



# NAC Executive Insights

## Teaming in Construction

### Key Points

- This Executive Insight serves as a comprehensive guide for construction firms to enhance collaboration and teamwork.
- Significance of forming strong partnerships and aligning goals among various stakeholders is emphasized.
- Detailed checklist is provided to help teams assess their readiness for collaboration.
- Best practices for fostering a collaborative culture are outlined.
- Necessity of developing a comprehensive risk management plan to identify potential risks early and implement mitigation strategies throughout the project lifecycle is highlighted.

### Introduction

This Executive Insight focuses on teaming among construction firms. Teaming considerations in design build arrangements are not covered by this Executive Insight. Similarly, more extensive, formal Joint Ventures and Partnering arrangements are not covered by this Executive Insight.

This Executive Insight looks at:

- Collaboration challenges
- A teaming checklist
- Best practices in collaboration
- Effective risk management in construction collaborations elements of a teaming agreement

Effective teaming begins at the pursuit stage and the success of the project rests on the strength of the foundations put in place at this earliest stage.

### Collaboration Challenges

Collaborating in the construction industry comes with its share of challenges. Common challenges are outlined below and the list is not intended to be exhaustive. These challenges include:

- **Upfront Project Alignment:**
  - Ensuring alignment between designers and construction teams (both inside and outside a design build arrangement) from the outset can be tricky.
  - Solution: Establish clear project goals, roles, and expectations early on.
- **Scattered Documentation Across Stakeholders:**
  - Different teams often use separate tools and systems, leading to fragmented project documentation.
  - Solution: Implement a centralized platform for document sharing and version control.

- **Communication Challenges:**
  - Miscommunication can lead to rework and delays.
  - Solution: Foster open communication channels and use collaboration tools (See Box).

#### **Top Online Collaboration Tools Tailored for The Construction Industry**

1. **ActiveDraft:** This browser-based visual document collaboration tool enhances communication between construction teams. It allows real-time document collaboration, making it easier to coordinate among architects, engineers, contractors, and clients.
2. **Asana:** While not specific to construction, Asana is widely used for project management. It enables real-time updates, task tracking, and seamless collaboration among stakeholders.
3. **Trello:** Another versatile project management tool, Trello's visual boards help organize tasks, deadlines, and project progress.
4. **Microsoft Project:** Ideal for large-scale construction projects, Microsoft Project offers robust features for planning, scheduling, and resource allocation.
5. **AutoCAD and Revit:** These design software tools allow engineers and architects to collaborate seamlessly on design development.
6. Tools like Maximo, Oracle and SAP tools are sometimes used by the owner and an interface with these may be required, and informative.

- **Coordination Challenges:**
  - Coordinating various trades, subcontractors, and suppliers can be complex.
  - Solution: Regularly review project conformance with project charter, schedules, hold coordination meetings, and use BIM models.
- **Technology Integration:**
  - Integrating diverse software tools can be challenging.
  - Solution: Choose interoperable tools and invest in training for seamless adoption.
- **Change Management:**
  - Adapting to new collaboration processes or tools can meet resistance.
  - Solution: Provide training, address concerns, and emphasize long-term benefits as part of formal change review and approval process.

Proactive planning and effective communication are key to overcoming these challenges.

## **Teaming Checklist**

Teaming for a construction project requires careful planning and coordination. Effective teamwork relies on trust, clear communication, and a shared commitment to project success.

The following comprehensive checklist for two construction companies considering collaboration is applicable irrespective of project size:

**1. Project Assessment and Alignment:**

- Define project goals, scope, and requirements:
  - Conduct a thorough project kickoff meeting.
  - Identify stakeholders and their expectations.
  - Document project objectives (e.g., cost, schedule, quality).
  - Define success criteria.
- Assess each company's expertise, resources, and capacity:
  - Evaluate technical skills (engineering, design, construction).
  - Assess financial stability and bonding capacity.
  - Review past project experience.
  - Consider available equipment and technology.
- Ensure alignment in project vision and values:
  - Discuss shared values (safety, sustainability, innovation).
  - Align on project priorities (e.g., safety over speed).
  - Establish a collaborative mindset.
  - Formalize all in a Project Charter

**2. Legal and Financial Considerations:**

- Draft a memorandum of understanding (MOU) or teaming agreement:
  - Specify roles, responsibilities, and obligations.
  - Address intellectual property rights.
  - Include termination clauses.
- Clarify roles, responsibilities, and profit-sharing arrangements:
  - Define lead roles (prime contractor, subcontractor).
  - Agree on profit distribution (percentage or fixed fee).
  - Discuss payment terms (milestones, invoicing).
- Address liability, insurance, and dispute resolution:
  - Determine liability limits.
  - Verify insurance coverage (general liability, professional liability).
  - Outline dispute resolution procedures (mediation, arbitration).

