CONTROL CONCEPTS

controlconcepts.net

Project Management Toolkit

The AV Technology Partner You Need.

CONTROL CONCEPTS

Project Management Toolkit

Information Outlining Control Concepts' Business Approach and Process

Core Offerings

Our Commitment to Service
An overview of our approach to providing exceptional client service.

Project Process Flow
A graphical representation of the procedure and detailed documentation we provide to complete the programming for a typical system.

Project Initiation Checklist
A checklist that helps us to manage expectations and maintain commitments for our clients.

Site Readiness Checklist
A checklist we use to help manage critical project components including system staging and onsite testing.

Independent Offerings

Module Development Process Overview
An overview of Control Concepts' approach to the module development process.

Custom Development Two-Phased Process Overview
An overview of Control Concepts' approach to the two-phased custom development process.

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Our Commitment to Service

At Control Concepts, we are committed to providing our clients with high-quality service that is customized to their needs. We understand that proper communication and documentation contribute to the success of a system during planning, construction, and daily operation. Control Concepts places a great deal of emphasis on information exchange to ensure our clients receive the quality of service they expect.

As Part of Our Commitment to High-Quality Service, We....

Present a Professional and Customized Proposal

Our first goal is to provide our clients with a detailed proposal and business agreement at the onset of each project. This helps to ensure that our clients have a clear understanding of each party's responsibilities within a given project structure. Furthermore, by utilizing a comprehensive quotation system, we are certain that our clients know exactly what services can be expected.

Provide Thorough Review and Analysis

We review all project details including scope of work, functionality requirements, and system design and device selection (as applicable) to ensure the expectations will be met. Any concerns will be discussed in advance of implementation to avoid potential barriers to successful project completion.

Offer Collaboration and Creative Insight

At the onset of a project, our Control Functionality Specification maps the interface design and associated functionality on a page-by-page, button-by-button basis. By providing this comprehensive document, the many variables involved in the implementation of a project can be controlled effectively and efficiently. The Control Functionality Specification provides the opportunity for the client to review and provide feedback on the proposed functionality prior to programming to ensure that the outcome will meet their expectations.

Communicate and Support Client Partners

Control Concepts designates an internal lead for every project. As the key point of contact, the lead maintains regular communication with our client partners. The lead also oversees the day-to-day project plan to ensure deadlines are met and client satisfaction is achieved. This direct, collaborative approach demonstrates our commitment to the project and relationship.

Evaluate and Test for Success

Control Concepts works closely with our client's technology partners, including engineers and technicians, providing remote and onsite support as needed to complete testing. We address any outstanding items and ensure everything is fully tested and operating correctly per the Control Functionality Specification.

We review all project details including scope of work, functionality requirements, and system design and device selection (as applicable) to ensure the expectations will be met.

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Project Process Flow

Below is an explanation of the procedure we follow and the detailed documentation we provide to complete the programming for a system.

Request for Services

Project needs, equipment lists, and functional diagrams are analyzed to determine an initial scope of work for the project.

System Quote

A proposal, including development, programming, staging and onsite time, is delivered. Upon approval, the schedule is confirmed, the hardware protocol is researched, and touchpanel development begins.

Interface Design

The unique Graphic User Interface is developed based on available system documentation, the client's brand identity, and our graphic libraries.

Hardware R&D

Hardware control protocol is compiled by either drawing from our extensive library or by contacting the manufacturer directly. Based on the technical information related to the equipment, system programming research is initiated in relation to the system application.

Control Functionality Specification (CFS)

