

10 ESSENTIAL TIPS FOR DEVELOPING REMOTE SITE FACILITIES



Introduction

When developing a remote site facility, mastering the critical facets of your project is paramount to achieving success. These "10 Essential Tips" are crafted to empower project managers in defining and enhancing the scope and plans for Remote Site Facilities. While these tips highlight some of the most vital considerations, they are merely a glimpse of the in-depth analysis provided in our Solutions Design Workshop.

1. Assess Workforce Demographics Thoroughly

Tip: Understand the total number of workers and their demographic breakdown.

Reason: This determines the size and scale of facilities required. This is not just room numbers or room-size, but also fitout, recreational facilities, kitchen equipment, layout and including utilities such as correctly scoped wastewater treatment and power generation.

Example:

The needs and expectations of a remote site worker who spends 28 days on site are worlds apart from someone working a 4-day on, 3-day off schedule, especially when it comes to access to communications, recreational and welfare facilities, room fitout, and meal variety. Understanding the routine, demographics, and specific needs of your workforce is key to designing the perfect environment that keeps everyone happy and productive.

Imagine a remote work site in Papua New Guinea that really miscalculated its needs by drawing on past experiences in Malaysia. They didn't grasp the local challenges, such as limited transportation and tough offsite living conditions, which heavily impacted workers' well-being and job satisfaction. Instead, they assumed that the newly hired workforce would soon purchase their own cars and commute daily to the work site. They ended up with a beautiful (but expensive!) empty car park for 'day workers' while battling HR headaches.

The lightbulb moment came when they provided safe onsite accommodation, nutritious meals, and healthy social conditions. This solution could have been pinpointed earlier with a Solutions Design Workshop, using the right expertise to get it right from the start.

2. Plan for Workforce Variability

Tip: Identify if workforce numbers change over time and the profile of these changes.

Reason: Allows for design optimizations to potentially reduce costs and adapt to changing needs.

Example:

In a classic case of "Oops, we didn't see that coming!", an operations group underestimated the future needs of their remote site facility. They planned for 300 rooms, perfect for their regular operations staff. But lo and behold, every 3-4 years, a shutdown would roll in, bringing an additional 150 people. To manage this surprise influx, they had to scramble to save some construction camp facilities from demolition.

This involved hefty costs to rescale utilities, tweak layouts, and refurbish those old units. If they had just thought ahead, like a good plot twist in a movie, this whole headache could have been avoided by including this need in the original design. Lesson learned: always plan for those unexpected guests!

3. Innovate during Design to achieve Environmental, Social and Governance (ESG) objectives and commitment.

Tip: Identify any Environmental, Social and Governance commitments or objectives of the Operation and incorporate into the design and operations.

Reason: Beyond ensuring compliance, Site Infrastructure is an excellent area to demonstrate innovation and achieve success in achieving ESG objectives and commitment. Many facets can be incorporated into design and operational plans at the outset, achieving the biggest impact for the lowest cost and effort. Understanding ESG objectives and commitments, and how they can best be achieved, is also an important part of operations readiness.

Example:

In remote, subtropical Southern Africa, a brave band of miners from Sun Resources had the audacious task of constructing a mining camp for a precious minerals project. But, lo and behold, they had a challenge ahead - they had to meet some fancy "environmental, social, and governance" goals in this peculiar place. Undeterred, the Sun Resources team embarked upon an extraordinary quest to create what can only be described as an "Eco Oasis Mining Camp," a utopia that seamlessly blended with the surroundings.

To accomplish this feat, the resourceful Sun Resources crew joined forces with local builders and nature-loving experts on a mission to design the camp. They delved into the knowledge of local communities that had mastered the art of living comfortably in the region with minimal impact to their impact on the environment. Ingenious cooling systems and natural ventilation techniques were employed, creating an interior that was comfortable and without excessive requirements for artificial climate control and air-conditioning. Sun Resources identified locally-produced building materials such as sustainable local timber, and locally made furniture. These initiatives also reduced logistics costs and complexity as well as maximised participation of local communities in the project.