**3. Capabilities and Resources:**

- Evaluate each company's equipment, workforce, and subcontractor network:
  - List available heavy machinery (excavators, cranes, etc.).
  - Assess skilled labor (carpenters, electricians, plumbers).
  - Identify reliable subcontractors (concrete, HVAC, etc.).
- Identify gaps and plan resource allocation (SEE BOX):
  - Address shortages (e.g., specialized trades).
  - Allocate resources based on project phases.
  - Evaluate backup resources for contingencies
- Determine who will lead specific project aspects:
  - Assign project manager(s) for coordination.
  - Designate technical leads (civil, structural, MEP).

## **Resource Allocation**

Efficient resource allocation between the two construction companies involves strategic planning and coordination. Here are some steps to ensure effectiveness:

1. **Resource Inventory:**
  - Each company should assess its existing resources (equipment, labor, subcontractors).
  - Identify strengths and weaknesses in terms of capacity and expertise.
2. **Resource Mapping:**
  - Create a joint resource map that combines both companies' capabilities.
  - Highlight areas of overlap and specialization.
  - Identify critical resources needed for the project (e.g., specialized machinery, skilled labor).
3. **Resource Sharing:**
  - Pool resources where possible. For example:
    - Share equipment (cranes, excavators) based on project phases.
    - Collaborate on skilled labor (carpenters, electricians).
    - Leverage each other's subcontractor networks.
  - Establish clear protocols for resource allocation and scheduling.
4. **Risk Mitigation:**
  - Anticipate resource bottlenecks or shortages.
  - Develop contingency plans (backup suppliers, alternative subcontractors).
  - Regularly review resource utilization to avoid overcommitment.
5. **Communication and Transparency:**
  - Maintain open communication channels.
  - Share resource availability and constraints.
  - Update resource allocation plans as needed.
6. **Project Management Tools:**
  - Use project management software to track resource allocation.
  - Monitor resource utilization against project milestones.
  - Adjust allocations based on real-time data.

#### **4. Communication and Coordination:**

- Establish clear communication channels:
  - Set up regular project meetings (weekly or biweekly).
  - Use collaboration tools (project management software, shared documents).
  - Define communication protocols (emergency contacts).
- Define decision-making processes and escalation paths:
  - Identify decision-makers (project manager, executive sponsor).
  - Establish criteria for major decisions (cost changes, scope adjustments).
  - Define when to escalate issues (schedule delays, disputes).

- Foster open dialogue and transparency:
    - Encourage feedback and active listening.
    - Share project updates transparently.
    - Address conflicts promptly.
  - Monitor the health of the partner relationship on a regular and ongoing basis
- 5. Risk Management:**
- Conduct joint risk assessments:
    - Identify project risks (weather, supply chain disruptions).
    - Quantify impact and likelihood.
    - Develop risk registers.
  - Develop risk mitigation strategies:
    - Create contingency plans for high-risk events.
    - Allocate reserves for unforeseen costs.
    - Monitor risks throughout the project.
  - Agree on contingency plans for unexpected events:
    - Define trigger points for activating contingencies.
    - Document alternative approaches (e.g., material substitutions).
- 6. Subcontractor and Supplier Selection:**
- Evaluate existing subcontractor relationships:
    - Review past performance.
    - Assess reliability and responsiveness.
    - Consider long-term partnerships.
  - Identify potential subcontractors and suppliers:
    - Research local options.
    - Obtain quotes and proposals.
    - Verify qualifications (licenses, certifications).
  - Assess their qualifications, reliability, and track record:
    - Check references.
    - Evaluate financial stability.
    - Confirm safety records.
- 7. Project Execution Plan:**
- Agree on management systems that will be used (PM, CM, Business and Project Controls, HSE, QA/QC, BIM)
  - Develop a detailed project plan:
    - Break down tasks by phase (pre-construction, construction, closeout).
    - Set milestones and deadlines.
    - Allocate resources (human, equipment, materials, overhead resources).
      - Provide adequate HR resources for staff mobilization
  - Allocate tasks and responsibilities:
    - Create an organizational chart.
    - Assign roles for each work package.
    - Define reporting lines.
  - Create a project schedule with critical path analysis:
    - Identify critical activities.
    - Sequence tasks.
    - Monitor progress against the schedule (Earned Schedule).