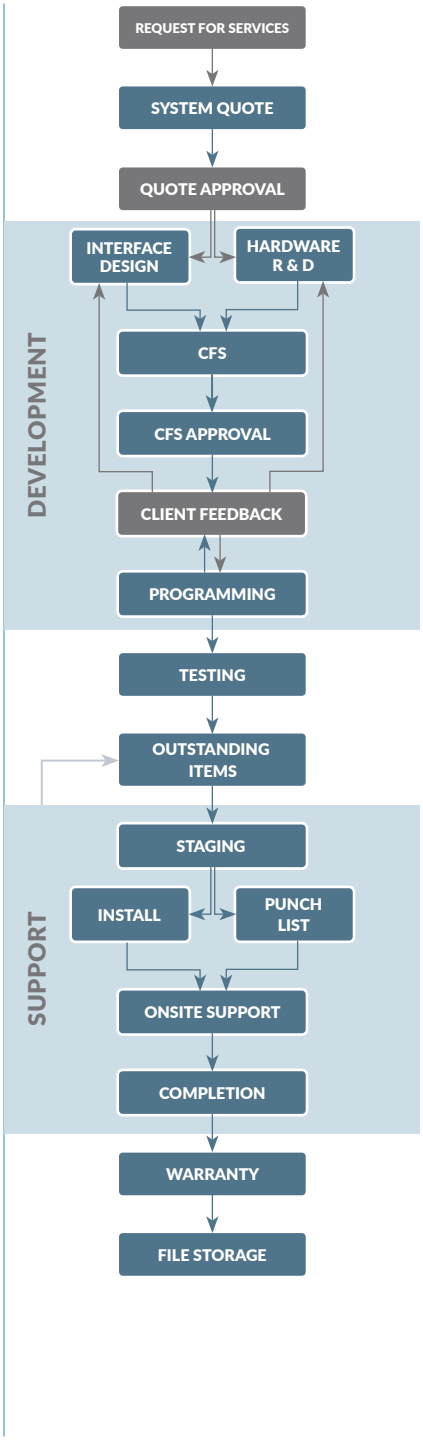
The CFS is a complete button-by-button, screen-by-screen description of an entire audiovisual system. Switcher routing, port designations, device types, model numbers, and control methods are clearly laid out to ensure quick and easy approval of a system before programming begins.

CFS Approval and Programming

Following approval of the control functionality specification, our engineers write the complex code that brings the system to life.

Testing

Upon completion of the system programming, each project is tested internally using our vast array of control system test equipment. Problems are identified and addressed prior to delivery.



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Project Process Flow

Staging

To ensure that every aspect of the project is in perfect working order and to maximize efficiency and speed of installation, we will assist in testing the system prior to delivery to the client.

Installation (by others)

When the cables are terminated and each piece of equipment is installed in its final location, the system should once again be tested to ensure proper operation. A punch list should then be generated to identify any outstanding issues.

Onsite Support

In order to ensure proper operation of the system to the satisfaction of the client and to address any outstanding issues, onsite support is arranged once the system has been completely installed and tested.

Remote Support

If any open items, within the scope of the project, are identified they will be addressed and remote phone support will be provided. Onsite support may also be arranged.

Completion

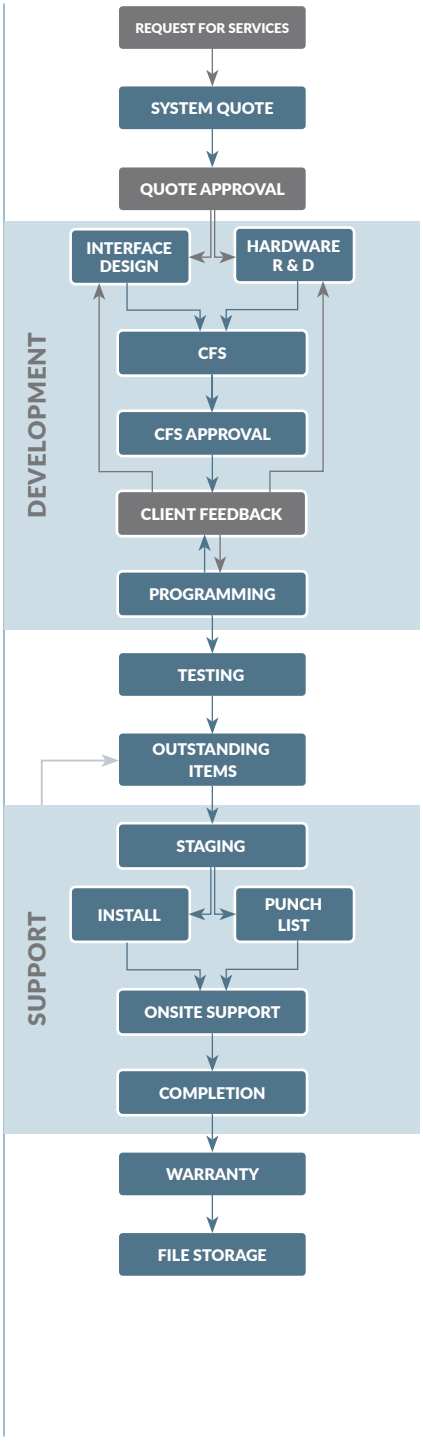
Once the onsite support has been completed, the system is signed off and the warranty period begins.