Sun resources also summoned the power of the sun itself by deploying solar as part of their energy system, which supplemented power requirements during the peak-consumption period of mid-afternoon when catering operations were in full swing. Furthermore, they implemented a waste management system utilising biodigesters for organic waste as well as a locally engaged recycling program to greatly minimise landfill, while urging their employees to embrace waste reduction. Resources not only crafted a remarkable mining facility, but they ascended to the rank of global pioneers in responsible mining initiatives. Interestingly, against financial benchmarks, their capital and operating costs were also equivalent or lower than other comparable operators.

4. What are the HSE risks for the workforce, and what mitigations depend on Infrastructure?

Tip: Assess HSE risks and human-support requirements such as Medical and Emergency Response plans.

Reason: These requirements often trigger the need for infrastructure and services at your site. For example, is an onsite medical team or clinic needed? If so, they will require a suitable operating facility. What is your sites' Medevac and Emergency Response Plan (MERP)? Does that require a helipad, assembly points, communications or specialised transportation vehicles on standby. All of these requirements may lead to costly changes and rework later if not scoped appropriately prior to construction.

Example:

Once upon a time, in a hot, mountainous and sparsely populated tropical island in the South Pacific, there was a Project Manager that thought medical emergencies were nothing but a myth. With an air of confidence, he set out to build a site facility without considering the need for a Medevac and Emergency Response Plan. As earthmoving equipment grumbled away and daily toolbox meetings happened like clockwork, life went on as usual. Little did they know, hidden risks were lurking around every corner, waiting to pounce. And pounce they did, in the form of two unexpected medical emergencies. The first incident was a heart-stopping heart attack, tragically resulting in a fatality. It was as if the construction site had turned into a Wild West showdown, with no medical care, or MERP plan, in sight. Sadly, the company realized they had royally messed up and were learning lessons the hard way.

They quickly called in their medical and Emergency Response advisors, who gave them a stern lecture about the importance of a well-planned Medical and Emergency Response Plan. They emphasized the need for an adequate on-site medical clinic and a helipad for emergency evacuations to the nearest airstrip capable for any evacuation. The Project Team had real difficulty in making space for the clinic and clear the way for the helipad, even chopping down trees and relocating a communication tower in the hilly terrain. When building a camp or any infrastructure, always factor in the risks and have a well-thought-out Medical and Emergency Response Plan. Be prepared, plan ahead, and save both lives and headaches.

5. Build for the Climatic Conditions

Tip: Truly understand the climatic conditions and how these affect design. For example, is the location likely to experience excessive humidity, heavy rainfall, snow, dust-storms or extreme heat or cold?

Reason: Climate will influence so many aspects of design and ultimately the reliability, cost to operate and maintain as well as the comfort levels of the camp.

Example:

Once upon a time, in a land called Raindropia, a legendary mining multinational set out to build a magnificent worker's resort without considering the power of Raindropia's notorious high rainfall and tropical downpours in the wet season. As the construction work commenced and the rain clouds gathered, the construction site started resembling some sort of brown Olympic swimming pool more than a 'world class' project. As they built the concrete slabs and walkways, they were eroded away faster than an ice cream cone on a scorching summer day. It was like navigating a treacherous obstacle course just to get from one building to another. And the poor souls who eventually moved into rooms with no roofs at their entrances, selected because the client liked the design they had in Kuwait? Well, let's just say they were faced with a daily ritual of being greeted by a wall of water when they stepped out in the morning. It was like Mother Nature's way of saying, "Surprise! Here's your second morning shower at 6am, whether you like it or not!"

The company's design team and construction crew were left scratching their heads in bewilderment. How could they have selected a design that so dramatically overlooked the climatic conditions of Raindropia? It was back to the drawing board, literally, as a large civils rework was undertaken for unplanned and unbudgeted drainage and landscaping to curb erosion. Meanwhile, doorways were promptly fitted with covers at the entrance and gutters, along with covered walkways connecting buildings.

Take a moment to consider the climatic conditions and don't underestimate the power of nature!

6. Evaluate Transportation and Parking Needs

Tip: Determine if car parking is needed and any specific transport modes (e.g., buses, walking paths).

Reason: Affects the design of site facilities and transportation infrastructure.