## 8. Quality Assurance and Control:

- Define quality standards and inspection protocols:
  - Establish acceptance criteria for workmanship (e.g., weld quality, concrete finish).
  - Specify testing procedures (material strength, non-destructive testing).
  - Document quality control processes.
- Establish quality control checkpoints:
  - Schedule inspections at critical project milestones.
  - Conduct regular site visits to verify compliance.
  - Address non-conformities promptly.
- Monitor compliance throughout the project:
  - Track quality metrics (defect rates, rework percentages).
  - Implement corrective actions when deviations occur.
  - Involve third-party inspectors as needed.

## 9. Financial Management:

- Develop and agree on financial system to be used.
- Set up joint financial accounts (if needed):
  - Open a project-specific bank account.
  - Define authorized signatories.
  - Establish withdrawal limits.
- Monitor project costs, cash flow, and billing:
  - Track expenses (labor, materials, equipment).
    - Agree that any assets bought will become property of the new company
  - Compare actual costs against budgeted amounts (Earned Value).
    - Agree upfront on a mechanism of cost reconciliation
    - Agree upfront on a method to reconcile shareholder assigned staff
  - Invoice the client according to agreed terms.
  - Clearly understand and agree on cash flow requirements of new company
- Agree on payment terms with subcontractors and suppliers:
  - Negotiate payment schedules.
  - Ensure timely payments to subcontractors.
  - Address any payment disputes promptly.

## 10. Health, Safety, and Environmental (HSE) Compliance:

- Ensure compliance with safety regulations:
  - Develop a comprehensive safety plan.
  - Conduct safety training for all workers.
  - Regularly inspect the site for hazards.
- Implement environmental protection measures:
  - Address erosion control, stormwater management, and waste disposal.
  - Monitor noise levels and air quality.
  - Comply with local environmental regulations.
- Train personnel on safety protocols:
  - Provide personal protective equipment (PPE).
  - Conduct toolbox talks on safety topics.
  - Establish a safety-first culture.
  - Agree up front on HSES KPI's and retention schemes

## 11. Stakeholder Engagement:

- Identify project stakeholders:
  - List all relevant parties (owners, regulators, neighbors).
  - Understand their interests and concerns.
  - Prioritize communication based on stakeholder impact.
- Develop a stakeholder engagement plan:
  - Define communication channels for each stakeholder group.
  - Schedule regular updates or meetings.
  - Address feedback and manage expectations.
- Communicate progress and address concerns:
  - Provide project status reports.
  - Be transparent about challenges and milestones.
  - Address any community or neighbor inquiries promptly.

## 12. Exit Strategy:

- Define project completion criteria:
  - Identify deliverables (completed structures, documentation).
  - Confirm client acceptance.
  - Obtain necessary permits and approvals.
- Plan for project handover or transition:
  - Document as-built drawings and specifications.
  - Transfer warranties and maintenance manuals.
  - Conduct a final walkthrough with the client.
- Discuss future collaboration opportunities:
  - Evaluate lessons learned.
  - Explore joint ventures or partnerships for future projects.
  - Maintain a positive relationship for potential referrals.

Effective teamwork and thorough planning are key to successful project execution.

## Best Practices in Collaboration

Some best practices to enhance collaboration in construction are outlined below. These complement the comprehensive checklist outlined previously:

- **Transparent Communication:**
  - Foster open and honest communication among team members.
  - Regularly share project updates, challenges, and progress.
  - Use collaboration tools to streamline communication .
- **Shared Goals and Objectives:**
  - Define clear project goals and objectives.
  - Ensure alignment among all stakeholders.
  - Prioritize meeting shared goals over individual interests.
- **Conflict Resolution:**
  - Anticipate conflicts and address them promptly.
  - Encourage respectful dialogue.
  - Seek win-win solutions to maintain collaboration.

