work, piping, structural steel, flue gas duct fabrication/ installation and equipment setting.

Glendale West Area Water Reclamation Facility

In 2005, Sundt completed a \$31 million Construction Manager at Risk contract to increase the capacity of the Glendale West Area Water Reclamation Facility from 7 million gallons per day to 10 million gallons per day. The plant is owned by the city of Glendale, Ariz.



Glendale West Area Water Reclamation Facility, Glendale, Ariz. The construction work included two new aeration basins (200 feet square and 22 feet deep, with 14-inch-thick walls), where a biological process removes organic matter, solids and nutrients; three new secondary sedimentation basins (170' x 70' and 22 feet deep) where biological solids from the aeration process settle out and are removed; and four new filtration basins (40' x 100'), which remove suspended particles by filtering the water through layers of sand and coal. As part of its contract, Sundt also expanded the facility's ultraviolet disinfection system and made major improvements to two pump stations located off site.

Sundt was responsible for all of the concrete construction. Its crews placed over 12,000 cubic yards for the project, most of which went into the huge aeration and secondary sedimentation basins.



Santan Vista Water Treatment Plant, Gilbert, Ariz.

Santan Vista Water Treatment Plant

In 2009, Sundt completed a state-of-the-art water treatment facility in Gilbert, Ariz., that supplies residents of two municipalities with up to 24 million gallons of drinking water each day. The \$89 million Santan Vista Water Treatment Plant includes an array of sophisticated systems for treating water from the nearby Central Arizona Project canal and turning it into potable water for millions of current and future residents of Gilbert and the adjacent city of Chandler.

As raw water enters the plant it is treated with an ozone injection system as well as a carbon dioxide system. The water then proceeds through several mixers before entering the Actiflo Ballasted flocculation system, where most of the fines and solids coagulate and fall out of the process. Any remaining fines are removed by a separate anthracite filtration system

before the water moves on to be treated with chlorine. The finished water then flows to a five-million-gallon concrete reservoir. Vertical diffusion pumps send the water through three large-diameter pipelines to Chandler and Gilbert.

Sundt self-performed a large portion of the work, including concrete, earthwork, underground piping, and equipment setting.

Unusual Projects

Sundt also completed several projects early in the 21st century that were a bit out of the ordinary.



Airmore Hangar One, Scottsdale, Ariz. (right), and its iconic "bullet wall" (right inset)

Airmore Hangar One

Airmore Hangar One is a surreal world of mind-boggling forms, fixtures and finishes that took 15 months to construct and was completed in 2006. The \$29 million project is a privately-owned hangar complex and flight club located just south of the main runway at the Scottsdale Airpark in Scottsdale, Ariz. The exclusive facility accommodates up to 15 aircraft in its two 30,000-square-foot hangars.

A 108-foot-long aluminum "paper" airplane adorns the roof of the 124,000-



square-foot complex, which is furnished with custom fixtures, upholstered ceilings, exotic stone and terrazzo floorings, and a top-of-the-line automation and audio-visual system. There were 54 subcontractors working on the project, which is twice the number normally employed on a project of this size. Many came to install the unique features and finishes that were imported from all over the world.

The twin airplane hangars have a clear height of 28.5 feet. Attached to them are large shade canopies that cantilever 80 feet over the runway to provide shade for planes. A multipurpose facility adjoins the hangars and includes below-grade parking, premium office space, and 8,000 square feet of entertainment space. It also features an exclusive and unique auto show room, which showcases the owner's private collection of exotic automobiles and vintage racecars.

Sundt performed all of the concrete work with its own crews. The most unusual concrete element is the "bullet wall," which is 22 feet tall and has 28 penetrations cast into it that resemble bullet holes. The holes are tapered and each has a different angle.



The Journey to Atantis water coaster (right and inset below), SeaWorld San Diego, Calif.