Example:

Once upon a time, in the wild wilderness of Campville, a group of Gas Plant employees decided that parking rules were for mere mortals on their newly commissioned site. With an unruly disregard for designated parking areas, they turned the camp into a game of vehicular roulette as all competed to park as close to the Dining Facility, or the entrance to their Accommodation as possible!

One fateful day, a worker parked his car on a sloping hill without engaging the handbrake properly. As if possessed by a mischievous spirit, the car decided to take matters into its own wheels and rolled away with reckless abandon. It crashed through one of the camp's accommodation blocks, leaving a trail of destruction in its wake. Miraculously, no one was hurt, but the incident served as a wake-up call that parking and safety should never be taken lightly.

Let this be a cautionary tale of the importance of proper parking design and traffic flow in your design. Remember, it's not just about convenience; it's about safety as well.

7. Plan for Meal Services and Dining Areas

Tip: Assess meal routines, timings, cuisine and any specific dining area requirements.

Reason: Determines the size of the mess/canteen, kitchen equipment needs, and dining area arrangements.

Example:

In a land far, far away, in the mystical realm of Laos, a curious tale unfolded at a remote site Dining Facility. Picture this: an Australian, armed with good intentions, 3 years work history in the Western Australian goldfields and a love for all things Western, was tasked with deciding the fitout for the facility's kitchen on his first overseas assignment. Little did he know that he was about to embark on an unintentional comedy of culinary errors.

Example Continued:

You see, this ambitious Australian failed to recognize a crucial fact: 80% of the diners at this facility had a burning desire for an exotic Asian menu. They yearned for bold flavors, fragrant spices, and the comforting embrace of authentic local dishes. But alas, the kitchen was ill-prepared to fulfill their culinary dreams.

Chefs stood in front of stainless steel ovens, scratching their heads in perplexity. The stockrooms overflowed with imported Western ingredients, while the beloved flavors of Asia remained elusive. The dining hall echoed with the sound of disappointed stomachs growling as the handful of Aussies devoured a few sausages, mash and 3 veg.

Soon realising the oversight, the kitchen was promptly transformed with another, unplanned round of CAPEX purchases. Woks sizzled, steam filled the air, and the aromas of Asian delicacies danced through the kitchen. Finally, their cravings for pad Thai, curries, and mouth-watering stir-fries were satisfied, a testament to the power of adapting and learning from one's mistakes. In the realm of camp food, understanding the desires of your diners is paramount. Bon appétit!

8. Prepare for Environmental and Climate Challenges

Tip: Gather information on typical climate conditions, pests, and environmental considerations.

Reason: Ensures that facilities are designed to withstand local environmental conditions and address any unique challenges.

Example:

Once upon a time, in the rugged landscapes of Central America, a determined engineer named Mr. Rodriguez set out to build a remote campsite for a mining project deep in the heart of the jungle. Inspired by the lush beauty of the region, he envisioned a haven where weary miners could find solace amidst the untamed wilderness. Little did he know, he would soon face a formidable enemy - the relentless heat and humidity of the jungle. However, as the construction neared completion, an invisible adversary lurked, ready to pounce - the dreaded mould.

As the first batch of miners settled into their new abodes, peculiar patches of green started to emerge on the walls, accompanied by a musty odor that tainted the once-refreshing air. Health reports and complaints swept through the campsite, as miners sought respite from the unwelcome intruder and a continual replacement of work clothing! Blame fell upon Mr. Rodriguez's idyllic creation, which, despite its structural integrity, was a design that completely failed to account for the punishing heat and humidity of the jungle with inadequate ventilation and inefficient, ineffective climate control where needed.

Reworks were undertaken over many years to improve the campsite's ventilation system, in an attempt to ensuring a continuous flow of fresh, dry air in every cabin as well as installation of dehumidifiers, and specialized coatings were applied to the walls to prevent further fungal incursions. But fundamentally, these were not complete solutions. The root cause was a building design that did not account for conditions.

Embracing the lessons learned, Mr. Rodriguez's subsequent projects were designed to withstand the rigors of nature and provide havens of comfort amidst challenging climates.

9. Consider Site-Specific Factors

Tip: Evaluate site size, access, existing infrastructure, and potential hazards.

Reason: Impacts design, logistics, planning, and overall feasibility of the project.