- **Regular Team Meetings:**
  - Schedule regular team meetings (weekly or biweekly).
  - Discuss project status, milestones, and challenges.
  - Keep everyone informed and aligned.
- **Clear Documentation:**
  - Document decisions, changes, and project details.
  - Maintain a central repository for project documents.
    - Establishing and standing up an effective document control system is a “day zero” activity.
  - Ensure consistency in record-keeping.
- **Roles and Responsibilities:**
  - Clearly define roles for each team member.
  - Assign responsibilities based on expertise.
  - Avoid overlapping or ambiguous roles.
- **Embrace Diversity:**
  - Value diverse perspectives and backgrounds.
  - Encourage collaboration across disciplines.
  - Embrace different problem-solving approaches.
- **Collaboration Tools:**
  - Utilize technology for seamless collaboration.
  - Use project management software, BIM tools, and cloud platforms.
  - Enable real-time data sharing and access .
- **Accountability:**
  - Hold team members accountable for their tasks.
  - Monitor progress and address delays promptly.
  - Encourage ownership and commitment.
- **Human Interaction:**
  - Build relationships beyond project tasks.
  - Foster trust through face-to-face interactions.
  - Understand individual motivations and concerns.

Successful collaboration is a continuous effort that requires commitment, adaptability, and a shared vision.

## Effective Risk Management in Construction Collaborations

Effective risk management during collaboration in construction is crucial for project success. Strategies to ensure robust risk management include:

- **Shared Risk Appetite**
  - Partners may have different views not only on project risks but importantly, very different risk appetites.
  - Risk appetites should be formally discussed.
- **Collaborative Risk Assessment:**
  - Involve all stakeholders in identifying and assessing risks.
  - Encourage diverse perspectives to uncover potential blind spots.
  - Regularly review and update risk assessments throughout the project.

- **Shared Risk Registers:**
  - Maintain a centralized risk register accessible to all team members.
  - Document identified risks, their impact, and mitigation strategies.
  - Collaborate on risk response planning.
- **Transparent Communication:**
  - Foster open dialogue about risks.
  - Share lessons learned from past projects.
  - Address concerns promptly to prevent escalation.
- **Clear Roles and Responsibilities:**
  - Define who is responsible for monitoring and mitigating specific risks.
  - Ensure accountability for risk management tasks.
  - Avoid assumptions by clarifying roles upfront.
- **Risk Mitigation Workshops:**
  - Conduct collaborative workshops to brainstorm risk mitigation strategies.
  - Involve cross-functional teams to explore creative solutions.
  - Prioritize actions based on feasibility and impact.
- **Integrated Project Management Tools:**
  - Use collaborative software platforms for risk tracking.
  - Monitor risk indicators, thresholds, and triggers.
  - Enable real-time communication and updates.
- **Regular Risk Reviews:**
  - Schedule recurring risk review meetings.
  - Assess progress on risk mitigation actions.
  - Adjust strategies as needed based on changing project conditions.

Effective risk management requires a collective effort, clear communication, and proactive planning.

## Elements of a Teaming Agreement

A well-drafted teaming agreement between two construction companies is essential for successful collaboration. Below, key terms and conditions are outlined that should be included in such an agreement. Special market, client, project or locational factors will shape the various elements of a teaming agreement and may require very specialized elements in some cases.

- **Purpose and Scope:**
  - Clearly state the purpose of the teaming agreement (e.g., joint bidding on a specific project).
  - Define the scope of collaboration (e.g., design, construction, or both).
- **Roles and Responsibilities:**
  - Specify each party's role:
    - The "prime contractor" (lead company) responsible for overall project management.
    - The "subcontractor" (partner company) contributing specific services or expertise.
  - Detail responsibilities, such as design, procurement, and execution.
  - Leadership and responsibilities with respect to contract negotiation and other pre-award activities
- **Project Identification:**
  - Identify the specific project or opportunity covered by the teaming agreement.