Warranty

After conclusion of a project, there is a reasonable grace period during which any final issues may be raised.

File Storage

If repairs, upgrades, or modifications are needed later, all documents and files are stored on our server during the warranty period and remotely backed up to preserve a client's exact project specifications.



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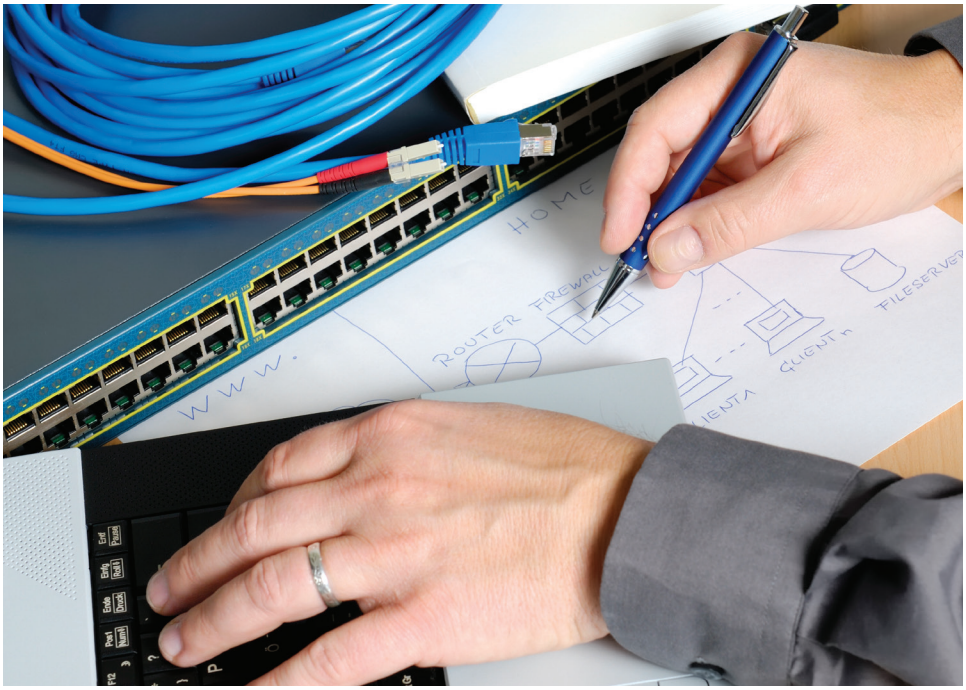
Project Initiation Checklist



Deadlines, time sensitivity, quality and accuracy are paramount to project success. At Control Concepts, we take pride in managing expectations, maintaining our commitments and coming through for our customers. In doing so, we emphasize the importance of effective and timely communication and information exchange.

Control Concepts follows a consistent, quality process for every project. This includes establishing expectations, identifying open items and defining milestones.

The following items provide the basis of information to begin the programming process. To establish the delivery timeline, it is important to gather this information at the outset of the project:

- ☐ AV and control flow shop drawings that are "Approved for Construction"
- ☐ Client logo in vector format and/or corporate branding guidelines
- ☐ System functionality description or Control System Scope of Work
- ☐ Audio DSP files with associated control programming hooks
- ☐ Resolutions to outstanding programming-related questions

Control Concepts follows a consistent, quality process for every project. This includes **establishing expectations**, **identifying open items** and **defining milestones.**

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Project Initiation Checklist

Once we kick off the project, our first step is to create a look and feel for interface design. We schedule the following milestones in conjunction with the project timeframe:

- ☐ Develop User Interface Design Concept
  - ☐ Submit sample of user interface design concept for client approval
- ☐ Approval of User Interface Design
  - ☐ Upon client approval of user interface design sample, develop the complete user interface design.
- ☐ Control Functionality Specification
  - ☐ Capture complete page-by-page description of the user interface and all of its functionality in a single document for client approval.
- ☐ Create a Control Functionality Specification
  - ☐ Receive client approval on the Control Functionality Specification.
- ☐ Programming
  - ☐ Begin writing the control program for the system based on the approved Control Functionality Specification.