Example:

Once upon a time, in a busy head office in Perth, a brave project team set out to conquer the challenges of construction in a remote land. Armed with their trusty portable buildings, they ventured to Papua New Guinea, envisioning the seamless installation of a small facility in a plan that also avoided too much interaction with the locals. It was the 'Land of the Unexpected' afterall.

Little did they know, they were about to face a formidable foe - the treacherous road conditions and sky-high transportation costs of PNG. With the best intentions in mind, the team had chosen the portable building concept, a tried and true method in their homeland. After all, it made perfect sense - easy transport, quick assembly, and minimal labor required. But alas, they were in for a rude awakening.

Example Continued:

As the buildings embarked on their perilous journey, bouncing along the rugged roads of PNG, disaster struck. The buildings, ill-prepared for the harsh conditions, suffered significant damage. Like battle scars, dents and cracks adorned their once pristine exteriors. In a cruel twist of fate, repairs were needed, but the required hardware was nowhere to be found anywhere near their project site.

The project team, lacking experience in the intricacies of construction abroad, had made a grave oversight. The costs of transportation had not been accounted for, and the consequences were dire. Extra expenses piled up, threatening to topple the project's budget and failing to achieve their schedule, leaving the team scratching their heads, wondering where it had all gone wrong.

In their quest for expediency, the project team had missed a golden opportunity - the chance to engage local suppliers and labor in an alternative design. A unique building system, tailor-made for the challenges of PNG's rugged terrains, could have saved the day. But alas, that ship had sailed, and the team was left to ponder their missed opportunity. Constructability is not a one-size-fits-all concept. What works in one place may crumble elsewhere. It is crucial to understand the local conditions, account for transportation costs, and engage with local resources on foreign soil.

Let us learn from the project team's misadventures and strive to adapt our construction methods to the ever-changing landscapes we encounter. For in the end, it is adaptability that holds the key to conquering construction challenges, no matter where our remote site infrastructure projects may take us.

10. Address Life Cycle and Maintenance Needs

Tip: Understand the expected life of the camp, expansion/contraction plans, and maintenance requirements.

Reason: Influences the choice of materials, design quality, and ongoing maintenance strategies.

Example:

Once upon a time, in a remote land far, far away, a team embarked on a construction adventure like no other. Their mission? To build a temporary facility that would stand strong for three years to support a construction team. Little did they know, their focus saving upfront costs (on the basis that this was a short-term facility) would lead to a never-ending saga of astronomical operational expenses.

As the project progressed, and ambitions expanded, a corporate decision maker was rewarded with the initiative to simply expand this facility's life to a whopping 25 years, as an alternative to building a long-term accommodation facility for the factory staff. In a cruel twist of fate, the facility, designed for short-term use, was ill-prepared for the long-haul.

Buried utilities, or lack thereof, became a constant headache. These poor, neglected pipes protruded from the ground like lost treasures, causing endless disruptions and costly repairs. Power cables were occasionally stumbled upon by landscapers planting a tree to improve the facility. After all, they were going to be ripped up at the end of 3 years. And let's not forget the site's power source - diesel generators from a bygone era. Their inefficiency guzzled fuel like a thirsty dragon, leaving the site operations team with a never-ending bill.

In addition, the facility's waste water treatment plants and fire systems were nothing short of a disaster. They were not compliant with standards for permanent use, turning retrofitting into a costly nightmare. And as the years passed, the buildings decayed at an alarming rate, demanding expensive repairs that seemed to drain the team's OPEX budget well before Christmas every year.

If only the team had correctly identified the lifespan and usage of the facility before embarking on their grand construction adventure their woes could have been avoided.

Cutting corners and focusing solely on upfront capital savings, as well as not factoring in possible long-term uses of the remote site facility, can lead to a never-ending saga of financial woes. So, take heed and always consider the long-term implications.

Conclusion

These tips are designed to give you a strong foundation for developing your project scope. Keep in mind that there are many additional factors to consider, and our Solutions Design Workshop provides a thorough and customized analysis to cover all aspects of your project. Contact us to learn more about how we can assist you in creating a comprehensive plan for your remote site facilities that eliminates risk and finds solutions to problems before they appear.

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