SeaWorld San Diego Journey to Atlantis

Sundt was the contractor for an attraction that was added to SeaWorld San Diego in 2004. The Journey to Atlantis is a relatively new concept called a water coaster, which incorporates the high-speed thrills of a roller coaster with the splashes of a flume ride. It also features a vertical lift (the first ever in the United States) that raises boats 70 feet inside an enclosed tower before sending them plunging back to a lake below. The ride includes many other special effects, including sound, lighting, jumping



water jets, water bursts, mist, shaking columns, two artificial lakes, and a 130,000-gallon Commerson's Dolphin pool, all designed to create the illusion that the Lost City of Atlantis has risen.

The Future: Leadership, Innovation and Expansion

Sundt's future was bright as it completed 120 years in business. For the first time the company's revenue topped \$1 billion. Doug Pruitt, who many credit with leading the company to this remarkable achievement, retired in 2011, and a new management team was named to lead the company toward a goal of \$3 billion in revenue by 2020.



From left: Dave Crawford Eric Hedlund Mike Hoover

> Dave Crawford, a longtime employee with many years of experience both in the field and in various levels of senior management, moved up from Chief Operating Officer to President and CEO. Guiding the company's operations was placed in the hands of two other Sundt veterans. Eric Hedlund and Mike Hoover were promoted to co-Chief Operating Officers. Hedlund oversees building work while Hoover is responsible for heavy civil, industrial, and the self-perform operations.

> Company leadership saw that innovation would play a key role in the company's growth plans, so a formal process was put in place to manage and promote change. The Kaizen Committee was formed to review improvement suggestions and move forward those that had merit and could show real value to the organization.

> Sundt's plans to expand geographically resulted in the opening of an office in San Antonio, Texas. This market had been under study for several years, and appeared to be the best place for Sundt to take its expertise.

> From humble beginnings as a small firm founded in New Mexico, Sundt Construction had grown to take its place as one of the country's largest and most respected contractors. The core values of honesty, integrity and fair-dealing will be the guideposts for Sundt's future in the 21st century.

About the Authors

ARCHIE SATTERFIELD grew up in the Missouri Ozarks. After serving four years in the Navy, he attended St. Louis University and the University of Missouri before moving to Seattle in 1959 and receiving a bachelor's degree in English from the University of Washington. He lived in the Pacific Northwest many years working first as a reporter, then eventually an editor and columnist on the Seaside (Oregon) Signal, Longview (Washington) Daily News, and the Seattle Times and Seattle Post-Intelligencer. He was founding editor of the regional magazine, Northwest Living, and edited the Museum of Flight News and Enetai, a magazine for riders of the Washington State Ferries.

In 1987 he became a full time writer of books and articles on history, travel and popular culture. He also wrote commissioned histories for clients such as Alaska Airlines, Tillamook Cheese, Crescent Foods, the City of Edmonds, Washington, and Trillium Corporation of Bellingham, Washington.

His 40-plus books have been published by a variety of national and regional publishing houses. Some have been in print more than thirty years.

His history and travel articles appeared in numerous magazines, including The History Channel Magazine, Porthole, Travel Holiday, Sunterre magazine, Missouri Life, Robb Report, Mobil Motorist, Sunset, Hong Kong Tatler, Volta ao Mundo (Portugal), and numerous North American newspapers, including the Chicago Tribune, Chicago Sun-Times, the Dallas Morning News, the Arizona Daily Star and the Toronto Globe and Mail. His second book for Countryman Press, Backroads & Byways of Washington, was published in June, 2010. His first book for Countryman in this series was on Missouri. He has put several of his older books back into circulation via Amazon's Kindle and assorted other internet resources. His last work was the history of Sundt Construction, which he finished in 2011 just prior to his death at the age of 78.

CHARLES A. BOYD is the corporate director of Business Development and Marketing Administration for Sundt Construction, Inc. He is a longtime employee with a deep interest in the company's history. He wrote "The First 100 Years," a compendium of the company's historical achievements, in 1990.

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Acknowledgments

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