At Control Concepts, we fit these milestones into the project timeline to meet the requested completion date. Typically, we allot one week between each milestone. However, this calendar can vary based on response times, deadlines and project complexity. It is important that we maintain our quality process to work effectively and efficiently. In our experience, omitting any of the above listed steps could lead to unpredictable outcomes.

Following programming, we schedule deliverables and support in line with system staging and installation, leading to smooth and successful implementation.

At Control Concepts, we fit these milestones into the project timeline to meet the requested completion date.

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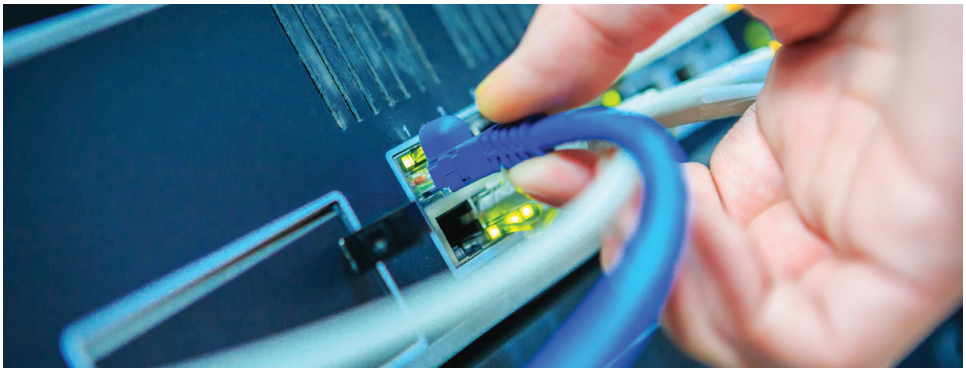
Site Readiness Checklist



System staging and onsite testing are critical components of a project process. At Control Concepts, we respect the time and money our clients invest in a project. For this reason, we ensure that system staging and onsite testing are as effective as possible. Control Concepts prepares programming fully and conducts preliminary testing in our office prior to staging or onsite testing with an integrator or client. Typically, Control Concepts programmers do not program during staging or onsite testing.

Staging

System staging provides a level of confidence in programming, internal rack wiring, equipment operation, device setup, and system functionality prior to shipping the system to the site. Doing so has proven to be a significant benefit to onsite testing and the total time required to complete the project. Knowing that a system has been tested in-house eliminates variables in the field and eases post-installation troubleshooting.

The more variables we eliminate, the easier it is to identify and address issues at every phase of the project.

Onsite Testing

Onsite testing takes place when we finalize the system and includes the following:

- Addressing punchlist items identified after system installation and set up
- Testing and making minor adjustments based on user requests and preferences

To make staging and onsite testing as effective as possible for everyone, Control Concepts developed a checklist that helps outline preparations and define expectations for staging and onsite testing.

Staging and onsite testing from Control Concepts should be reserved for:

- Testing device communications
- Confirming device setup and rack wiring
- Demonstrating system functionality
- Addressing punchlist items

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Site Readiness Checklist

Staging Readiness Checklist

- ☐ All AV equipment is installed and wired in the equipment rack
- ☐ Any changes, updates, or missing equipment has been documented and shared with all parties involved
- ☐ Field equipment such as displays, lectern and table inputs, and remote equipment has been set up and connected with temporary field cabling
- ☐ All terminations have been made
- ☐ All transport decks have been loaded and tested with the associated media
- ☐ Audio DSP equipment has been programmed and tested
- ☐ Audio conference equipment has been setup and a test call has been made
- ☐ Video conference equipment has been set up and a test call has been made
- ☐ Point-to-point testing has been completed for all sources to destinations verifying all video and audio paths
- ☐ IP addresses have been set up in all equipment requiring IP connectivity
- ☐ IP connectivity has been verified by PINGing all devices on the network
- ☐ Control system equipment has been set up with proper IDs or IP addresses and firmware has been updated
- ☐ Control system program has been loaded and device communication has been tested
- ☐ A punchlist has been generated and communicated to the programmer with any outstanding items

Onsite Readiness Checklist

If system staging has not been performed, please add the Staging Readiness Checklist to this list.