- Include project details (name, location, owner, contract value).
- **Duration and Termination:**
  - Define the agreement's duration (start and end dates).
  - Address termination conditions (e.g., mutual agreement, failure to win the contract).
- **Exclusivity or Non-Exclusivity:**
  - Specify whether the teaming agreement is exclusive (only for this project) or non-exclusive (allows other collaborations).
- **Confidentiality and Non-Disclosure:**
  - Protect sensitive information shared during collaboration.
  - Outline obligations regarding confidential data (designs, pricing, strategies).
- **Subcontracting and Subcontractor Approval:**
  - Address subcontracting by the subcontractor (partner company).
  - Specify approval processes for subcontractors (if any).
- **Profit Sharing and Payment Terms:**
  - Detail how profits will be shared (percentage split or fixed fee).
  - Clarify payment terms (milestones, invoicing, retention).
- **Dispute Resolution:**
  - Specify dispute resolution mechanisms (mediation, arbitration, litigation).
  - Define governing law and jurisdiction.
- **Intellectual Property (IP):**
  - Address ownership of IP created during collaboration.
  - Determine licensing rights for project-related IP.
- **Liability and Indemnification:**
  - Allocate liability between parties (e.g., for defects, delays, or safety issues).
  - Include indemnification clauses to protect against third-party claims.
- **Insurance Requirements:**
  - Specify insurance coverage required for the project.
  - Detail minimum limits and types of coverage.
- **Change Orders and Amendments:**
  - Address how changes to the project scope will be handled.
  - Include procedures for amending the agreement.
- **Notices and Communication:**
  - Define how formal notices will be delivered (email, certified mail).
  - Establish points of contact for communication.
- **Representations and Warranties:**
  - Include representations about each party's qualifications, experience, and financial stability.
  - Provide warranties related to the accuracy of information provided.

Consulting legal counsel is essential to tailor the teaming agreement to specific circumstances and comply with local laws.

## Summary

Effective teaming in the construction industry is essential for navigating the complexities of modern projects. By addressing collaboration challenges, establishing clear roles and responsibilities, and implementing best practices, construction firms can significantly enhance their chances of success. The foundation laid during the initial stages of a project is crucial, as it sets the tone for communication, resource allocation, and overall project execution.

To ensure a successful collaboration, it is vital for all parties involved to remain committed to shared goals and maintain open lines of communication. By fostering a culture of transparency and accountability, teams can mitigate risks and adapt to challenges as they arise.

#### **Actionable Recommendations:**

1. **Establish Clear Communication Protocols:** Implement a centralized communication platform to ensure all team members have access to the latest project updates, documents, and changes. Schedule regular meetings to discuss progress and address any concerns.
2. **Define Roles and Responsibilities:** Clearly outline the roles and responsibilities of each team member at the outset of the project. This will help prevent overlaps and ambiguities, ensuring that everyone understands their contributions to the project.
3. **Develop a Comprehensive Risk Management Plan:** Identify potential risks early in the project and develop strategies to mitigate them. Regularly review and update the risk management plan as the project progresses.
4. **Foster a Collaborative Culture:** Encourage team members to share their expertise and perspectives. Embrace diversity in problem-solving approaches and create an environment where all voices are heard.
5. **Monitor and Evaluate Performance:** Establish key performance indicators (KPIs) to track project progress and team performance. Regularly assess these metrics to identify areas for improvement and celebrate successes.

By implementing these recommendations, construction firms can enhance their collaborative efforts, leading to more successful project outcomes and stronger partnerships in the industry.

#### **For Further Reading – Other Executive Insights**

- Earned Schedule <https://www.naocon.org/wp-content/uploads/Earned-Schedule.pdf>
- Developing the Project Charter <https://www.naocon.org/wp-content/uploads/Developing-the-Project-Charter.pdf>
- Project Planning <https://www.naocon.org/wp-content/uploads/Project-Planning.pdf>
- Ensuring Project Quality <https://www.naocon.org/wp-content/uploads/Ensuring-Project-Quality.pdf>

#### **About the Author**

Bob Prieto was elected to the National Academy of Construction in 2011. He is a senior executive who is effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering, and construction industries. Bob received the 2024 ASCE OPAL Award (Outstanding Projects and Leaders) for his Outstanding Lifetime Achievement in Management.

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