- ☐ All AV equipment has been installed and field terminations have been made
- ☐ The system has been retested with all of the results of staging being verified
- ☐ A punchlist of open items has been provided to Control Concepts in advance of the scheduled onsite date
- ☐ Ensure availability and full access to the room or rooms that are being tested for the entire day of the onsite visit

To make staging and onsite testing as effective as possible for everyone, Control Concepts developed a checklist that helps outline preparations and define expectations for staging and onsite testing.

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Module Development Process Overview

In addition, to the core projects process flow, Control Concepts offers a structured, quality process for module and driver development. Below is an overview of Control Concepts' approach to the module development process.

Request for Service

Define the scope of work and functionality. Gather details needed for the device, application, and expectations to clarify the purpose. Confirm if control system manufacturer certification is required. Once information is reviewed and defined, a quote is issued.

Receive Purchase Order

Upon receipt of the Purchase Order, demo equipment is requested for testing. The results are documented and feedback is reported and opened up for discussion.

Finalize Scope of Work

A complete version of the module functionality is compiled into a single document for approval. Any comments are designed in at this point. Once a stabilized version of protocol and firmware are locked down, the development begins. If multiple control platforms are requested, each is done individually for time efficiency during approval process.

Begin Development

In-house programming, module design, and testing begins. The Graphical User Interface is provided for review and sign off approval. Feedback and progress reports are also provided. A date for scheduled completion is then determined.

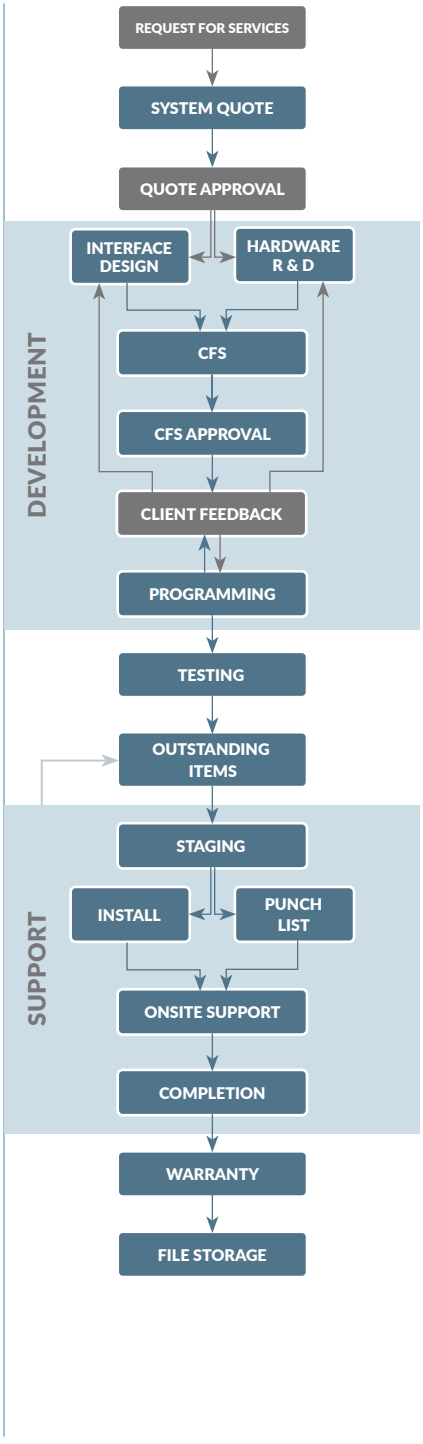
Initiate Beta Release

Programmers create deliverables for beta release. A beta version is sent to the client with feedback requested. Once the beta release is sufficiently tested and feedback is provided, open items are addressed accordingly.

Finalize Initial Release

Once the files are updated, the initial release is finalized and published or sent to the control manufacturer (if specified) for certification. Support is provided and feedback is addressed during this time. Documentation is also created.

Typical deliverables include control system modules, test program with user interface, and documentation for implementation.



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Module Development Process Overview

Commence Break-In Period

Time is allotted for field testing and feedback is to be collected. This time is also reserved to address any feedback from control system manufacturers during their certification process. During the break-in period, support is available and provided if needed.

Facilitate Sign Off

Client signs off on single platform.

Begin Next Control System Platform

Begin next control system platform (if applicable). Once modules for the first control platform are developed, tested, and accepted; programming begins for the next platform. This process leverages development time and utilizes economies of scale to work efficiently while limiting hours needed for programming.

Offer Warranty Period

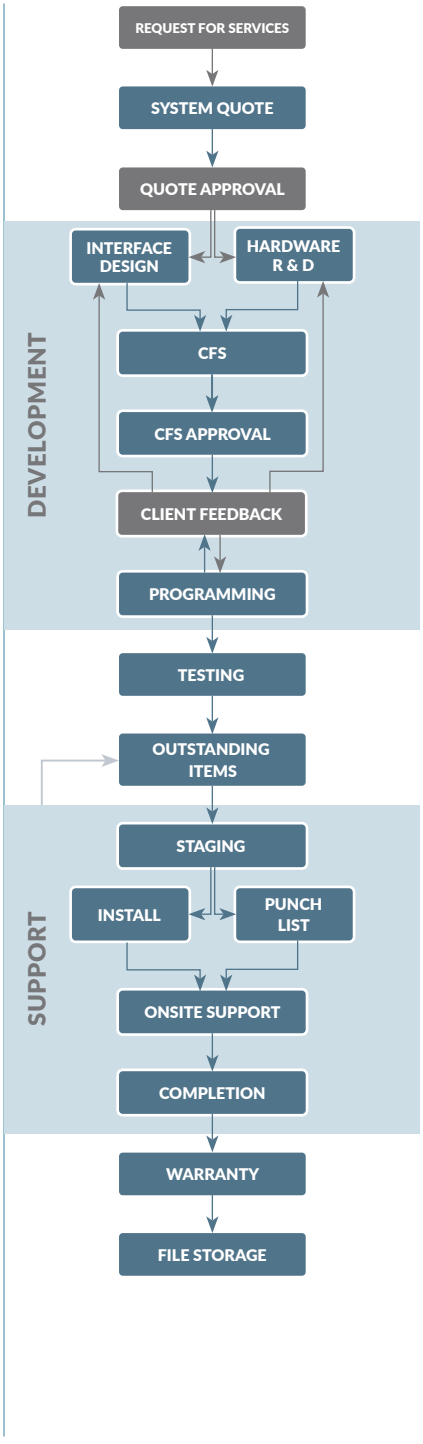
Control Concepts includes a limited warranty during which support and modifications will be provided at no charge for issues that are identified within the deliverables.

Provide Ongoing Maintenance and Support

Control Concepts provides an agreement for ongoing support, training, and maintenance. This agreement helps to further build the established relationship and ensure long-term attention.

Initiate Future Planning

Plan for upgrades for future release.



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Custom Software Development Process Overview

Control Concepts recommends a strategic planning session along with the development of a detailed Scope of Work prior to beginning a software development project. As part of this process, we take a two-phased approach. The first is consultative and entails a collaborative step of exploring ideas and solutions. The second is the actual development phase where the defined Scope of Work is implemented.

The two-phased approach helps us to plan strategically for our clients. This initial stage is critical as it allows for information gathering and proper evaluation of needs.

Phase 1: Strategic Planning & Scope of Work Development

The first phase is a collaborative process with the client to understand and capture the specific requirements for the project. From here, Control Concepts develops a clear and detailed Scope of Work which includes an overview, project purpose, and proposed solution(s). The document also includes software specifications and requirements including functionality and user interface, as well as a detailed project timeline.

During Phase 1, Control Concepts:

- Participates in virtual or in-person meetings to gather information on user needs, desires, experiences, and expectations
- Collaborates with the client to define operational needs based on research and discussions
- Leverages insights and feedback to develop potential solutions for both short and long-term needs
- Presents recommendations/Scope of Work details as well as anticipated operational of the product, application or system.
- Upon completion of phase 1 and approval of the software specification, requirements, and timeline, a proposal is generated that encompasses the effort required for phase 2
- Once the proposal is approved, the second phase will commence

Phase 2: Software Development & Testing

The second phase includes the development of software to meet the specification described in the Scope of Work produced in the first phase. This stage includes all programming, design, and testing.

During Phase 2, Control Concepts:

- Delivers software and tests and debugs programming during the implementation
- Shares progress and status throughout the development process
- Offers extended support post-implementation for ongoing needs, training and maintenance
- Provides support during the testing and warranty period